DRAFT

Section 14

Emergency Erosion Control

Westfield River

Cummington, Massachusetts

ENVIRONMENTAL ASSESSMENT

FINDING OF NO SIGNIFICANT IMPACT

&

CLEAN WATER ACT SECTION 404(B)(1) EVALUATION

January 2008

U.S. ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS
01742-2751

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ACRONYMNS AND ABBREVIATIONS

ACOE	Army Corps of Engineers
Cfs	Cubic feet per second
Cy	Cubic yard
DBH	Diameter at breast height
DD	Decision Document
DEP	Department of Environmental Protection (Massachusetts)
DO	Dissolved oxygen
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
Ft.	Feet
Lf.	Linear feet
MADEP	Massachusetts Department of Environmental Protection
MEPA	Massachusetts Environmental Policy Act
PEC	Probable Effects Concentration
RONA	Record of Non-applicability
RM	River mile
SIP	State Implementation Plan
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

1.1 Study Purpose and Need

Riverine erosion is threatening a 500 linear feet section of West Main Street in Cummington, Massachusetts (see Figure 1, Project Location Map). The project area is located in the northwestern corner of the town, on the north bank of the Westfield River. West Main Street supports mostly local residential traffic and provides access to nearby State Highway Route 9. An underground public water supply pipe and electric utility poles along the road are also threatened by the erosion. If the erosion is not addressed, a section of the road will collapse into the river, requiring local officials to close the road and relocate the water and electrical utilities.

1.2 Project Authority

Project authority for the preparation of this report is contained under the special continuing authority in Section 14 of the 1946 Flood Control Act (as amended). Section 14 allows the U.S. Army Corps of Engineers to participate in the planning and construction of economically justified erosion control projects in situations where public facilities are threatened. Due to the emergency nature of the erosion, there is a streamlined implementation process allowing the project study and design to be completed concurrently in an abbreviated time frame. The authority requires a complete comprehensive solution solving the immediate erosion problem in a manner that does not obligate or imply future federal participation. Once projects are completed they are turned over to the local non-federal sponsor. To meet time and cost targets, the Section 14 guidelines emphasize a significant reliance on professional judgment with a minimal level of detailed analysis to determine the recommended plan. Each project is assessed in terms of its effectiveness in preventing future erosion damages to the public infrastructure, long and short-term ecological affects, public acceptability and its cost effectiveness.

1.3 Purpose of the Environmental Assessment

This draft Environmental Assessment (EA) was prepared to comply with Council of Environmental Quality and Corps of Engineers regulations for implementing the National Environmental Policy Act of 1969 (NEPA). NEPA requires Federal agencies to consider the environmental effects of a proposed action and solicit comments during the planning process from government agencies and the interested public

The EA serves as a disclosure document that describes the proposed action and alternatives, environmental resources in the affected area, and the environmental effects of the proposed action. The EA also provides decision makers with sufficient information to determine whether a Finding of No Significant Impact (FONSI) or a more elaborate review, culminating in preparation of an Environmental Impact Statement (EIS), is appropriate.

The EA includes information about the alternatives considered (Section 3.0), the recommended plan (Section 4.0), the affected environment (Section 5.0), the environmental effects of the recommended plan and alternative plans (Section 6.0), measures to minimize adverse environmental effects (Section 7.0), and coordination with agencies and the interested public (Section 8.0).

The draft EA is made available for public review. The Corps will carefully consider all comments received during the public review period, and modify the draft EA as appropriate. Based on the level of anticipated environmental impacts, the Corps expects to issue a FONSI upon completion of the EA.

2.0 Problem Description and Existing Conditions

Streambank erosion of the Westfield River in West Cummington, MA is currently threatening a 500 linear foot section of West Main Street along the north bank of the river (see Location Map, Figure 1). Sections of the roadway have recently collapsed due to the undermining of the bank from high river storm flows.

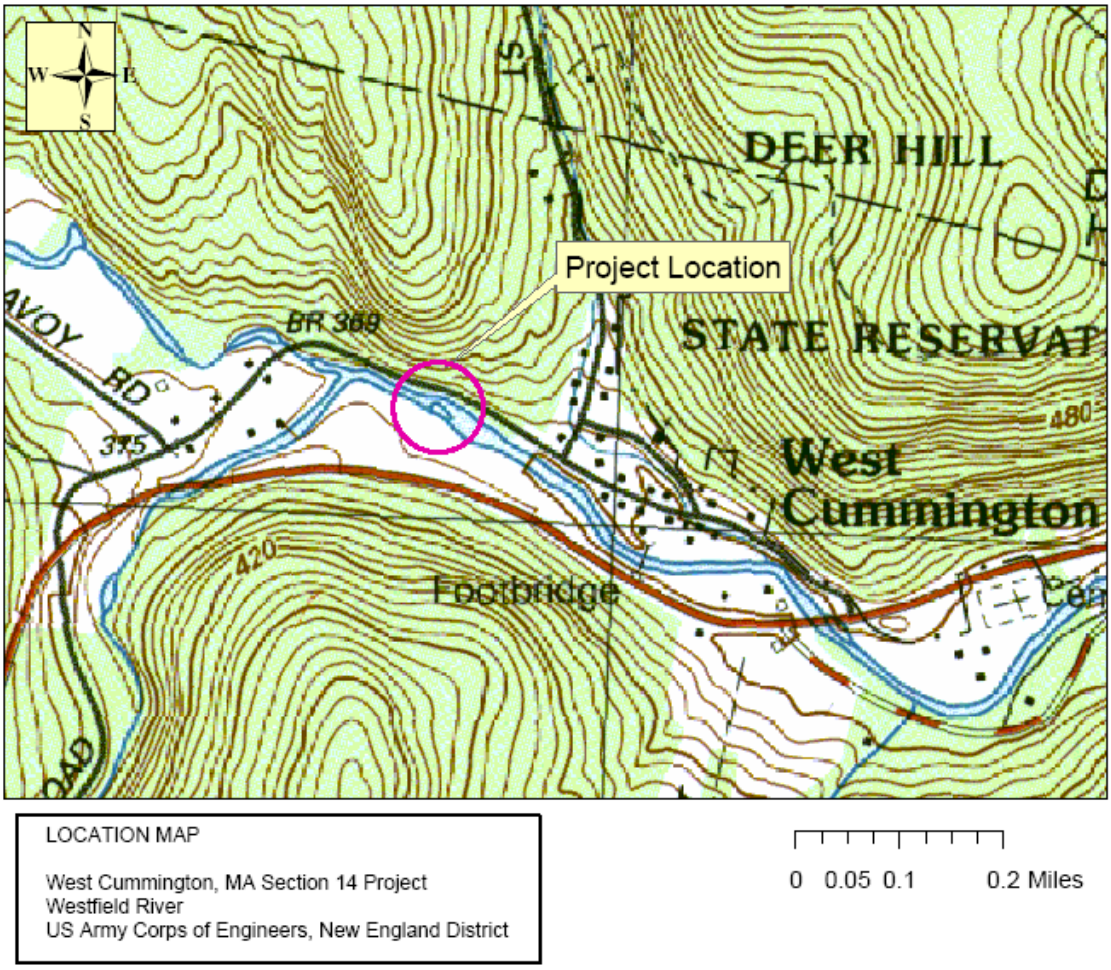


Figure 1. Location Map of Study Reach of Westfield River in West Cummington, MA.

In the study reach, the northern bank of the river channel is actively eroding and has receded to the base of the constructed bank of the roadway of West Main Street (Photograph 1). The road fill along a 500-foot section is collapsing into the river as flowing water of the river is removing material and undercutting the bank. The river bank is relatively steep and composed of rocky colluvium that is vegetated with grasses, herbs, vines, small shrubs, and a few trees. Additionally, active stream bank erosion is occurring on the southern bank in the study reach. The southern bank has shown 20 to 30 feet of recession, with vertical or undercut banks 4 feet high, composed of alluvial soils.

Photograph 1: The left (northern) bank of the river is being eroded and receding into the roadbed (looking upstream in photo). This erosion appears to be caused by aggradation of the channel bed, and formation of a new channel through the left-bank floodplain, forming an island (on left side of photo). Photo taken March 2005.

The study reach contains a large amount of deposited river sediment in the form of sands, gravel, cobbles and boulders. This accumulated sediment has formed an aggraded reach in which the longitudinal profile shows a convex shape. The design drawings accompanying this report (Figures 2, 3, and 4) include a longitudinal profile through the reach (Figures 2, after page 12). The upstream 400 feet of the aggraded reach has a flattened gradient (0% slope). The lower 300-foot portion of the reach steepens in grade to 2.3% and then reduces back to a 1% slope. Based on U.S.G.S. topographic maps, the average grade of the river is 0.6% to 1% through West Cummington, so the 2.3% grade is twice as steep as other stable sections of the river.

The longitudinal profile through this reach shows that up to 3 feet of channel aggradation has occurred, as shown by a convex profile flattening and then steepening in a down stream direction over a 800-foot reach. The aggraded sediment is estimated to have a volume of 5,500 CY. This estimate is based on drawing a 1% gradient line under the convexity in the profile to reflect a stable river gradient. The volume was derived by multiplying the area of convexity by the river average width through the reach (140 feet).

In this reach, the river has braided and almost tripled in width, from 50 feet to 140 feet. The excess sediment load deposited in the aggraded reach has developed into a series of mid-channel bars, or longitudinal bars, with length 2-3 times the width of the river in the study reach (Photograph 2).

Photograph 2. The study reach of Westfield River in West Cummington, MA (looking downstream) contains a series of vegetated islands and mid-channel bars. This aggraded reach has a flat (0%) gradient upstream of the islands and bars, and then steeps to 2% below the deposition reach. Photo taken October 2006.

The mid-channel bars have developed from divergence of flows around the aggraded sediment. The width to depth ratio (w/d ratio) of the river has increased significantly in

the aggraded reach. In relatively stable reaches upstream and downstream of the aggraded reach, the width is 50 feet, bank-full depth of approximately 4 feet, and W/D = 12. In the aggraded reach the width increases to 140 feet, bank-full depth decreases to 1.5 feet, and w/d ratio increases to approximately 90. In the stable channel reaches, the channel bottom is mostly cobbles and boulders and the channel banks are not actively eroding (Photograph 3).

Photograph 3. Westfield River (looking downstream) approximately 1,000 feet upstream of the study reach. Note that the river has a single channel, with no mid-channel bars.

A vegetated island has formed on the north side of the channel (Photograph 4). This vegetated island has apparently formed by the river eroding a channel through the floodplain, isolating the southern edge of floodplain into an island. The channel eroding through the floodplain surface may have been initiated by channel aggradation increasing the river bed elevation and flood flows until the river spilled over the floodplain surface and downcut through the back side of the floodplain on the northern bank. The island appears to have grown downstream through sand and gravel bar growth on its downstream toe over the last 20 years. The pattern of vegetation on the island is consistent with this model of island formation. The vegetation age decreases in a

Photograph 4: Northern island formed by recent development of a channel along Main Street. Note that most of the island is heavily wooded. October 2006 photograph.

downstream direction. The oldest vegetation (including mature ash and red maple) is on the portion of island that was once part of the floodplain. The progressively younger vegetation at the lower end of the island (to sparse annuals and one-year old vegetation at the downstream tip) indicates recent island growth through spit development.

The central island is shown in Photograph 5. This island is vegetated by early successional vegetation and a few small trees. The substrate is composed of sands, gravels, cobble and boulders.

The southern embankment is also eroding (Photograph 6). The eroding embankment bank is within about 30 feet of an educational kiosk maintained at a rest area off route 9 by the Commonwealth of Massachusetts. Erosion along the southern bank is aggravated by aggradation of the central island.

Under low flow conditions most of the Westfield River flows along the northern embankment. The channel between the central island and the southern embankment is largely dry during low flows (Photograph 7).

Photograph 5: This composite photo shows the central vegetated island in Westfield River, looking upstream from left bank at the island. Photo taken in October, 2006.

Photograph 6: Erosion along the southern embankment of the Westfield River. The top of bank is about 4 feet above the toe. Photo taken during low flow conditions in September, 2006.

Photograph 7: South side of the Westfield River under low flow conditions. The southern embankment is at right and the central island is at left. Photo taken in September, 2006.

A series of aerial photos from 1972 to the present reveal that the channel widened over the 40 years with the formation of mid-channel bars and formation of the northern vegetated island from what was a floodplain surface in 1972 (see Figures 4, 5, 6). Bank erosion and receding banks on both sides of the river in the widened reach are also apparent. This increased bedload and accumulated sediment may be a result of a ground disturbance or major erosional event upstream that caused a slug of sediment to enter the river. This disturbance may have occurred more than 40 years ago.

The process of mid-channel bar formation in the aggraded reach has been described by Rosgen (Applied River Morphology, 1996, pg. 6-19), stating that "excess sediment deposition is associated with corresponding increases in width/depth ratios, stream slope, [and] lateral migration." As shown by the longitudinal profile, the channel aggradation has caused channel grade steepening to 2.3% or greater in the front of the deposition zone. The steepened reach may have accelerated bank erosion by increasing flow velocities and lateral shear stress along the banks. Formation of mid-channel bars

Figure 4. Photo from 1972 shows the study reach in center of photo. The channel appears to have been developing mid-channel bar formation and increasing width to depth ratio. The left-bank floodplain appears to be still intact.

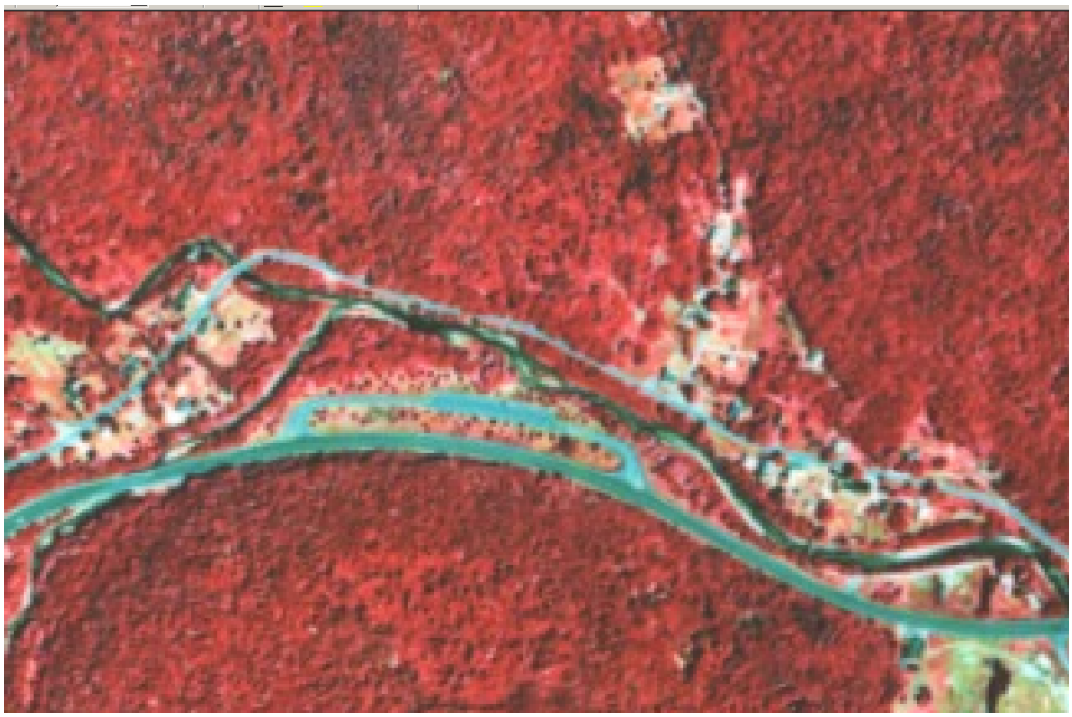


Figure 5. In this 1985 photo, mid-channel bars have formed in the study reach. However, the floodplain on the north side of the channel still appears intact with no appearance of an island having formed nor a channel developing directly alongside the road.

Figure 6. This aerial photo of Westfield River in West Cummington, MA, taken in 2000, shows the study reach in which aggradation has occurred. In this reach, the river has braided and over doubled in width from 50 feet to 140 feet. Mid-channel bars and a vegetated island have developed.

appears to have concentrated flow and increased flow velocity along the near bank regions. The aggradation also has increased flood elevations in the aggraded reach, causing increased bank contact with flood flows. Resultant bank erosion and receding banks are evident on both sides of the river in the widened reach. This phenomenon is noted by Rosgen (Applied River Morphology, 1996, pg. 6-36)), stating that "extensive bar development creates high velocity gradients, with high boundary (or near-bank) shear stress, due to the influences of bed topography that increases depth and local slope."

On the lower end of the aggraded reach, where river gradient has steepened to 2.3%, the channel contains a series of small cascades (Figure 9). The cascades may be nick-points that are eroding up-channel and migrating up channel.

Eventually the channel gradient may stabilize at approximately the 1 % grade found upstream and down stream of the aggraded reach. The channel will have downcut through the aggraded reach, mobilized much of the sediment in the aggraded reach and transported this material downstream. The result is the aggradation process progressing downstream and causing stream channel filling, channel bar formation and increasing channel width (w/d ratio increasing). The downstream reach may then develop increased bank erosion and loss of floodplain surface.

Photograph 8. The channel on the north side of the river, actively eroding the north bank along Main Street, contains a series of small cascades, or nick-points in a steepened reach of the river.

3.0 Alternatives

Alternative 1: No Federal Action.

Under this alternative streambank erosion would continue. If the town of Cummington took no action to protect the streambank, the road and associated utilities would eventually fail and need to be abandoned.

Alternative 2: Stone Slope Protection

This alternative would armor the lower and mid slope of a 620 ft. section of the stream bank with 2.5-foot thick stone slope protection (Figure 5). The upper slope would be protected with a turf reinforcement membrane overlain with 6-in of seeded topsoil. A 25 ft. wide buffer would be constructed at the base of the stone protection using material excavated from the mid-channel shoal. The buffer would be elevated about 2 feet above the normal water level and planted with trees and shrubs.

Alternative 3: Vegetated Modular Wall

Vegetated Modular wall construction involves the stacking of soil-filled PVC modular sections along the eroded bank and backfilling with random fill material. This method would provide for a nearly vertical face. Although this wall would provide effective slope protection, the cost of the alternative was higher than that for the competing riprap stone slope channel modification and buffer protection plan.

Alternative 4: Road and Utility Relocation

This alternative would relocate the road and utilities to the north of their existing location. The road is at the base of a steep hillside and extensive blasting of bedrock outcrops along the hillside's face would be required to provide room to move both the road and its utilities.

Alternative 5: Channel Modification and Bank Protection

This alternative would remove the mid channel island, fill the channel on the north side of the river (reconnecting the main island with the northern floodplain), and armor 500 feet of the shoreline. Figures 2, 3, 4 show the features of this alternative.

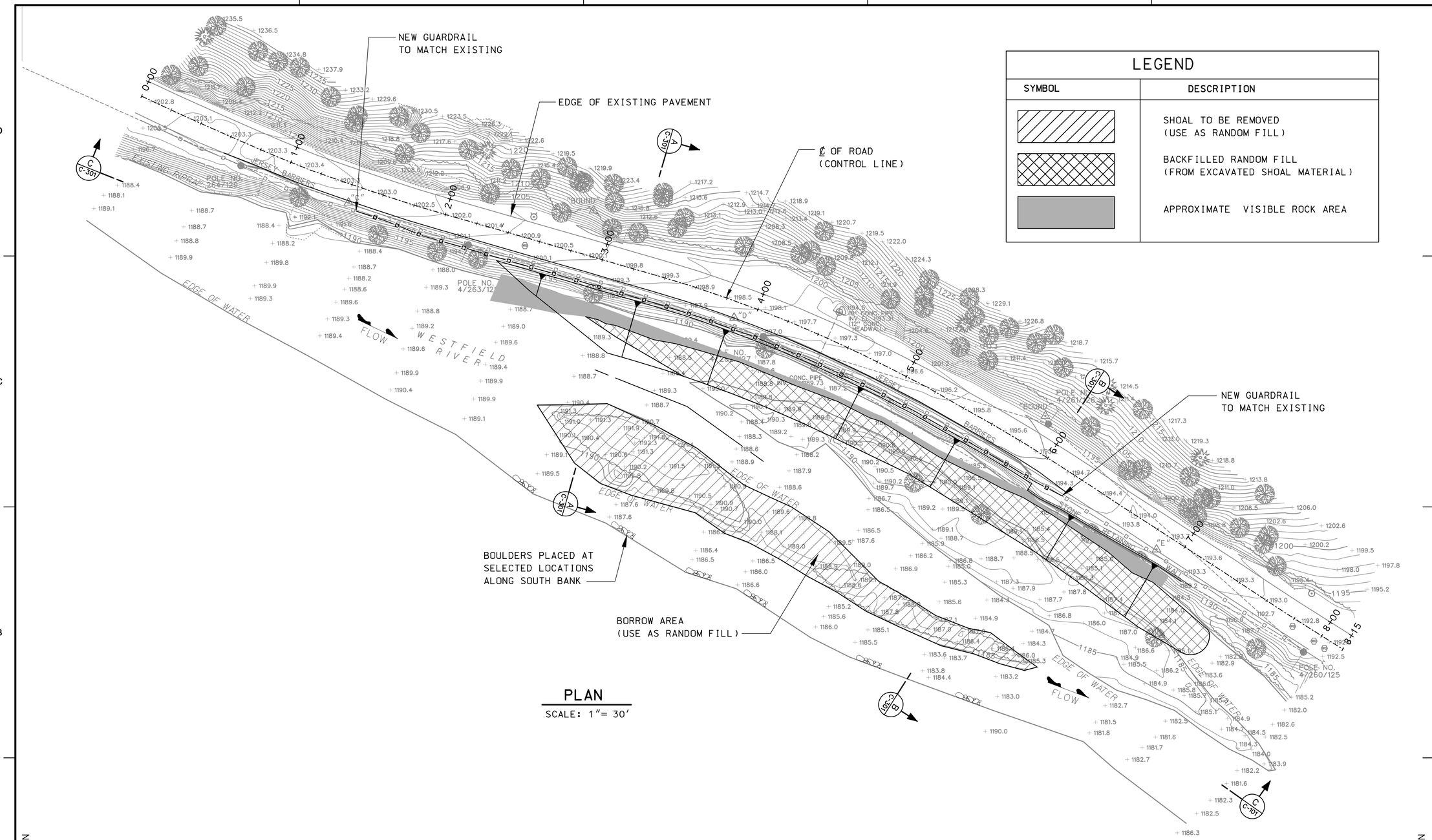
4.0 Selection and Description of the Recommended Plan

4.1 Selection of the Recommended Plan

The alternatives were evaluated based on the following factors: effectiveness, acceptability to the local sponsor (the town of Cummington), acceptability to resource and regulatory agencies, compliance with applicable laws and regulations, permitability, and cost.

Alternative 1 (No Action) was rejected because it failed to solve the problem and was unacceptable to the local sponsor. Alternative 3 (Modular Wall) was rejected due to high cost and lack of acceptance by regulatory agencies. Alternative 4 (Road and Utility Relocation) was rejected due to the cost and difficulty of construction. Relocation of the road and its associated utilities is the most expensive solution due to need for extensive bedrock removal. Based on this analysis the Corps initially proposed Alternative 2 (Stone Slope Protection). Resource and regulatory agencies expressed concerns regarding the visual impact of the slope protection, placement of fill in the stream, and loss of riparian vegetation. Based on these comments and in consultations with these agencies the Corps developed Alternative 5. This alternative is similar in cost to Alternative 2 but requires much less armoring of the bank and results in no net loss of aquatic habitat. The channel modification plan was supported by resource agencies at a March 2006 meeting interagency meeting and was thereafter selected as recommended plan.

4.2 Description of the Recommended Plan



LEGEND

SYMBOL	DESCRIPTION
	SHOAL TO BE REMOVED (USE AS RANDOM FILL)
	BACKFILLED RANDOM FILL (FROM EXCAVATED SHOAL MATERIAL)
	APPROXIMATE VISIBLE ROCK AREA

PLAN

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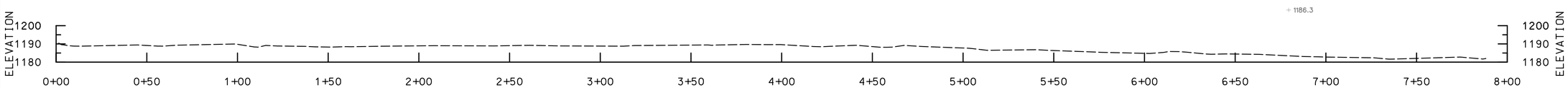

PROFILE C–C

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STREAMBANK STABILIZATION PROJECT
WESTFIELD RIVER
CUMMINGTON, MASSACHUSETTS

PLAN AND PROFILE

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SHEET 1 OF XXX

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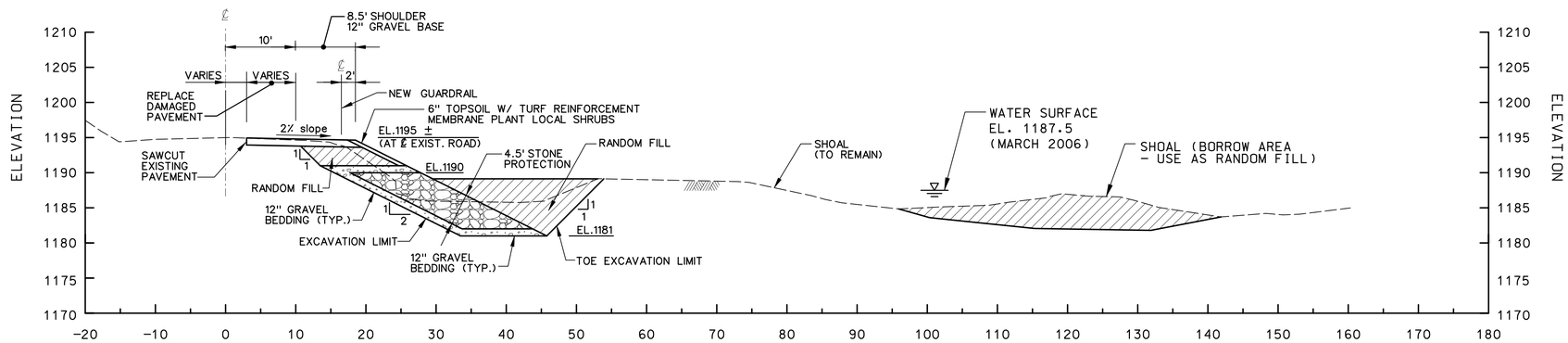

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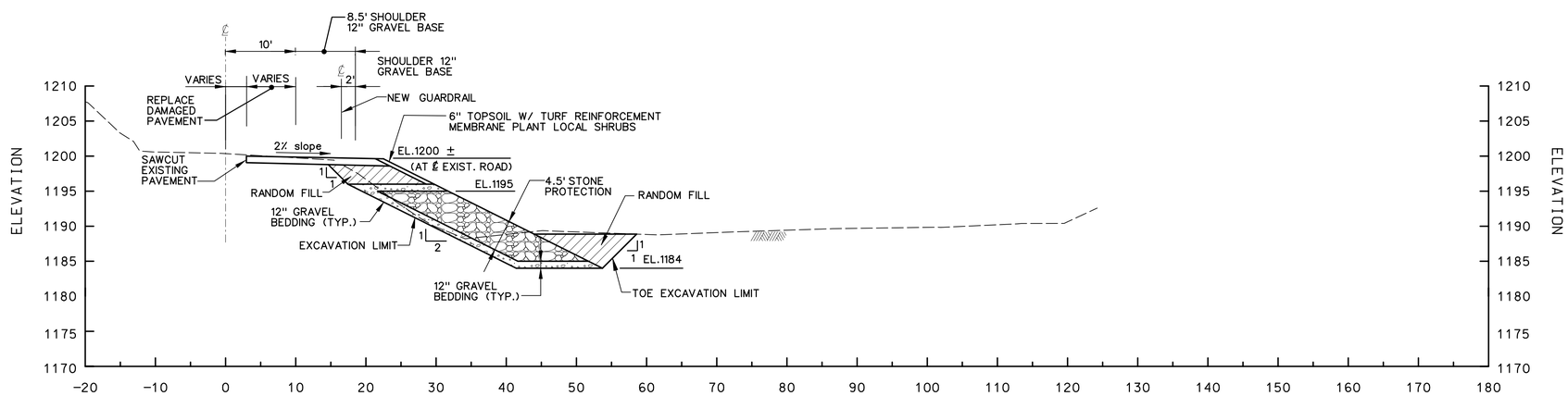

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STREAMBANK STABILIZATION PROJECT
WESTFIELD RIVER
CUMMINGTON, MASSACHUSETTS

SECTIONS

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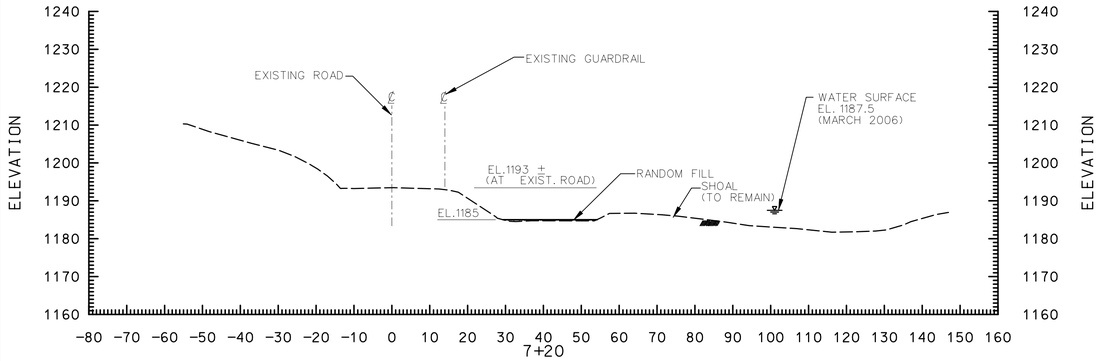

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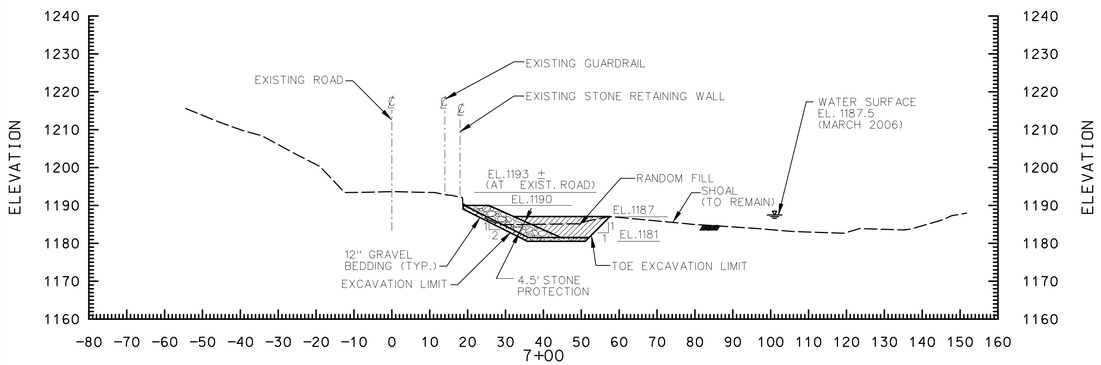

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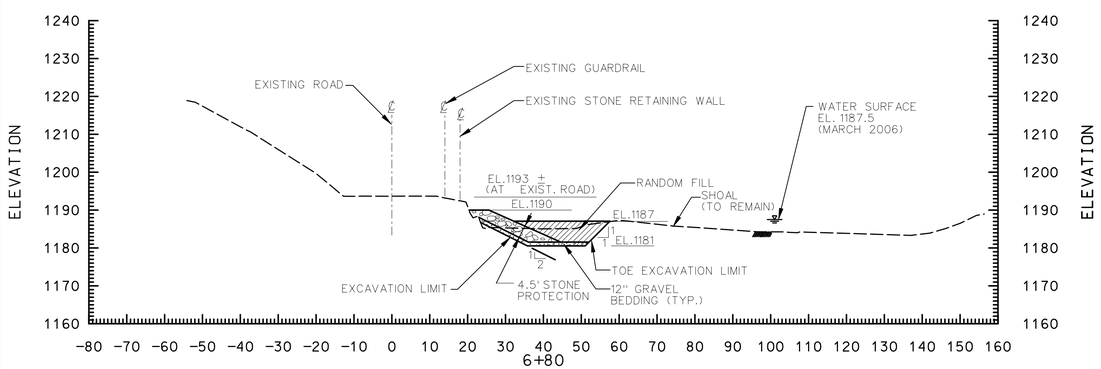

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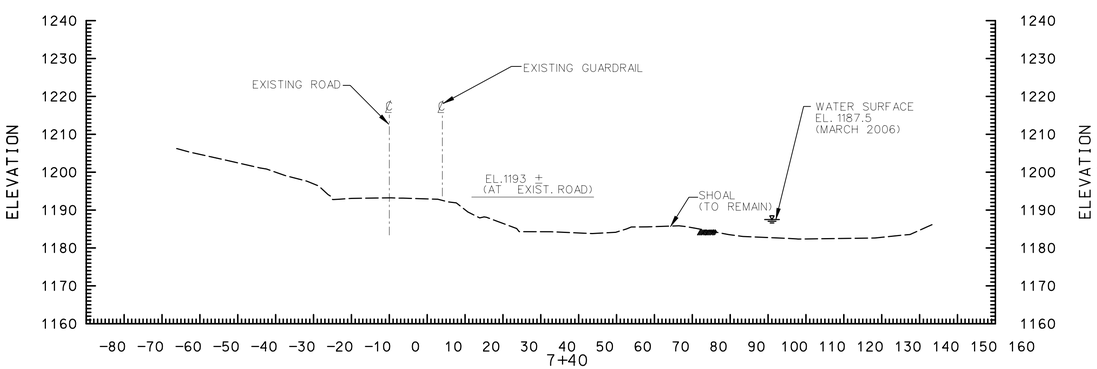

STATION 7+40

SECTIONS FROM STATION 6+80 TO 7+40

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1" = 20'

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SECTIONS FROM STATION 6+80 TO 7+40

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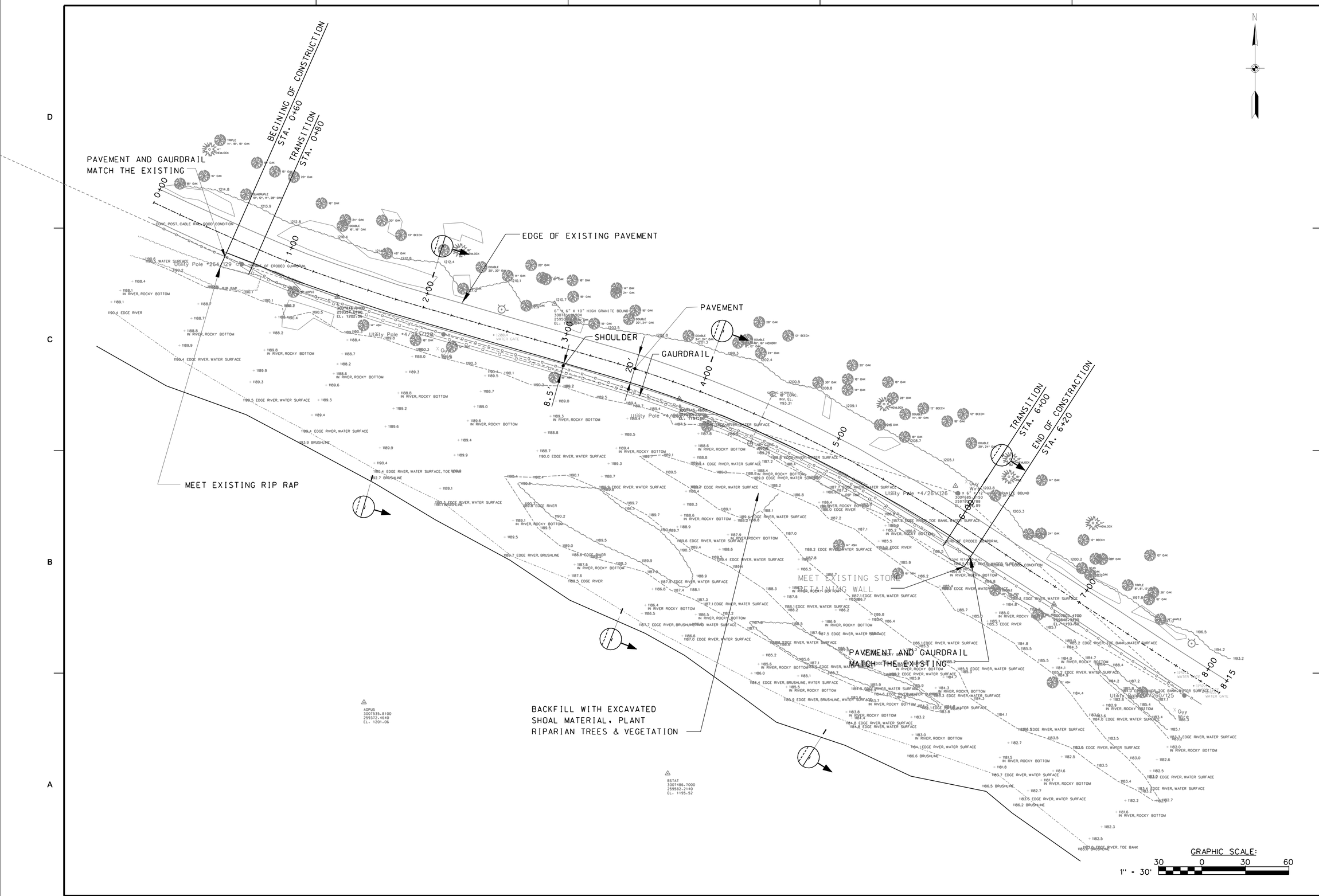

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STREAMBANK STABILIZATION PROJECT
WESTFIELD RIVER
CUMMINGTON, MASSACHUSETTS

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This alternative would remove the entire mid channel island, fill the channel on the north side of the river (reconnecting the north island with the northern floodplain), and armor a 500 ft. section of the shoreline. Figures 2, 3, and 4 show the features of this alternative. Riverine material, mostly sands, gravel, cobbles, and small boulders from a mid-channel shoal, would be used to fill the northern channel. The upstream edge of the channel plug would be protected with rock. The color of the stone protection would match the color of bedrock and boulder outcrops in the river to the extent practical. Natural looking rounded boulders would be used as much as possible in lieu of angular rock. The random fill in the restored floodplain area would be capped with 6" of sandy topsoil, seeded with a native seed mix, and planted with shrubs. Construction is projected to occur in 2008. Work in the river would occur during the low flow period (August - September) and the work area would be isolated from the river with a temporary Jersey barrier coffer dam to minimize impacts to water quality. The work is expected to take up to three months to complete. A private contractor under contract to the Corps would perform the work. The restored riparian habitat would be monitored for colonization by oriental knotweed and other invasive plant species. During and initial 2 year monitoring period, knotweed and other invasives would be removed by hand pulling or herbicide application. Knotweed control would continue during the subsequent Operation and Maintenance period.

5.0 Existing Resources

5.1 General Setting

5.1.1 Westfield River and Westfield River Watershed

The 497 sq. mile Westfield River watershed is approximately 48 miles long and 20 miles wide, extending from the Berkshire Hills in the west to the Connecticut River in the east. The watershed is bounded on the north by the Deerfield River Basin, on the east by the Connecticut River Basin, and on the west and south by the Housatonic and Farmington River Basins. The Westfield River flows into the Connecticut River at West Springfield, Massachusetts.

5.1.2 Westfield River National Wild and Scenic River

In 1968, the United States Congress established a National Wild and Scenic Rivers system to protect outstanding rivers from the harmful effects of new federal projects. To be considered "Wild and Scenic" a river must have at least one "outstandingly remarkable" natural, cultural or recreational value pursuant to federal law (Wild and Scenic Rivers Act, 16 U.S.C. 1271-1287). A Wild and Scenic designation is meant to encourage protection of the river's resources and values by landowners, regional groups, citizens and all levels of government. The Westfield River is one of two designated wild and scenic rivers in Massachusetts.

The Westfield River Wild and Scenic River includes corridors that stretch for 78.1 miles along the Westfield River and its tributaries. Designated areas include:

- 5 miles of the headwater streams of the East Branch including Drowned Land, Center and Windsor Jambs Brooks (Windsor, Savoy)
- 28 miles of the East Branch (Savoy, Windsor, Cummington, Chesterfield, Huntington)
- 13 miles of the Middle Branch (Worthington, Middlefield, Chester, Huntington)
- 0.4 miles of Glendale Brook (Middlefield)
- 14 miles of the headwater streams of the West Branch including Shaker Mill, Depot, Savery, Watson and Center Pond Brooks (Becket, Washington)
- 16 miles of the West Branch (Becket, Middlefield, Chester)
- 0.8 miles of the Main Stem (Huntington).

The Westfield River is recognized for its remarkably outstanding scenic qualities, fisheries and wildlife resources, geologic features, water quality, historic areas, wilderness qualities and unique natural and cultural characteristics sufficient. The East Branch section which includes the Section 14 study area in Cummington designated in 1993. The corridor width is 200 feet wide from mean high water, corresponding to the width of the outer riparian zone resource area of the Massachusetts River Protection Act.

5.1.3 Cummington

Cummington, a rural town in the foothills of the Berkshires, lies in the northwest corner of Hampshire County in western Massachusetts. The town is bordered by Plainfield on the north, Windsor on the west, Peru and Worthington on the southwest and south, Chesterfield on the southeast, Goshen on the east, and Ashfield on the northeast. Cummington is 24 miles east of Pittsfield, 32 miles southwest of Greenfield, and 114 miles west of Boston. The total land area of the town is about is 23 sq. miles

Two main roads serve Cummington. Route 9, running east/west, is the primary highway linking Cummington to Pittsfield, Northampton, and Interstate 91. Route 112 runs north/south, connecting Cummington to Franklin County to the east and the rest of Hampshire County to the south.

5.2 Topography, Soils, Geology, and Climate

Cummington lies within a transitional region between the flat land of the Connecticut River Valley and the higher elevations of the Berkshire Highlands. This area is known as the "Berkshire Transition" ecoregion (Griffith, et al. 1999). The town's steepest terrain is found along the river, particularly around the village of West Cummington in the northwest corner of town. Bryant Mountain, across from West Cummington, has an elevation of 2,160 feet and is the town's highest point.

The region is underlain by metamorphic rock, mainly granite, gneiss, and schist bedrock. The most recent glacial advance scoured the landscape, deepening and

widening valleys, and eroding bedrock and previous glacial deposits. Upon their retreat, the glaciers covered the land with deposits of glacial till. Cummington's soils are formed from these deposits. The major soil associations in Cummington are the Lyman-Tunbridge-Peru and the Westminster-Millsite associations. Both were formed in thin deposits of glacial till, derived from schist bedrock, and are very acidic and shallow to bedrock (Town of Communington, 2007).

The climate of Cummington is typical of interior New England areas, with warm summers and cold winters. Average daily temrpature range from 67.3 in July to 19.9 in Janaury (Worldclimate, 2008). Normal annual precipitation 46.0", ranging from 3.1" in January to 4.6" in May.

5.3 Hydrology

The Westfield River has a drainage area of 497 sq. mile. The nearest USGS gauge to the study site is the located in Huntington, MA (drainage area = 161 miles). Average monthly flows at this station range from 110 cfs in August to 929 cfs in April (USGS, 2008). Using the USGS Streamstats program, the drainage area at the study site is 39.1 square miles. The estimated D50 (flow rate is above this level 50 % of the time) flow rate at this location is 36.8 cfs. The estimated D50 flow in August is 8 cfs. The Nature Conservancy River continuity study indicates that no dams that are barriers are located upstream of the study site (Bowdin, 2006). The nearest dam downstream on the Westfield River is the Corps of Engineers Knightville Dam in Huntington.

5.4 Water Quality

Massachusetts Surface Water Quality Standards designate the East Branch of the West River Watershed (River segment MA 32-04) as Class B, Cold Water Fishery. Class B Waters are defined in 314 CMR 4.05 as "waters designated as habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation. Where designated, these waters shall be suitable as a source of public water supply with appropriate treatment. These waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process use. These waters shall have consistently good aesthetic value". Class B Cold Water Fishery waters have dissolved oxygen levels ≥6.0 mg/L and >75% saturation unless background conditions are lower

The most recent water quality assessment of segment MA 32-04 evaluated attainment of five primary designated uses (MA DEP, 2005; Table 1). Aesthetics and aquatic life use were fully supported. The aquatic life use is supported. when suitable habitat (including water quality) is available for sustaining a native, naturally diverse, community of aquatic flora and fauna. Primary contact recreation was not supported because of elevated bacterial levels. Not enough information was available to access fish consumption or secondary contact recreation.

Table 1: Westfield River (MA32-04) Use Summary Table		
Designated Uses		Status
Aquatic Life		SUPPORT
Fish Consumption		NOT ASSESSED
Primary Contact		IMPAIRED Cause: Beach closures (based on *Enterococcus* sp. data)
Secondary Contact		NOT ASSESSED
Aesthetics		SUPPORT

5.5 Streambed and Island Substrate

The river substrate in the study area is very coarse grained, with cobble sized rock predominant (Table 2). Bedrock is exposed (gneiss) as a south plunging (approximately 30 degrees), striated, and polished surface on lower left (north) bank at 1+00 to 1+50 (add photo). Bedrock plunged into channel at water's edge, with bedrock forming channel bottom for approximately 20 feet into channel. No other definitive bedrock outcrops were observed in any other locations in the study area.

Table 2: Results of September 2006 Pebble Count Survey		
Substrate	**Diameter**	**Percent**
Bedrock		1.2
Boulder	> 2 ft.	3.5
Large cobble	6” - 2 ft.	31.8
Small cobble	2” - 6”	29.4
Pebble	0.6” - 2.0”	18.8
Gravel	2 mm – 0.6”	13.0
Sand	0.06 – 2 mm	2.4
Silt	0.004 – 0.06 mm	0
Clay	< 0.004 mm	0

Note: survey taken from north side of river (low flow channel).

No sediment or soil analysis samples are available from the study area. Given the coarse grained a nature of the substrate and largely undeveloped watershed, there is low

likelihood that concentrations of contaminants in the sediment exceed probable effect limits (PELs) established to protect aquatic life.

The left (north) bank 3+00 to 6+00 showed exposed boulders and cobbles at base of roadbed that were recently exposed from lateral channel erosion. Additionally, a layer of subrounded boulders and cobbles are present at 4+00 to 4+50, possibly dumped over bank from road. The south bank is severely eroded, with exposed cobbles and boulders up to 4 feet in diameter (see Photograph 6).

Excavation holes in the southern mid-channel bar exhibited the following strata in May of 2007:

Hole 1(3+25)	1190.4 - 1190.0 coarse sand, interspersing large cobbles and boulders up to 3 ft diameter; 1190.0 - 1188.0 cobbles and boulders; 1188.0 refusal (large sub-rounded boulder)
Hole 2 (4+50)	Center of Island, approximately 100 feet ESE of Cross Section A, in a small gully across island:1188.1 - 1188.0 gravel, interspersing large cobbles and boulders up to 2 ft diameter; 1188.0 - 1185.6 cobbles and boulders 1185.6 refusal - rock surface
Hole 3 (6+00)	Cross Section B: 1186.6 coarse sand, interspersing large cobbles; 1186.6 - 1184.6 cobbles and boulders; 1184.6 refusal (sub-rounded boulder, some movement from pry bar)

5.6 Biological Resources

5.6.1 Vegetation

Vegetation in the study area was surveyed in November of 2004 and September of 2006. Vegetation growing on the northern embankment, the two islands, and the southern embankment is described below. Table 3 lists species observed in each of these areas.

Streambank

Vegetation growing along the northern embankment from station 1+00 to 8+00 consists of grasses, herbs, vines small shrubs and saplings, and scattered trees. Vegetative cover throughout the reach is < 75 percent and often 100 percent. The plant community is disturbed by periodic mowing by the Town of Cummington to keep the area free of woody vegetation. The town does this to increase sun exposure on the road to reduce icing. There are about 25 trees >4” dbh growing along this reach. Most (70 perctn) of the trees are white ash. Other trees on the bank include red maple (20 percent) and white oak (5 percent). The dbh of ash ranges from 4 inches to 14 inches, with a median of 5”. Red maple range in diameter from 4” to 14”. Two of the largest white ash growing on the northern embankment were cored with an increment borer in 2006, and determined to be 37 and 41 years old.

The southern stream bank is heavily vegetated with trees and shrubs. The streambank is severely eroded, with exposed tree roots and a nearly vertical 4 ft. drop to the streambed. Red maple is the predominant tree along the bank. European buckthorn and willows are the predominant shrubs. Trees range in dbh up to about 12".

Mid Channel Island

The 0.20 acre mid channel island is about 315 feet long and has a maximum width of about 50 feet. The substrate consists of alluvial sand, gravel, cobble, and small (2-3 ft.) boulders. Vegetative cover on the island is about 75 percent. The lower 1/3 of the island is vegetated primarily with willows, alders, European buckthorn, and other shrubs. The upper 2/3 of the island is primarily vegetated with a diverse early successional mix of shrubs, tree saplings, herbs and grasses. There are several small trees (box elder and elm). All trees are less than about 20 ft. tall and have a dbh < 6". Overall, xx plant species were identified growing on the island (Table 3).

Northern Island

The 0.33 acre northern island is about 430 feet long and has a maximum width of about 50 feet. Most of the island is forested, with about 75 percent tree cover. The upstream tip is vegetated with herbaceous vegetation. The predominate tree species are white ash, red maple, and elm. Ash range in dbh to 12'', red maple to 6", and elm to 4". Species present in the shrub/sapling strata include alder, willows, European buckthorn, gray birch, red maple, elm, and box elder. Grasses and herbs present include golden rod, sensitive fern, bidens, deer tongue grass, asters, and reed canary grass. Vines present include oriental bittersweet, wild grape, and Virginia creeper.

Invasive Species

Large colonies of oriental knotweed occur downstream of the site. Oriental bittersweet and European buckthorn occurs on both islands. European buckthorn also grows on the northern and southern river banks.

5.6.2 Aquatic Life

Fish

Fish reported to occur in the Westfield River near the study area by the Massachusetts Division of Fish and Wildlife (R. Hartley, 2007; MA NHESP,2005, 2006; Marold 2008) are listed in Table 4. The area supports a diverse cool/coldwater fishery dominated by fluvial specialists and fluvial dependent species.

Table 4: Fish Species from the Westfield River near Cummington	
Common Name	**Scientific Name**
Atlantic Salmon	Salmo salar
Blacknose Dace	Rhinichthys atra
Bridle Shiner	*Notropis bifrenatus*
Brook Trout	*Salvelinus fontinalis*
Brown Trout	Salmo trutta
Common Shiner	Luxilus cornutus
Golden Shiner	*Notemigonus crysoleucas*
Lake Chub	*Couesius plumbeus*
Longnose Dace	Rhinicthys catar
Longnose Sucker	*Catostomus catostomus*
Pumpkinseed	*Lepomis gibbosus*
Rainbow Trout	*Oncorhynchus mykiss*
Slimy Sculpin	*Cottus cognatus*
White Sucker	*Catostomus commersoni*

*The MA DFW places riverine fish into three categories: fluvial specialists (those that require flowing water such as dace and scuplin), fluvial dependents (species that require flowing water at some time, as during reproduction such as white suckers) and generalist (species that do not require flowing water such as bluegill). Rivers with a healthy fish community should exhibit ratios of approximately 50% fluvial specialists, 25% fluvial dependents, and 25% generalists.

Anadromous and Catandromous Fish

Four species of anadromous fish, American shad, Blueback herring, Atlantic salmon, and Sea Lamprey) spawn in the Westfield River basin, and one species, Shortnose sturgeon, spawns in the Connecticut River but enters the Westfield mainstem on occasion. One catadromous fish, American eel, matures in Westfield basin streams and returns to sea to spawn (Conservationonline, 2008). The current range shad, herring, sea lamprey, and sturgeon is limited to the lower Westfield River (below the Strathmore (Woronoco) Dam in Russell. Fish counts from the lower Westfield River at the DSI Dam fish ladder in West Springfield in 2007 are summarized in the following table:

Species	Count
American Eel	131
American Shad	4,498
Atlantic Salmon	21
Sea Lamprey	1,797

Eels are distributed throughout the lower Westfield watershed and in the undammed West Branch. An eelway constructed in 2005 provides upstream passage for juvenile eel at the Strathmore Dam. Knightville Dam precludes juvenile eel from reaching Cummington and the upper reaches of the East Branch.

Historically, Atlantic salmon probably had access to nearly the entire Westfield basin, including the East Branch. Salmon were extirpated from the Connecticut River by about 1800 following construction of numerous dams. A program to reintroduce salmon to the Connecticut River began in the 1960's. Approximately 700,000 fry are currently stocked in 25 tributaries of the Westfield. Returning adult salmon are captured at the DSI dam fish ladder and trap. For every 10 adult salmon captured, one is transported upstream above the Knightville Dam and released into the East Branch to continue its spawning run upstream. The remainder are retained for breeding purposes. In 2007 137 adult salmon returned to the Connecticut River, including 21 which where captured in the Westfield River.

Atlantic salmon spawn on gravely substrates in freshwater streams during the fall (mid October to mid November). Eggs are deposited in series of depressions (redds) excavated by females, and then covered by a layer of gravel. After spawning, spent adults (known as kelts) usually return to the ocean or overwinter in freshwater and migrate to the ocean the following spring. Eggs incubate in gravel over winter, and hatch during April through early June. After hatching, larvae remain buried in gravel for about 6 weeks, while slowly absorbing attached yolk sacks. Young salmon (known as fry) emerge from redds in early summer, disperse, and establish territories. Once fry become about 40 mm long they are known as "parr". Parr develop into smolts after 1-2 years and migrate downstream in late April and May. Survival and growth of juvenile salmon in the Westfield is excellent and the river produces thousands of smolts annually. The East Branch provides excellent habitat for juvenile salmon.

Essential Fish Habitat

The 1996 amendments to the Magnunson-Stevens Fishery Conservation Management Act strengthen the ability of the National Marine Fisheries Service and the New England Fishery Management Council to protect and conserve the habitat of marine, estuarine, and anadromous finfish, mollusks, and crustaceans. This habitat is termed "essential fish habitat", and is broadly defined to include "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity."

The Connecticut River (into which the Westfield River eventually flows) has been designated Essential Fish Habitat for Atlantic salmon and for one or more life stage(s) of several marine, estuarine, and anadromous finfish species. For the 10’ x10’ square of latitude and longitude which extends from the Connecticut River toward Saltworks Bay, Money Point and Long Rock, the managed EFH species listed are Atlantic salmon, pollock, red hake, windowpane flounder, Atlantic sea herring, bluefish, king mackerel, Spanish mackerel, cobia and sand tiger shark. On the Connecticut River itself the EFH designation extends only as far as Haddam Connecticut for all designated species except

Atlantic salmon. The New England Fisheries Management Council Essential Fisheries Habitat Amendment (October 7, 1998) identifies the Connecticut River upstream from Haddam as EFH, using the criteria for designation as: all rivers where Atlantic salmon are currently present, for any of the life stages of eggs and larvae, juveniles, and adults. As noted previously, the Connecticut River historically supported Atlantic salmon, and has been the subject of ongoing Atlantic salmon restoration efforts, which have resulted in the release of pre-spawning adults to areas upstream of the Knightville Dam. In addition, the Westfield River, the East Branch, and many of its tributaries provide habitat for Atlantic salmon fry and parr.

Stream Macro-invertebrates

The MA Division of Watershed Management (MADWM) DWM conducted a modified Rapid Bioassessment Protocol III (RBP III) benthic macro invertebrate survey in the Westfield River in 2001 (MADEP, 2005). The East Branch sampling station was located downstream from the Knightville Dam in Huntington (Station WR01). The benthic community at this station was diverse and was considered to represent the "least-impacted" conditions in the watershed. The Corps collected 2 kick-net macroinvertebrate samples from the Cummington study area in the fall of 2006. Cursory examination of the samples showed a diverse community composed of caddisfly, mayfly, stonefly, dragonfly, cranefly, and dobsonfly larvae. Chironomid and other fly larvae indicative of organic enrichment were uncommon. The samples are archived should further analysis be required.

Five species of freshwater mussel occur in the mainstem Westfield River. The Corps conducted a freshwater mussel (view bucket) survey in the study area in the September of 2006. No mussels were founds during the 30 minute search. Freshwater mussels burrow into soft substrates and the substrate in the study is too rocky to provide good freshwater mussel habitat.

5.6.3 Wildlife Habitat

There is a continuous strip of riparian habitat along the Westfield River throughout the study area. Riparian habitat is best developed on the southern embankment where it is generally at least 50 feet wide and well wooded. Riparian habitat along the northern (eroding) embankment has low wildlife habitat value. Value is low due to the narrow width (10-15 ft), lack of mature shrub cover, sparse tree cover, close proximity to old Route 9, and yearly disturbance (mowing) by the Town of Cummington.

The northern island is well wooded and provides habitat functions such as cover, nesting habitat, and food sources for songbirds and small mammals. The central island provides wildlife habitat functions, primarily by supporting a diverse array of wildlife food plants. Its nesting habitat value is limited by small size. No bird nests were noted on the central island in October of 2004 or September of 2006.

About 30 percent of the trees on the northern embankment are large enough (>8" dbh, see Tubbs et al., 1987) to provide potential nesting habitat for cavity nesting species such as downy woodpecker, black capped chickadee, bluebird, and wrens. None of the trees on the central island are large enough to provide nesting habitat for cavity nesters. About 10 percent of the trees on the northern island exceed 8" dbh so may provide nesting habitat for cavity nesters. Dead wood (snags) on both islands provide foraging habitat for insectivorous birds.

The dominant tree species, white ash and red maple, produce seeds which provide food for songbirds and/or small mammals. Many of the shrubs and vines growing on the islands and along the river are good wildlife food plants. These include buckthorn, wild grape, willows, and Virginia creeper. The food value of oriental bittersweet, a common vine, is low.

There are no mapped potential or actual (certified) vernal pools within 0.5 miles of the study area so the riparian corridor is unlikely to provide significant habitat for tree frogs, mole salamanders, or other species that require vernal pools for breeding. Other frogs such as green frog which use riparian habitat may occur in the area.

Downed logs, boulders, and cobbles along the island shoreline provide emergence sites for dragonfly larvae and basking sites for any amphibians and reptiles (snakes) inhabiting the area. Due to the swift current the area is unlikely to provide habitat for painted or snapping turtles. Wood turtle, a rare turtle species which sometimes inhabits swift flowing streams, occurs in Cummington, but is not reported from the study area by the MANHESP (see next section).

5.6.4 Rare or Protected Species

According to the MA NHESP, several state listed rare species have been found in the vicinity of the study site (NHESP, 2005; NHESP, 2006; Marold, 2008). These include 3 fish, 2 dragonflies, and 4 vascular plants (Table 5). No federally listed rare or protected species are reported to occur within or near the project area. Four of these species, riffle snaketail, lake chub, longnose sucker, and dwarf-scouring rush, occur in this section of the Westfield River. According to Misty-Anne Marold, NHESP Endangered Species review Biologist, lake chub and longnose sucker are known to occur both upstream and downstream of the study site. According to NHESP data, none of the plants are reported from within the footprint of the proposed project.

In Massachusetts Lake Chub is found only in moderate to fast flowing clear, cold streams. It prefers areas with little or no vegetation and gravel or cobble bottoms (Hartel et al. 2002; NHESP, 2003a). Spawning occurs during late spring to early summer. Eggs are demersal.

In Massachusetts, longnose suckers are most often found in cold, clear streams (Hartel et al. 2002; NHESP, 2003b). They spawn over gravel from early spring to early summer. Eggs are demersal and adhesive.

Table 5: Rare Species Reported near the Study Site.	
Common Name	**Scientific Name**
Fish	
Bridle Shiner	*Notropis bifrenatus*
Lake Chub	*Couesius plumbeus*
Longnose Sucker	*Catostomus catostomus*
Dragonfly	
Riffle Snaketail	*Ophiogomphus carolus*
Mocha Emerald	*Somatoclora elongata*
Plant	
Dwarf Scouring Rush	*Equisetum scirpoides*
Barren Strawberry	*Waldstenia fragariodes*
Hitchcock's Sedge	*Carex hitchcockiana*
Purple-Giant-hyssop	*Agastache scrophulariifolia*

Riffle snaketail typically inhabits clear, fast flowing cold, rocky streams with relatively few pools. The bottom sediment is made up of fine gravel or sand in which the nymphs burrow (NHESP, 2003c). Emergence usually takes place in late May and the adults fly throughout the month of July. In Massachusetts, breeding probably occurs from early June through late July. Mating occurs in the tree tops.

Dwarf scouring-rush is found on moist banks, seepy wooded slopes, and hillsides with springs and streams (NHESP, 1985). In Massachusetts it is known from several locations in the western part of the state.

Based on habitat preferences, Lake Chub, longnose sucker riffle snaketail (adults and larvae) may occur within or near the study area. This study did not survey the area for rare animals (fish or dragonflies). However, based on habitat features at the site, we concur with NHESP that the area may support populations of the two fish species, and the dragonfly.

Botanical surveys conducted for this study in 2004 and 2006 did not find dwarf-scouring rush or any other rare plants in the study area. Based on known habitat preferences, alone, scouring rush it is unlikely to occur on the channel islands or Westfield River embankments in the study area.

5.7 Historic and Archaeological Resources

There are no listed or known pre-contact archaeological sites in the town of Cummington. However, the assumption is that this upland area was utilized as a resource area for hunting, fishing, and at a later period, horticulture by Connecticut River tribes. The potential for pre-contact sites is greatest at the same locations chosen by European settlers, along the Westfield River in the villages of Cummington, and West Cummington. A native east-west trail is conjectured to have been along the Westfield River (Route 9) with probable fords at Swift River, Cummington Village, Forge Village, and West Cummington. Nine recorded sites have been identified in the adjacent towns of Chester and Worthington, some of them identified as part of archaeological surveys completed at Knightville Dam. It is known that the lower reaches of the Westfield River were heavily occupied during the last 3,000 years as documented by numerous sites in the towns of Westfield, Agawam, and West Springfield. It is expected that any sites situated within the Berkshire uplands in the town of Cummington would be small, and of short-term use, as resource gathering areas.

Cummington was not settled by Europeans until c. 1765. In 1762, Colonel John Cuming and 25 other proprietors purchased what was known as Township No. 5. The proprietors then sold individual tracts to prospective settlers. The first settler was reputedly Samuel Brewer who settled in 1762 and was responsible for surveying the township and individual lot boundaries (each roughly 100 acres). In c. 1765, eight Colonial families were settled in Cummington. By 1783, the community (present Cummington and Plainfield) had 851 residents, the majority from Abington and Bridgewater, with others from Northampton and Medford. Most of the Colonial Period (1675-1775) settlement was dispersed and occurred in the uplands. Homes were not constructed in the Westfield River Valley during this period because of flooding concerns and the presence of "disease breeding" marshlands. Saw and grist mills were established c 1764, but the town's early economy was most likely focused on livestock grazing, and lumbering. A smallpox hospital was established within the township's limits c. 1774, but no meetinghouse was built until c. 1782.

During the Federal Period (1775 – 1830), Cummington's population rose 44%, to its peak in 1830 of 1,261. During this period, there was a significant development of mill sites and associated industrial villages along the Westfield River; West Cummington (the location of the proposed project), Forge Village, Cummington Village, and Swift River. Cummington's major industry during this period was leather tanning. Other major products included cotton and woolen textiles. Five woolen mills and two cotton mills were established at West Cummington. The meetinghouse, begun in 1782, was completed in 1791.

In the Early Industrial Period (1830 to 1870), Cummington, like most of the hill towns in New England lost residents who moved west for better opportunities. The Cummington Fair was established in 1869 by the Hillside Agricultural Society, with the objective of encouraging young men to stay on the farms as well as promoting the best agricultural methods for the time period. Today, the Cummington Fair is the oldest regional agricultural fair in the United States, operating in the same location since 1883.

Cummington Village developed as the primary civic and commercial center, with the local church (1838) replacing the old meetinghouse on Cummington Hill. Industrial activity expanded at West Cummington, with its own church, and a street village developing along Old Route 9. Tanning continued to dominate Cummington's economy, with four tanneries in the town which employed 34 men and produced half the value of all the leather produced in the county. In West Cummington, a paper mill opened, and several other factories which produced wooden bedsteads, furniture, and broom and brush handles.

Among the notable houses of the Early Industrial Period was the William Cullen Bryant Homestead, constructed in the early 19th century and enlarged in 1866. Bryant a poet and editor of the New York Evening Post, was born in Cummington, and resettled there later in life. The Bryant Homestead is now a National Historic Landmark.

During the Late Industrial Period (1870 – 1915), the population of Cummington continued to decline. No railroads or street railways were constructed through the community, which could have assisted in keeping more of the industry intact, with a ready access to markets. Paper making became the principal industry in West Cummington. A small paper mill had been started in 1856, but the establishment of the L.L. Brown Paper Co. in 1870 became the village's largest employer. The closing of this mill in 1908 was a major blow to the town. Agricultural and dairy products were also an important component of the economy. The Cummington Creamery was a major butter producer for the region. Apples and maple syrup were also important commercial staples. Summer boardinghouses around Cummington Hill started becoming more popular during this period as well.

The Early Modern Period (1915 – 1940) saw an increasing decline in the population. In 1920, there were only 489 residents in Cummington. There was a gradual decline in the mill villages, including at West Cummington, with no new industries established to take their place in the town's economy. Dairy farming continued on Cummington Hill, and the summer tourist trade supplemented the town's economy.

From 1940 to the present, there are still few industries in Cummington. Other than a food store, delicatessen, gas station and a hardware store, there are no retail businesses in town. Residents who work in Cummington are, for the most part, self-employed farmers, entrepreneurs, artists, or part-time workers. Most of the current residents commute to their place of employment.

The proposed slope stabilization project is situated between two nodes of settlement in West Cummington. West Cummington is considered potentially eligible for the National Register of Historic Places (NR), as a fairly intact mill village district. While the mills have been demolished, there are still two churches and 23 houses, of which only four were constructed after 1868. The village still maintains integrity of character from its 19th century "heyday".

5.8 Socio-Economic Resources

5.8.1 General Setting

Socio-economic statistics for Cummington are provided in Table 6. Like other communities in rural Franklin County, Cummington is sparsely developed, with a population density well below the Massachusetts average. Cummington is not an affluent community, with median household income and home values well below statewide levels. The town has a well educated workforce and many of the employed residents are in managerial or professional occupations. There are approximately 27 businesses in the town. Most residents who work in Cummington are self-employed farmers, entrepreneurs, artists, and / or part-time workers. The town is a member of the Central Berkshire Regional School District. Standardized test (MCAS) scores for the district are above state averages.

The Massachusetts Executive Office of Energy and Environmental Affairs have mapped Environmental Justice (EJ) populations across the state. These areas are neighborhoods with high minority, non-English speaking, low-income, and foreign-born populations. Such areas are the focus of EOEEA's EJ Policy, which was developed to use state resources to ensure that EJ populations receive a strong voice in environmental decision-making. No part of Cummington is designated as an environmental justice population (MAGIS, 2006).

Table: 6: Socio-economic Information for Cummington, MA.

Statistic	Cummington	Massachusetts
Population (2000)	978	6.3 million
Population Density (persons per square mile land area, 2000)	41.4	810
Median Household Income ($, 2005)	44,400	57,184
% of Individuals below Poverty Level (1999)	6.6	9.3
Percent Unemployment (Nov 2007)	4.4	4.5
Percent non-white (1999)	6.1	15.5
Median Age (1999)	38.1	35
Percent Adults with College or Advanced Degree	40.3	33.2
MCAS Grade 10 English (%, 2007)	79	71
MCAS Grade 10 Math (%, 2007)	75	69
Median Home Value ($ 2005)	194,200	361,500

5.8.2 Infrastructure

The principal routes of travel through Cummington are Route 9, which mostly runs along side the Westfield River bisecting the town, and Route 112, which descends into Cummington from Goshen and continues into Worthington. The town maintains about 49 miles of public roads, many of which are unpaved. West Main Street in West Cummington provides a shortcut from West Cummington to those traveling to or from Route 9 west.

The town maintains two public water-supply systems for the villages of West Cummington and Cummington. West Cummington's public water system consists of a single source of supply: a gravel-packed well located off River Road on a 2.5 acre parcel acquired by the town in 1972. Water is pumped from this well through a pipe along West Main Street to a storage tank on Bush Road. Erosion along the Westfield River study site is threatening both West Main Street and the water main.

There is no sewer service in Cummington. Landowners must maintain on-site septic systems for sewage disposal.

6.0 Environmental Consequences

6.1 Overview

The recommended plan will prevent failure of a town road, West Main Street and a town water main due to ongoing streambank erosion along a section of the Westfield River. The plan would realize $87,200 in net annual benefits, and a Benefit-to-Cost Ratio (BCR) of xxx. If no action is taken to control streambank erosion, West Main Street would eventually need to be closed to traffic and the public water supply water main within the road bed would need to be relocated. Guard rails along the road have already failed and the pavement is cracked due to slumping of the road bed.

The recommended plan (Figures 2,3, and 4) will alter 500 feet of streambank with stone protection, fill in a 0.1 acre of the river, and reclaim 0.2 acre of river by removal of a mid channel island. The recommended plan has less environmental impact and is more acceptable to regulatory and resource agencies than Alternative 2 (traditional stone slope protection), the only other feasible plan.

6.2 Hydrology

The proposed plan will not significantly reduce the cross sectional area of the river and should have no impact on flood flow elevations upstream or downstream of the study area. Removal of the mid channel bar is expected to reduce erosion along the southern embankment and prevent future bank erosion problems downstream of the existing island. Overtime, if the bar were not removed, it would migrate downstream (as all alluvial bars do), narrow the channel, and likely cause additional bank erosion.

6.3 Water Quality

During construction segments of the bank undergoing excavation and restoration will be isolated from the river by coffer dams composed of material such as Jersey barriers and sand bags. This will allow most of the work to be done without affecting water quality. Some turbidity may be generated during installation and removal of coffer dams. Over topping of coffer dams by high flows also poses a risk to water quality. If this occurred while the banks were partially excavated, soil could be eroded and transported downstream. The risk of overtopping will be reduced by working during a low flow period (September – October) and by designing the coffer dam to withstand at least a 1 – 2 year return frequency storm event during the construction period. Construction activities are expected to have no adverse impact on the concentration of dissolved oxygen, nutrients, water temperature, or on other water quality parameters.

Construction of the recommended plan is expected to have no long-term adverse impact on Westfield River water quality. Stabilization of the bank will prevent the eventual failure of the road embankment which would discharge considerable soil, subsoil, and asphalt into the river.

The recommended plan was evaluated for compliance with Section 404 of the Federal Clean Water Act (see Attachment). The evaluation concluded that the proposed action is in compliance with Section 404(b)(1) guidelines.

6.4 Sediment and Soil Quality

Approximately xxx cy of material will be excavated from the embankment and road bed during construction. No chemical testing of this material is currently available. Based upon existing information, and professional judgment, material removed will include coarse grained sediments, surface soils and subsoil material consisting of sands, gravels, cobbles, and boulders. Given the proximity to an active roadway that has been sued for many years, the material may contain elevated levels of lead, PAHs, and petroleum hydrocarbons. The excavated soil and subsoil will be transported to a staging area provided by the Town of Cummington and tested for contaminants. The material will be reused or disposed according to state and federal waste regulations and policies. Material not suitable for unrestricted reuse, will be properly disposed of by the Town of Cummington. Asphalt waste will be recycled.

Material excavated from the central island (xx cy) will be used as random fill to fill the northern channel. Test pits on the island indicate this material will consists of sands, gravel, cobble, and boulders. Because of its physical composition, the material is expected to have very low levels of contaminants (below TEL levels) and does not need to be tested for contaminants.

Construction is expected to have no long-term adverse impact on sediment or soil quality.

6.5 Habitat

6.5.1 Aquatic Habitat

Construction will fill 0.1 acre of aquatic habitat in the northern channel of the Westfield River. This impact will be offset by 0.2 acre of aquatic habitat created by removal of the central island. Currently during low flow conditions, the river flows on both sides of the north island, with about 2/3 of the flow going between the island and the West Main Street embankment. Following construction the low flow channel will be along the southern shoreline of the north island. The grain size of the channel is expected to remain very coarse, dominated by sandy gravel, cobble, and occasional boulders. It's expected that the channel configuration will remain stable over the long term. As discussed in Section 2, the central island is likely a transitory feature and is not expected to redevelop. If the shoal were to the redevelop, loss of channel capacity would likely be compensated by erosion along the unprotected north side of the north island and the south embankment. Stone protection will prevent redevelopment of the north channel.

6.5.2 Riparian Habitat

Construction would eliminate 0.2 acres of riparian habitat on the central island and disturb 2000 sf of riparian habitat on the northern island. Existing bank vegetation would be cleared along a 500 foot reach of the river. The upper bank would be revegetated with grasses and planted with shrubs. Filling in the northern channel would reconnect it to shore and create about 0.1 acre of new riparian habitat, compensating for habitat lost by excavation of the central island. Some of the large woody debris (logs) accumulated at upstream end of the north island will be removed from the river and some would be relocated on the island to provide habitat. Removal of the central shoal should reduce erosion and help protect wooded riparian habitat along the southern embankment.

6.6 Biological Resources

6.6.1 Aquatic Life

Construction activities will disturb approximately 500 linear feet of the Westfield River. Progressing from upstream to downstream, sections of the work area will be isolated from the rest of the river by temporary "cells" created by Jersey barriers cofferdams or other materials. Aquatic life trapped within these areas would be lost as these areas are dewatered or excavated.

Construction activities may temporarily increase turbidity in the river downstream of the work area. Most of the material disturbed is expected to be sand or gravel which would very quickly settle out downstream. Therefore, any impacts to aquatic life will be very localized near the work area. Impacts to aquatic life will be further minimized by working during low flow period (September-October). This window will also minimize impacts to reproduction of both fish and Aquatic invertebrates. New aquatic habitat created by removal of the central island will be quickly colonized by invertebrates and fish. With a few years the invertebrate community in the newly created habitat should be similar to that in the rest of the river.

6.6.2 Riparian Vegetation

All riparian vegetation will be cleared from 500 feet along the north side of the river, approximately 1/4 of the northern island, and the central island. Approximately 20 trees > 4" dbh will be cleared the northern embankment and northern island. Most of these are white ash or red maple.

This restored streambank and filled channel area will be seeded and planted with shrubs. The area will be inundated during occasional high flows but would support many of the species found growing on the central island and north islands. The town of Cummington will likely continue to cut woody vegetation to prevent large shrubs and trees from growing on the northern embankment throughout the study area. The town believes this will reduce the traffic hazard posed by icing on West Main Street. The project is expected to reduce erosion along the southern embankment. This would help to preserve trees and shrubs growing on the heavily wooded embankment.

6.6.3 Wildlife

Construction activity will disturb wildlife inhabiting the work area for about 3 months. No loss of nesting wildlife will occur since work will likely occur in August – October, long after all nesting birds are likely to have fledged.

Loss of shrub and tree cover on the islands and embankment will temporarily diminish the habitat value of the immediate work area. Eventually shrub cover will redevelop on the embankment to the extent allowed by the Town of Cummington. Tree and shrub cover will also redevelop on filled areas within the former north channel and disturbed areas of the north island. Until regrowth of mature trees there will be fewer snags for nesting and foraging habitat for species such as chickadees, nuthatches, and woodpeckers. Food supply for birds and small mammals which use seed from mast producing trees (i.e. maple and ash) will also decline until regrowth of mature red maple and ash. Over the long-term the project will have no adverse effect of riparian habitat quality.

6.6.4 Rare or Protected Species

Several state listed rare or protected species are known to occur in the study area. The impact of the recommended plan on each of these species is discussed below.

<u>Lake Chub</u>: This species is listed as endangered in Massachusetts, occurring historically in the upper portions of the Westfield River. In Massachusetts they seem to prefer areas with moderate to fast flowing water and gravel or cobble substrate (Hartel et al, 2002). They are thought to reproduce during the spring and early summer, and deposit eggs on gravel, sand or rocky substrates. Recent surveys by the MADFW have found Lake Chub in the East Branch upstream and downstream of the study area. The actual Cummington study area was not sampled. Lake Chub could occur in the work area based on its

occurrence near the site and suitable habitat at the site. Potential impacts to Lake Chub in the study area include the injury or death of individuals during construction, habitat alternations such as increased turbidity, sedimentation, and habitat loss (i.e. filling in of the north channel). As discussed in Section 6.3, measures will be taken to minimize turbidity and reduce the sedimentation during construction. The work area will be isolated from the river by temporary coffer dams and work will occur during the low flow period (August – October). This is after the Lake Chub breeding season so eggs and young larvae, which may be especially vulnerable to sedimentation, will not present. Flow velocity in the north channel is very strong and it is unlikely to provide good habitat for any fish species, including Lake Chub. To reduce risk of loss during dewatering of the work area, the North Channel will be isolated from the river with coffer dams and immediately electrofished. All fish captured will be relocated immediately downstream of the north island. Removal of the central island will compensate for habitat lost by filling in of the north channel. The new habitat is expected to be at least equally well suited for Lake Chub and other fish as the filled channel.

Longnose Sucker: This species is listed as special concern in Massachusetts, occurring historically in the upper portions of the Westfield River and other streams in the western part of the state. In Massachusetts they are found mainly in cool streams with rocky substrates. Spawning occurs in areas that have moderate to fast currents and gravel substrates. Reproduction occurs between May and early June. They may migrate long distances to reach spawning grounds. Recent surveys by the MADFW have found Longnose sucker in the East Branch upstream and downstream of the study area. The actual Cummington study area was not sampled. Longnsoe sucker could occur in the work area based on the occurrence of known populations and suitable habitat at the site. They might also occur at the site as transients. Spawning in the area is not likely since the substrate is dominated by cobble rather than gravel. Potential impacts to Longnose sucker include the injury or death of individuals during construction, habitat alternations such as increased turbidity, sedimentation, and habitat loss (i.e. filling in of the north channel). Measures taken to protect Lake Chub (see above) will be protective of Longnose sucker and project construction is expected to have no adverse effect on this species.

Riffle Snaketail (Threatened): In Massachusetts this species is known to occur in Cummington and several other western Massachusetts towns. Larvae (nymphs) inhabit cold, rocky streams that are fast flowing with few pools. Nymphs spend much of their time burrowing in fine gravel or sandy bottom sediments. Nymphs emerge and mid May and adults breed from June through late July. Male riffle snaketail can be found on exposed rocks in streams from which they make swift patrols out over the water. Mating occurs in nearby tree tops. Potential impacts to riffle snaketail include the injury or death of larvae during construction, habitat alternations such as increased turbidity, sedimentation, and habitat loss (i.e. filling in of the north channel). Risk to larvae is considered low because the substrate in the north channel is very rocky, with little sand or gravel substrate. Time of year restrictions and measures to protect water quality for Lake Chub (see above) should be protective of riffle snaketail. Project construction is expected to have no adverse effect on the Westfield River populations of this species.

Dwarf Scouring Rush: Construction of the recommended plan is not expected to impact the Cummington dwarf scouring rush population. Based on habitat preferences of this species it is unlikely to occur in the immediate work area. It was not found in botanical surveys of the study area conducted in 2004 or 2006. The work area will be surveyed by a biologist prior to construction to provide an extra measure of safety. If dwarf scouring rush is found, it will be relocated as directed by the MANHESP.

6.6.5 Essential Fish Habitat

The proposed erosion control project is not expected to have any significant negative impacts on EFH for the designated life stages of Atlantic salmon (fry, smolts, spawning adults). During construction, erosion control measures and time of year restrictions will minimize potential impacts on fry and young parr. Because of low numbers in the river and unsuitable substrate, breeding adults are highly unlikely to spawn near the construction site. As discussed in Section 6.3, measures will be taken to minimize turbidity and reduce the sedimentation during construction. The work area will be isolated from the river by temporary coffer dams. Work will occur during the low flow period (Aug – October). To reduce risk of loss during dewatering of the work area, the North Channel will be isolated from the river with coffer dams and immediately electrofished. All fish captured will be relocated immediately downstream of the north island. Removal of the central island will compensate for habitat lost by filling in of the north channel. The new habitat is expected to be at least equally well suited for Atlantic salmon parr as the filled channel.

6.7 Historic and Archaeological Resources

The proposed plan to correct the erosion problem should have no effect on historic properties. This assessment is based on a review of background research on the history of the area and the existing conditions at the proposed project site. What remains of the riverbank is steep and slumped, and is assessed as having a low archaeological sensitivity. This is based on a lack of physical integrity caused by previous disturbance by road construction, high river levels, and the depth of alluvial deposits that have been stripped away. The proposed solution will protect the riverbank from further erosion, and will actually reconnect a part of the floodplain that was breached by the northern channel of the river.

Although the proposed project area is within the potentially NR eligible West Cummington village, it is situated between the two major nodes of settlement, so will not be visible from any of the contributing structures. The proposed solution will also have the benefit of preventing the further erosion of an east-west roadway that has been used for over 175 years. This effects determination was coordinated with the Massachusetts State Historic Preservation Officer (MA SHPO), and the Tribal Historic Preservation Officers (THPOs) of the Wampanoag, Narragansett, and Stockbridge-Munsee tribes. The MA SHPO concurred with the no effect determination (MA Historical Commission, 2008).

6.8 Socio-Economic Resources

6.8.1 Economic Benefit

The benefit of the road is valued at savings to travelers who in the absence of the road would need to travel a greater distance resulting in more travel time and greater travel cost. There are an estimated 56,600 vehicle trips over the road annually. Without the road the permanent detour would be a distance of 1.5 miles. There is an estimated travel cost time savings of $32,200 and transportation cost savings of $47,600 for a total transportation savings of $79,800.

There is also a water line that services 25 households that is endangered by erosion. The value of the water line is the reduced cost of obtaining water which is estimated at $7,400 annually. Thus total annual benefit is estimated at $87,200. Estimated annual costs are xxx. The project has a benefit to cost ratio of xxx.

6.8.2 Recreation and Aesthetics

Removing the central island should reduce erosion potential on the south bank of the river which, left unchecked, would threaten the state managed visitors area and information kiosk along Route 9. Construction activities will disrupt local use of the road by walkers and bicyclists for a few months.

A 500 foot reach of the river will be rirpapped. Views of the stone protection will be limited and this should not have a significant adverse impact on scenic qualities of the Westfield River. The protection will largely be visible only from West Main Street. The north island and riparian vegetation on the southern embankment of the river will block the view from Route 9. Attempts will be made to use stone protection that matches the color of existing rock in the river. To the extent possible, naturally weathered rock will be used rather than processed angular rock.

6.8.3 Traffic

The road will likely be closed during most of the 3 month construction period. A 1.5 mile detour will provide necessary access. Occasional traffic delays will occur to accommodate truck traffic and movement of other construction equipment. Depending on the size of trucks used by the contractor, between 50 – 100 round trips of dump trucks will be required to remove excavated material and deliver construction materials for the project. Many of these trips will likely be limited to within the town of Cummington. If the road is not fully closed, a police detail will be present during construction to assure public safety and smooth traffic flow.

6.8.4 Environmental Justice and Protection of Children

Executive Order 12898 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of an agency's programs, policies, and activities on minority populations and low-income populations. The proposed project is not expected to pose impacts upon any minority or low-income neighborhoods adjacent to or in the vicinity of the project pursuant to Executive Order 12898. Construction of the proposed project will be beneficial to all citizens of Cummington. The project would have no adverse impact on environmental justice populations mapped by the MA EOE. Therefore, no disproportionately high and adverse impacts specific to any minority or low-income neighborhood would occur as a result of the proposed project.

Executive Order 13045 "Protection of Children from Environmental Health Risks and Safety Risks" requires federal agencies to examine proposed actions to determine whether they will have disproportionately high human health or safety risks on children. During the construction phase of the proposed project, heavy construction equipment and vehicles will be transported to and stored at the site or at a nearby staging area. The actual site will be fenced off to prevent unauthorized personnel (including children) from entering the work area. There will be a temporary increase in truck traffic transporting materials to and from the site. These trucks will be limited to public roadways and increased traffic will be of short duration and temporary. Therefore, the proposed project is not expected to cause any disproportionate direct, or indirect or cumulative environmental health or safety risks to children.

6.9 Clean Air Act Conformity

U.S. Army Corps of Engineers guidance on air quality compliance is summarized in Appendix C of the Corps Planning Guidance Notebook (ER1105-2-100, Appendix C, Section C-7, pg. C-47). Section 176 (c) of the Clean Air Act (CAA) requires that Federal agencies assure that their activities are in conformance with Federally-approved CAA state implementation plans for geographic areas designated as non-attainment and maintenance areas under the CAA. The Environmental Protection Agency (EPA) General Conformity Rule to implement Section 176 (c) is found at 40 CFR Part 93. Clean Air Act compliance, specifically with EPA's General Conformity Rule, requires that all Federal agencies, including Department of the Army, review new actions and decide whether the actions would worsen an existing NAAQS violation, cause a new NAAQS violation, delay the SIP attainment schedule of the NAAQS, or otherwise contradict the State's SIP.

The Commonwealth of Massachusetts is authorized by the EPA to administer its own air emissions permit program, which is shaped by its State Implementation Plan (SIP). The SIP sets the basic strategies for implementation, maintenance, and enforcement of the National Ambient Air Quality Standards (NAAQS). The SIP is the federally enforceable plan that identifies how that state will attain and/or maintain the primary and secondary National Ambient Air Quality Standards (NAAQS) established by the EPA (EPA 2005). In Massachusetts, Federal actions must conform to the Massachusetts state

implementation plan or Federal implementation plan. The Corps must evaluate and determine if the proposed action (construction and operation) will generate air pollution emissions that aggravate a non-attainment problem or jeopardize the maintenance status of the area for ozone. When the total direct and indirect emissions caused by the operation of the Federal action/facility are less than threshold levels established in the rule (40 C.F.R. § 93.153), a Record of Non-applicability (RONA) is prepared and signed by the facility environmental coordinator.

6.9.1 Construction and Operation

Construction would occur over a total period of 2 months. Construction activity at the proposed project site would require excavators, a crane, bulldozer, dump trucks, highway trucks, pick-up trucks, front-end loaders, paving equipment, and other construction equipment such as small loaders.

During construction, equipment operating in Cummington would emit pollutants including nitrogen oxides that can lead to the formation of ozone. Excavation of the central island and installation stone slope protection and grading of the upper slope would involve vehicles transporting impervious fill and topsoil (dump trucks), and other construction equipment to and from the site. These vehicles will be in compliance with the state's vehicle emission program.

Equipment operating on the construction site (non-road construction equipment) will emit pollutants that contribute to increased levels of criteria pollutants such as carbon monoxide, nitrogen oxides, and ozone. The emissions for construction vehicles and related equipment will have an insignificant impact to local air quality.

Construction of the proposed project could cause a temporary reduction in local ambient air quality because of fugitive dust and emissions generated by construction equipment. The extent of dust generated would depend on the level of construction activity and dryness. Proper dust suppression techniques would be employed to avoid creating a nuisance for nearby residents during dry and windy weather.

In order to minimize air quality effects during construction, all construction operations would comply with applicable provisions of the Commonwealth of Massachusetts air quality control regulations pertaining to dust, odors, construction, noise, and motor vehicle emissions. No direct or indirect increases or other changes in local or regional air quality are likely to occur with the construction and operation of the proposed project.

6.9.2 General Conformity

The general conformity rule was designed to ensure that Federal actions do not impede local efforts to control air pollution. It is called a conformity rule because Federal agencies are required to demonstrate that their actions "conform with" (i.e., do not undermine) the approved SIP for their geographic area. Federal agencies make this demonstration by performing a conformity review. The conformity review is the process

used to evaluate and document project-related air pollutant emissions, local air quality impacts and the potential need for emission mitigation (Polyak and Webber, 2002). A conformity review must be performed when a Federal action generates air pollutants in a region that has been designated a non-attainment or maintenance area for one or more NAAQS. Non-attainment areas are geographic regions where the air quality fails to meet the NAAQS.

The project is located in Franklin County, Massachusetts. Franklin County is within the designated Springfield (Western Massachusetts) 8-hour ozone non-attainment area. Springfield (Western Massachusetts) has been classified as a "serious" ozone non-attainment area under the new 8-hour ozone air quality classification. The General Conformity thresholds for ozone in a serious non-attainment area have an emission rate threshold of 50 tons per year (tons/year) of VOC (volatile organic compounds) or NO_x (nitrogen oxides) (40 CFR 51.853, 7-1-04).

To conduct a general conformity review and emission inventory for the proposed emergency erosion control project, a list of construction equipment was identified using the project construction cost estimate. The first column of the emissions calculations table provides a summary equipment list (see Appendix C – Emissions Estimates). The New England District prepared calculations of the worst-case project specific emissions of NO_x and VOCs to determine whether project emissions would be under the General Conformity Trigger Levels. Because of the small scale of the project, several simplifying assumptions were applied in performing the calculations to prepare a worst-case analysis. The actual emissions would most likely be much lower, but in no case above the calculated values. For instance, the load factor is the average percentage of rated horsepower used during a source's operational profile. To simplify the calculations, we used a worst-case estimate of 1.0, or 100 percent, for all equipment. We used 12 hours per day as worst-case hours of operation for most equipment. We used the total construction duration minus non-work days (i.e. weekends and holidays) to estimate days of operation, rather than the specific days of operation for each piece of equipment. Based on these calculations, the worst-case NO_x emissions were 12.82 tons and the worst-case VOC emissions were 1.81 tons. In both cases, the total construction emissions were below the General Conformity Trigger Levels. General Conformity under the Clean Air Act, Section 176 has been evaluated for the project according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project because the total direct and indirect emissions from the project are below the conformity threshold values established at 40 CFR 93.153 (b) for ozone (NO_x and VOCs) in a serious attainment area. These calculations are presented in Appendix C – Emissions Estimates and a Record of Non Applicability for Clean Air Act Conformity (RONA) is included at the end of this Environmental Assessment.

6.10 Relative Impacts of Alternative Plans

This section briefly compares the environmental consequences of the recommended versus alternative plans (see Section 3 for a description of alternative plans). The plans differ in cost, effectiveness, habitat impacts, and aesthetic impacts (Table 7). Based on this analysis, the recommended plan is the preferred plan based on cost and effectiveness, and has minimal environmental impacts.

6.11 Cumulative Impacts

There are no other current or anticipated future actions related or unrelated to this project which would adversely affect aquatic habitat or riparian habitat along the Westfield River Cummington. The Massachusetts Rivers Protection Act provides strong protection to land near perennial streams and makes future development of riparian habitat along the river unlikely. Additional protection is afforded by the Wild and Scenic Scenic River designation. The recommended plan would follow two bank and slope stabilization projects in the immediate area. A stone retaining wall of unknown age was constructed along the road in the vicinity of the north island. This wall will be removed during project construction. Several hundred feet of the riverbank upstream proposed project is protected with rounded stone protection from bottom to near top of slope. Based on age of trees growing on the embankment, the protection was installed at least 40 years ago.

7.0 Measures to Minimize Adverse Environmental Consequences

The following actions will be implemented to reduce adverse environmental affects of the recommend plan:

a. Excavated Materials Management Plan

A plan will be developed for the handling, transport, and disposal of excavated material. The plan will include measures to minimize space required for staging areas. All staging will occur on West Main Street or in previously developed areas.

b. Erosion/Sedimentation Control and Wastewater Management Plan

A plan will be developed to protect water quality and minimize sediment transport during bank stabilization work and the removal of the mid channel island. The plan will describe measures to prevent downstream transport of sediment from the work areas. Use of temporary (Jersey barrier) coffer dams to isolate the work areas from the river is anticipated.

c. Invasive Species Monitoring and Control Plan

This plan will describe measures to prevent establishment of invasive species in restored riparian habitat.

d. Traffic Control Plan

Table 7: Comparison of Alternatives					
Alternative	Cost	Effectiveness	Riparian Habitat	Aquatic Habitat	Aesthetics - Scenic River
No Action	Not applicable but repair costs in event of bank failure could be high. Both north and south banks are at risk.	Low	Bank failure would disturb existing riparian habitat.	Discharge of material during bank failure would disturb aquatic habitat.	Adverse impact due to slope and road failure.
Stone Protection	Moderate	High. South bank remains at risk.	Herbaceous vegetation, shrubs, and some trees on top of bank.	Net loss of aquatic habitat.	Stone protection required along 800 ft of West Main Street.
Vegetated Modular Wall	High	High. South bank remains at risk.	Wall would support herbaceous vegetation and shrubs but no trees.	Small net loss of aquatic habitat.	Relatively high impact. Modular wall has artificial look and is inappropriate choice for wild and scenic river.
Road and Utility Relocation	Very High	High. South bank remains at risk.	A natural stream bank could be restored following road relocation.	No loss of aquatic habitat.	Restoration of natural stream bank possible following road relocation.
Channel Modification and Limited Stone Protection	Moderate	High. Removal of central island provides some protection to south bank.	Herbaceous vegetation, shrubs, and some trees on top of bank. Small net loss of riparian habitat due to island removal.	Small net gain of aquatic habitat due to island removal.	Stone protection required along 500 feet of West Main Street.

West Main Street will likely be closed during construction. Signage will be installed to direct traffic along alternative routes. A traffic control plan will be developed, reviewed and approved by the town officials and the Cummington Police Department.

8.0 Study Coordination

8.1 General

Coordination efforts during this study have included meetings on May 26, 2006 and February 9, 2007 with resource agencies and town officials to discuss alternative plans and their impacts.

The following is a list of agencies and groups that were coordinated with during the course of the study:

Federal Agencies
- U.S. Fish and Wildlife Service
- U.S. Natural Resources Conservation Services
- U.S. Park Service

Commonwealth of Massachusetts
- Department of Environmental Protection
- Massachusetts Division of Fisheries and Wildlife
  - Department of Fish and Game
  - Riverways Program
  - Natural Heritage and Endangered Species Program
- Massachusetts Historical Commission

Tribal Historic Preservation Officers
- Wampanoag Tribe of Gay Head (Aquinnah)
- Stockbridge-Munsee Community
- Narragansett Indian Tribe

Town of Cummington
- Conservation Commission
- Board of the Selectmen

8.2 Correspondence

During preparation of the draft EA coordination letters were sent to the following agencies on February 9 of 2005:

- United States Fish and Wildlife Service New England Field Office
- United States Environmental Protection Agency, Region I
- United States National Marine Fisheries Service
- United States National Park Service
- Massachusetts Department of Environmental Protection, Western Regional Office

- Massachusetts Division of Fisheries and Wildlife, Department of Fish and Game Western Wildlife District
- Massachusetts Division of Fisheries and Wildlife and the MA Natural Heritage and Endangered Species Program
- Westfield River Watershed Association
- Cummington Conservation Commission

Letters were sent to the following agencies on February 12, 2008:

- Massachusetts Historical Commission, State Historic Preservation Officer
- Wampanoag Tribe of Gay Head (Aquinnah) Tribal Historic Preservation Officer
- Stockbridge-Munsee Community Tribal Historic Preservation Officer
- Narragansett Indian Tribe Tribal Historic Preservation Officer

A request for Fish and Wildlife Coordination Act Report (FCAR) was sent to the United State Fish and Wildlife Service - New England Field Office in February of 2008. In the FCAR, the USFWS indicated no objection to the project with regard to the Fish and Wildlife Coordination Act. A copy of the FCAR is attached to the EA.

Letters and emails received from agencies and other interested parties include the following (copies are included in Appendix A):

- Jim MacCartney, NPS River Restoration Specialist (June 7, 2006)
- Liz Lacy, NPS (email: July 20, 2006; September 22, 2006)
- Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program (March 17, 2005 and September 26, 2006)
- Westfield River Wild and Scenic Advisory Committee (September 21, 2006)
- AMC Berkshire Chapter Canoe and Kayak Committee (September 11, 2006)
- Brona Simon, MA State Historic Preservation Officer (February 21, 2008)

8.3 Public Notice and Subsequent Coordination

A public notice announcing the availability of the Environmental Assessment for public review was issued in August of 2006. The notice was sent to approximately those known to have an interest in the Cummington project and general mailing lists maintained by New England District Regulatory Division. A copy of the public notice is provided as an attachment. Based on response to the public notice from the National Park Service and others, and subsequent coordination, the recommended plan was substantially redesigned. Principal changes included removal of the mid channel island and reduction in length of streambank protection from xx to xx feet. Agencies and town officials indicated preliminary approval for the revised plan at a February 9, 2007 meeting.

8.4 Availability of Draft Decision Document and EA

Copies of the draft EA were sent to the following federal, state, and local government agencies:

Town of Cummington Select Board
Town of Cummington Conservation Commission
U.S. National Park Service
Massachusetts Natural Heritage and Endangered Species Program
Massachusetts Department of Environmental Protection, Western Regional Office

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Worldclimate.com., 2008. Climate data for Cummington, MA.

10. Compliance with Federal Environmental Statutes, Executive Memorandum, and Executive Orders

10.1 FEDERAL STATUTES.

1. Archaeological Resources Protection Act of 1979, as amended, 16 USC 470 et seq.

Compliance: Not applicable. Project will not excavate or remove archaelogical resources located on public or Indian lands.

2. Preservation of Historic and Archeological Data Act of 1974, as amended, 16 U.S.C. 469 et seq.

Compliance: Project has been coordinated with the State Historic Preservation officer. Impacts to archaeological resources will be mitigated.

3. American Indian Religious Freedom Act of 1978, 42 U.S.C. 1996.

Compliance: Not applicable. Project will not impact access by Native Americans to sacred sites, possession of sacred objects, or freedom to worship through ceremonials and traditional rites.

4. Clean Air Act, as amended, 42 U.S.C. 7401 et seq.

Compliance: Public notice of the availability of this report to the Environmental Protection Agency is required for compliance pursuant to Sections 176c and 309 of the Clean Air Act.

5. Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972) 33 U.S.C. 1251 et seq.

Compliance: A Section 404(b)(1) Evaluation and Compliance Review will been incorporated into the project report. An application shall be filed for State Water Quality Certification pursuant to Section 401 of the Clean Water Act.

6. Coastal Zone Management Act of 1782, as amended, 16 U.S.C. 1451 et seq.

Compliance: Not applicble. The project is not located in the coastal zone.

7. Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq.

Compliance: Coordination with the U.S. Fish and Wildlife Service determined no formal consultation requirements pursuant to Section 7 of the Endangered Species Act.

8. Estuarine Areas Act, 16 U.S.C. 1221 et seq.

Compliance: Applicable only if report is being submitted to Congress. Project in not in an estuary.

9. Federal Water Project Recreation Act, as amended, 16 U.S.C. 4601-12 et seq.

Compliance: Public notice of availability to the project report to the National Park Service (NPS) and Office of Statewide Planning relative to the Federal and State comprehensive outdoor recreation plans signifies compliance with this Act.

10. Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 et seq.

Compliance: Coordination with the FWS, NMFS, and State fish and wildlife agencies signifies compliance with the Fish and Wildlife Coordination Act.

11. Land and Water Conservation Fund Act of 1965, as amended, 16 U.S.C. 4601-4 et seq.

Compliance: Public notice of the availability of this report to the National Park Service (NPS) and the Office of Statewide Planning relative to the Federal and State comprehensive outdoor recreation plans signifies compliance with this Act.

12. Marine Protection, Research, and Sanctuaries Act of 1971, as amended, 33 U.S.C. 1401 et seq.

Compliance: Not applicable. Project does not involve the transportation or disposal of dredged material in ocean waters pursuant to Sections 102 and 103 of the Act, respectively.

13. National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq.

Compliance: Coordination with the State Historic Preservation Office signifies compliance.

14. Native American Graves Protection and Repatriation Act (NAGPRA), 25 U.S.C. 3000-3013, 18 U.S.C. 1170

Compliance: Regulations implementing NAGPRA will be followed if discovery of human remains and/or funerary items occur during implementation of this project.

15. National Environmental Policy Act of 1969, as amended, 42 U.S.C 4321 et seq.

Compliance: Preparation of this Environmental Assessment signifies partial compliance with NEPA. Full compliance shall be noted at the time the Finding of No Significant Impact is issued.

16. Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.

Compliance: No requirements for projects or programs authorized by Congress. The proposed flood control and aquatic ecosystem restoration project is being conducted pursuant to the Congressionally-approved authority.

17. Watershed Protection and Flood Prevention Act as amended, 16 U.S.C 1001 et seq.

Compliance: Floodplain impacts have been considered in project planning.

18. Wild and Scenic Rivers Act, as amended, 16 U.S.C 1271 et seq.

Compliance: This project is located on a designated Wild and Scenic River. Full coordination and plan acceptance by the National Park Service and US Fish and Wildlife Service signifies compliance with this Act.

19. Magnuson-Stevens Act, as amended, 16 U.S.C. 1801 et seq.

Compliance: Not applicable.

20. Farmland Protection Policy Act, 7 U.S.C. 4201 et. seq.

Compliance: Not. applicable. The project will not contribute to the conversion of farmland to nonagricultural uses.

10.2 Executive Orders

1. Executive Order 11593, Protection and Enhancement of the Cultural Environment, 13 May 1971

Compliance: Coordination with the State Historic Preservation Officer signifies compliance.

2. Executive Order 11988, Floodplain Management, 24 May 1977 amended by Executive Order 12148, 20 July 1979.

Compliance: Project will be designed to minimize adverse effects on floodplain. Public notice of the availability of this report or public review fulfills the requirements of Executive Order 11988, Section 2(a) (2) (ii).

3. Executive Order 11990, Protection of Wetlands, 24 May 1977.

Compliance: The proposed action includes all practicable measures to minimize harm to wetlands. Public notice of the availability if this report for public review fulfills the requirements of Executive Order 11990, Section 2 (b).

4. Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, 4 January 1979.

Compliance: Not applicable. Applies to projects located outside the United States.

5. Executive Order 12898, Environmental Justice, 11 February 1994.

Compliance: Based on the findings in the EA, the proposed project is not expected to have a disproportionately high and adverse impact to minority or low income populations surrounding the project area.

6. Executive 13007, Accommodation of Sacred Sites, 24 May 1996

Compliance: Not applicable. Project is not on Federal lands where agencies must accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners, and avoid adversely affecting the physical integrity of such sacred sites.

7. Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. 21 April, 1997.

Compliance: Based on the findings in the EA, the proposed project will not create a disproportionate environmental health or safety risk for children.

8. Executive Order 13112, Invasive Species

Compliance: Project will not cause or promote introduction or spread of invasive species in the United States.

9. Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, 6 November 2000.

Compliance: Consultation with Indian Tribal Governments, where applicable, and consistent with executive memoranda, DoD Indian policy, and USACE Tribal Policy Principles signifies compliance.

10.3 Executive Memorandum

1. Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing NEPA, 11 August 1980.

Compliance: Not applicable. The project does not involve or impact agricultural lands.

2. White House Memorandum, Government-to-Government Relations with Indian Tribes, 29 April 1994.

Compliance: Consultation with Federally Recognized Indian Tribes, where appropriate, signifies compliance.

11.0 REQUIRED ENVIRONMENTAL PERMITS, EVALUATIONS, AND CERTIFICATIONS

Environmental approvals required to implement the recommend plan and regulatory authorities are listed below. The Corps of Engineers will obtain those required under the Federal Clean Water Act. Others will be acquired by the local sponsor.

11.1 Federal Responsibility

Water Quality Certification pursuant to Section 401 of the Clean Water Act and Massachusetts Water Quality Regulations (314 CMR 9.00 et. seq.). [Issued by Massachusetts Department of Environmental Protection]

404(b)(1) Evaluation pursuant to Section 404 of the Federal Clean Water Act. [Conducted by U.S. Army Corps of Engineers, New England District]

11.2 Local Sponsor Responsibility

Order of Conditions pursuant to the Massachusetts Wetlands Protection Act (310 CMR 10.00 et. seq.) [Issued by Winchester Conservation Commission]

Certificate indicating compliance with the Massachusetts Environmental Policy Act (301 CMR 11.00). [Issued by the Massachusetts Executive Office of Energy and Environmental Affairs]. An ENF is required since more than 500 feet of bank will be altered (this includes bank along West Main Street and the islands).

ATTACHMENT A

Correspondence Received

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

MassWildlife

Wayne F. MacCallum, *Director*

March 17, 2005

John R. Kennelly
Department of the Army
New England District, Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751

Re: Westfield River Bank Stabilization
Cummington, MA
NHESP File: 05-17473

Dear Mr. Kennelly,

Thank you for contacting the Natural Heritage and Endangered Species Program ("NHESP") of the MA Division of Fisheries & Wildlife for information regarding state-protected rare species at the above referenced site.

Our database indicates that the following state-listed rare species have been found in the vicinity of the site:

Scientific name	Common Name	Taxonomic Group	State Status
Ophiogomphus carolus	Riffle Snaketail	Dragonfly	Threatened
Couesius plumbeus	Lake Chub	Fish	Endangered
Somatochlora elongata	Mocha Emerald	Dragonfly	Special Concern
Catostomus catostomus	Longnose Sucker	Fish	Special Concern
Notropis bifrenatus	Bridle Shiner	Fish	Special Concern
Equisetum scirpoides	Dwarf Scouring-Rush	Plant	Special Concern
Waldsteinia fragarioides	Barren Strawberry	Plant	Special Concern
Carex hitchcockiana	Hitchcock's Sedge	Plant	Special Concern

These species are protected under the Massachusetts Endangered Species Act (M.G.L. c. 131A) and its implementing regulations (321 CMR 10.00). State-listed wildlife are also protected under the state's Wetlands Protection Act (M.G.L. c. 131, s. 40) and its implementing regulations (310 CMR 10.37 and 10.59). Fact sheets for this species can be found on our website http://www.state.ma.us/dfwele/dfw/nhesp/nhfact.htm.

This evaluation is based on the most recent information available in the NHESP database, which is constantly being expanded and updated through ongoing research and inventory. Should your site plans change, or new rare species information become available, this evaluation may be reconsidered.

If you have any questions regarding this review, please call Joanne Theriault, Environmental Review Assistant. at ext. 310.

Sincerely,

Thomas W. French

Thomas W. French, Ph.D.
Assistant Director

-----Original Message-----
From: Liz_Lacy@nps.gov [mailto:Liz_Lacy@nps.gov]
Sent: Monday, July 17, 2006 2:12 PM
To: Russo, Robert S NAE
Cc: carl.gustacfson@ma.usda.gov; Jamie_Fosburgh@nps.gov; jim@ddgwebmedia.com; Penko, Michael NAE; JMacCartney@tu.org; river_banks@hotmail.com
Subject: RE: Cummington, MA Section 14 - May 26 Site Visit.Emergeny Riverbank erosion protection

Hi Rob,

I just wanted to let you know that we are still evaluating this preliminary plan. Jim MacCartney is still waiting for more information that had been requested in the NPS comments. I will probably receive some additional comments from him this week. It is difficult to do a thorough evaluation of the proposed plan without seeing some of the background information that will help understand the situation better - as well as determine the best solution.

In the meantime, I believe that the town should be encouraged to fix the drainage across the road and allow trees to grow on this riverbank. These steps will help immediately.

I'll be back in touch soon,

Liz

(See attached file: West Cummington NPS findings.doc)

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Liz Lacy
Farmington and Westfield Wild and Scenic Rivers
860-379-0282 (Mon, Tues)
100 East River Road - P.O. Box 395
Pleasant Valley, CT 06063

413-268-3129 (Thurs, Fri)
132 Main Street - P.O. Box 497
Haydenville, MA 01039

Liz_Lacy@nps.gov
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

East Branch of the Westfield River ~ West Cummington, MA

FINDINGS AND RECOMMENDATIONS

Jim MacCartney, NPS River Restoration Specialist – June 7, 2006

Introduction

On May 26, 2006, I conducted a site visit of the East Branch of the Westfield River (East Branch) with several other local, state, and federal officials. Those present were:

- Carrie Banks, Massachusetts Riverways
- Allan Douglas, Cummington Conservation Commission
- Jim Drawe, Cummington Selectman
- Carl Gustafson, Natural Resource Conservation Service
- Liz Lacy, National Park Service
- Jim MacCartney, National Park Service
- Mike Penko, Army Corps of Engineers - New England District
- Siamac Vaghar, Army Corps of Engineers - New England District

The river reach visited was located adjacent to West Main Street in the Town of Cummington, just upstream of the village of West Cummington and just downstream of the confluence of Westfield Brook and the East Branch. Bank erosion is threatening to jeopardize the stability of the shoulder along West Main Street. In some areas, the integrity of an existing concrete and cable guardrail is already compromised. A municipal water line installed under West Main Street supplies water from a municipal well to the village of West Cummington. There is some recreational fishing along this reach of the river. Instream habitat is mostly riffle.

The Westfield River is designated under the National Wild and Scenic River System for its coldwater fisheries, historical villages, unique geologic features, outstanding whitewater canoeing and kayaking, and rare and endangered species. The National Park Service helps the local communities manage the river and preserve its outstanding resources by providing technical support to the Westfield River Wild and Scenic Advisory Committee (WRWSAC).

The findings and recommendations below are based on an initial reconnaissance. Final selection of an alternative for stabilizing and protecting the site should consider the needs and desires of the communities, area residents, river users, and the feasibility of the various alternatives.

Findings

- Westfield Brook joins the East Branch at a nearly perpendicular angle. Its energy is directed at the opposite (left) bank of the East Branch.
- Several hundred feet of the left bank of the East Branch have been stabilized with riprap to protect against erosion resulting from the configuration of the confluence. The date that the riprap was installed is unknown.
- Downstream of the riprap installation, there is evidence of bank erosion on the right bank of the East Branch. Typically, this would be a depositional area, given the configuration

of the channel. The presence of erosion suggests that the riprap is redirecting energy from the left bank to areas farther downstream on the right bank.

- There is also an area of bank failure on river left, located immediately downstream of the riprap installation. It is relatively small and appears to be caused primarily by sheet flow off the road surface coming from the hillside to the North.
- Channel slope for several hundred feet below the confluence is relatively flat, noticeably more so than areas farther downstream.
- The flatness of the slope diminishes channel capacity to transport sediment through the reach, as evidenced by the formation of a mid-channel bar in the right half of the channel and the presence of a well-vegetated island farther downstream in the left half of the channel.
- The channel substrate (bed materials) consists primarily of large cobble and small boulders. The presence of the mid-channel bar and island suggest that there is one or more large sources of sediment located upstream.
- Bedrock is visible on the left bank at the toe of slope. Where present, the bedrock limits lateral channel adjustment. Bedrock can also limit vertical channel adjustment. The depth to bedrock mid-channel is unknown. It is possible that bedrock underlies bed materials mid-channel at a relatively shallow depth, and consequently may limit vertical adjustment of the channel.
- The mid-channel bar and island have caused the channel to widen. The configuration of the channel plan form here results in a tendency of the channel to migrate laterally to river left which, in turn, is contributing to the instability of the guardrail, particularly at high flow.
- It was evident that bank vegetation had been recently cut. The Town does this to promote ice melt during the winter months. Because riparian vegetation, particularly woody material helps to reduce flow velocities and minimize erosive force, this practice is also contributing to the instability of the left bank, the road shoulder and the guardrail. It is worth noting that the overwhelming majority of species present were deciduous.
- The age of the island can not be determined with certainty. Digital scans of aerial photos provide by the NRCS from 1951, 1972, and 1985 were of insufficient resolution to determine conclusively whether of not the island was present when any of those photos were taken. A visual inspection of the actual photographs or an inspection of higher resolution digital scans could be more conclusive.
- The USGS 7.5 Minute Series Worthington, MA Quadrangle 1946 topographic map shows fairly uniform slope downstream of the confluence. No island is depicted on the map in the vicinity of the current island. An island of comparable size is, however, depicted about 1.25 miles downstream between to confluence of two unnamed tributaries entering from river right.

<u>Recommendations</u>

- Additional information should be gathered to help evaluate the range of alternatives for protecting the integrity of West Main Street, the municipal water line and the East Branch of the Westfield River. The U.S. Army Corps of Engineers is the logical entity to lead this effort since it is already conducting work under Section 14 of the Flood Control Act of 1946.

- The range of alternatives could include:
    - No action (i.e., road and drainage work with no river bank work);
    - Redirection of current away from the bank using stone barbs or vanes; and
    - Reconfiguration of the channel as a single-thread by filling the chute on the back (left) side of the island with material from the mid-channel bar to create a vegetated, bankfull bench at an elevation about that of the 1.5 to 2-year discharge.
- An analysis of the alternatives should consider the range of topics and approaches presented in the U.S. Army Corps of Engineers' publication ERDC/EL SR-W-00-1 *Stream Management* by J. Craig Fischenich and Hollis Allen, March 2000. The publication is available online at: http://el.erdc.usace.army.mil/elpubs/pdf/srw00-1/srw00-1.pdf
- The additional information should include:
    - A more comprehensive and detailed topographic survey of the area including:
        - Several additional points along the right bank of the channel;
        - Channel cross-sections at several locations, including one across the island and one at a stable reach downstream; and
        - Sufficient information to calculate channel slope for the reach of interest as well as for a stable reach downstream.
    - A determination whether bedrock is present mid-channel in the vicinity of the bar, and if so, at what depth so as to determine the feasibility of reconfiguration of the river to a single-thread channel.
    - A sediment analysis to determine the size and volume of sediment being transported from upstream through the reach.
    - An analysis of the actual aerial photos from 1951, 1972, and 1985 or higher resolution digital scans to determine the age of the island with more certainty.
- The Town of Cummington should consider allowing woody deciduous bank vegetation to mature along the roadside. It is well-recognized that riparian vegetation and its root systems comprise one of the most effective and affordable means of bank protection.
- The Town of Cummington should also consider enhancing its road drainage system to prevent sheet flow from crossing the road surface, thereby resulting in bank failure and undermining the integrity of its guardrail and roadway.

If you have any questions, please contact Ms. Kate Atwood, NAE Archaeologist, at (978) 318-8537.

CONCURRENCE: Brona Simon
2/21/08
BRONA SIMON
STATE HISTORIC
PRESERVATION OFFICER
MASSACHUSETTS
HISTORICAL COMMISSION

Sincerely,

John R. Kennelly
Chief of Planning

Enclosures

SIMILAR LETTER SENT TO (without enclosures):

Ms. Bettina Washington
Acting Tribal Historic Preservation Officer
Wampanoag Tribe of Gay Head (Aquinnah)
20 Black Brook Road
Aquinnah, Massachusetts 02535

Ms. Sherry White
Tribal Historic Preservation Officer
C/o Stockbridge-Munsee Community
Post Office Box 70
Bowler, Wisconsin 54416

Mr. Doug Harris
Deputy Tribal Historic Preservation Officer
Narragansett Indian Tribe
Tribal Historic Preservation Office
Post Office Box 700
Wyoming, Rhode Island 02898

RECEIVED
FEB 26 2008
REGULATORY DIVISION

-----Original Message-----
From: Liz_Lacy@nps.gov [mailto:Liz_Lacy@nps.gov]
Sent: Friday, September 22, 2006 02:30
To: Russo, Robert S NAE
Cc: river_banks@hotmail.com; Jamie_Fosburgh@nps.gov;
David.Foulis@state.ma.us; Carl.Gustafson@ma.usda.gov
Subject: comments re Proposed Emergency Riverbank Stabilization along
Westfield River in Cummington MA

Dear Mr. Russo:

The National Park Service has reviewed the Corps' proposed plans for the Westfield River bank stabilization project in West Cummington set forth in the public notice dated 23 August 2006. The first issuance of the notice which was erroneous was published in the local newspapers (Country Journal
9/7/06) and therefore the public was not correctly or adequately noticed.

Staff from the NPS met with staff from the ACOE, Mass Riverways, Westfield River Wild and Scenic Advisory Committee, Natural Resources Conservation Service, town of Cummington officials, and a river restoration specialist from NPS/Trout Unlimited on site. Several possible scenarios were discussed on-site and then in a summary provided by Jim MacCartney NPS (please see attached) that focused mainly on instream manipulations to prevent further bank erosion. The concepts leading to the Corps' proposed plans described in this public notice were discussed in theory - but NPS staff requested further information from the Corps to determine the actual cause of the erosion and to understand the hydrology and geomorphology of the river segment. That information was not made available nor was there an adequate study of the river segment made to proceed with the best course of action.

On site, many questions arose regarding the cause of the bank erosion along the roadside of the river. Upon further examination, all present could see that stormwater drainage off the hillside across from the riverbank had been sheeting across the road and was causing erosion from the top of the bank down, also overwhelming blocked and poorly maintained drainage swales.
It was also evident that vegetation was being cut regularly on the riverbank causing the bank to become further de-stabilized.

Because the river segment has not been fully studied to determine conclusively that the erosion is occurring due to instream factors, and, due to the fact that there is clearly erosion occurring from sheeting down the hillside, across the road and onto the riverbank - as well as vegetation removal on the riverbank - the NPS does not believe that the proposed plans in this public notice address the erosion of the riverbank.
The proposed plans are highly invasive to the river given its wild and scenic designation to protect, in particular, its habitat values (including habitat for Atlantic salmon, riffle snaketail dragonfly, spring salamander, wood turtle, and lake chub). Therefore, NPS requests that the ACOE:

1) suspend these plans until further information has been provided to the NPS and there is a more complete understanding of the hydrology and geomorphology of the river segment,

2) advise the town to stop any vegetation removal from the bank,

3) provide plans and funding for the town to improve drainage off the hillside so that it does not sheet across the road to the riverbank, direct the flow to adequate drainage infrastructure,

4) advise the town to fix small spots on top of bank with some rock, soil and vegetation to stabilize small areas that are failing, and,

5) advise the town to re-install guard rail where necessary.

Thank you for this opportunity to make comments.

Sincerely,

Liz Lacy

(See attached file: West Cummington NPS findings.doc)
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Liz Lacy
Farmington and Westfield Wild and Scenic Rivers
860-379-0282 (Mon, Tues)
100 East River Road - P.O. Box 395
Pleasant Valley, CT 06063

413-268-3129 (Thurs, Fri)
132 Main Street - P.O. Box 497
Haydenville, MA 01039

Liz_Lacy@nps.gov
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~

Army Corps of Engineers
696 Virginia Rd
Concord, MA
01743-2751

Gentle People:

As Chair of the Canoe and Kayak Committee of the Berkshire Chapter of the Appalachian Mountain Club, I am writing to express our committee's interest in the proposed project on the East Branch of the Westfield River along West Main Street in Cummington MA.

We wish to express our concern that the project might alter the river bed in this area. We would like to point out that the section of the river in question provides a fine opportunity for whitewater boating and this portion of the river is designated as a "Wild and Scenic River".

Our committee would appreciate any further information, such as plans or diagrams that would show any proposed alterations of the river.

Sincerely Yours,

Charles W. Camp

Charles W. Camp
AMC Berkshire Chapter Canoe and Kayak Committee Chair
16 Sycamore Meadow
Sunderland, MA
01375

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SEP 11 2006
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Westfield River Wild & Scenic Advisory Committee
P.O. Box 397
Huntington, MA 01050

Members

Bill Toomey
Mercedes Gallagher (alt)
Becket

Robert Thompson
Dave Pierce (alt)
Chester

Matt Barron
Denise Cormier (alt)
Chesterfield

Ben Forbes
Judy Moore (alt)
Cummington

Jeff Penn
Huntington

Carl Lafreniere
Middlefield

Debbie Kaczowski
Savoy

Georgette Keator
Washington

Jim Caffrey
Debbie Balmuth (alt)
Windsor

Helen Sharron
Worthington

Tom Condon
Westfield River Watershed Assn.

Jocelyn Forbush
Wendy Sweetser (alt)
The Trustees of Reservations

Chris Curtis,
Anne Capra (alt)
Pioneer Valley Planning Comm.

Melissa Jette
Gale LaBelle (alt)
Berkshire Regional Planning Comm.

Joan Kimball
Jennifer Howard((alt)
Commonwealth of Massachusetts

Liz Lacy
Jamie Fosburgh (alt)
National Park Service

U.S. Army Corps of Engineers
New England District
Engineering/Planning Division
(ATTN: Mr. Robert Russo)
696 Virginia Road
Concord, MA 01742-2751

September 21, 2006

Re: Proposed Emergency Riverbank Stabilization along Westfield River in Cummington, Massachusetts

Dear Mr. Russo,

Thank you for giving us the opportunity to comment on the plans for the above referenced project.

Wild & Scenic Background:

Over 78 miles of the Westfield River is designated as a National Wild & Scenic River, including the entire length of the East Branch of the Westfield River through the Town of Cummington. The Westfield River Wild & Scenic Advisory Committee's (WRWSAC) works to preserve, protect, and enhance the special qualities and outstanding natural resources of the Westfield River Watershed in concert with local communities.

In accordance with the National Wild & Scenic Rivers Act, the WRWSAC and National Park Service (NPS) administer the Wild & Scenic designation. Under section 7 of the Wild & Scenic Rivers Act, any federal project (including those permitted and/or funded by any federal agency) shall not have a direct and adverse effect on the values for which such river was designated. Under this provision, the NPS, in coordination with WRWSAC, reviews projects over and adjacent to the Wild & Scenic Westfield River.

Project Area:

Considered a "Tier 1" priority conservation zone by The Nature Conservancy, the East Branch and Westfield Brook provide outstanding coldwater habitats and are home to several rare aquatic species including the riffle snaketail dragonfly, spring salamander, wood turtle, and the only population of lake chub in southern New England. As part of the Atlantic salmon restoration program, adult Atlantic salmon have been tracked as far upstream as the confluence of Westfield Brook and the East Branch – directly within the project vicinity.

Comments:

After reviewing the public notice issued by the Army Corp of Engineers for the "Emergency Riverbank Stabilization along the Westfield River," we provide the following comments:

- We recommend the Army Corp of Engineers reissue the public notice. The initial notice mailed to WRWSAC and several other agency representatives had several errors and contained an inaccurate project description. This erroneous notice was also published in the local newspaper (*See enclosed Country Journal, September 7th, 2006*). As a result the public was provided incorrect project information to comment on. In addition, the published public notice and follow-up news article stated public comments needed to be submitted by September 18th, 2006. However, the mailed copies of the public notice stated comments were due September 25th, 2006.
- Under the Additional Requirements category, it should be noted the National Park Service will be reviewing the project under the authority of Section 7 of the National Wild & Scenic Rivers Act.
- The notice states the cause of the erosion along the 500 linear foot section of West Main Street to be "riverine erosion." Based on observations on site, we believe surface flow drainage coming down the hillside also contributes to the bank erosion. Under the current plans, the surface drainage is not addressed and recommend that the drainage problems be incorporated into the project.
- Figure 2 Proposed Project Plan View only provides survey information for the river left bank. Within the documents of the public notice there was no information to determine if longitudinal profiles and cross-sections were completed along this stretch. We strongly advise the Army Corp of Engineers gather and make available the following information as outlined in the Technical Memo from Jim MacCartney dated June 7th, 2006:
    - A more comprehensive and detailed topographic survey of the area including:
        - Several additional points along the right bank of the channel;
        - Channel cross-sections at several locations, including one across the island and one at a stable reach downstream; and
        - Sufficient information to calculate channel slope for the reach of interest as well as for a stable reach downstream.
    - A determination whether bedrock is present mid-channel in the vicinity of the bar, and if so, at what depth so as to determine the feasibility of reconfiguration of the river to a single-thread channel.
    - A sediment analysis to determine the size and volume of sediment being transported from upstream through the reach.
    - An analysis of the actual aerial photos from 1951, 1972, and 1985 or higher resolution digital scans to determine the age of the island with more certainty.
- According to the public notice, the alternatives analysis considered "Road and Utility Relocation" which was found to be "the most difficult and most expensive solution due to topographic features of the site… blasting of the hillside's face would be required to move both the road and its utilities landward from the river." As part of this alternatives analysis, did the ACOE consider closing this section of the road and relocating just the utilities to the other side of the existing roadway without the need for blasting? Residences along this section of the road have access to Rte. 9 from both ends of the street. From our calculations if this section of road was closed for traffic in both directions, then the reroute for residents and emergency vehicles would be at the most a little more than ½-mile.

- The public notice mentioned the bank's slope is relatively steep (1 vertical: 2 horizontal) and the "bank is mostly vegetated with native grasses and trees." There are several large trees on the riverbank; however, most of the younger woody deciduous vegetation has been removed and only low lying shallow root species grow on the riverbank. As a result the natural riparian vegetation protection is not being fully realized and is likely contributing to the continued erosion along the riverbank. Maintaining mature woody plant species along the riverbank would be one of the most cost effective ways to provide bank protection.

From our understanding, the Town of Cummington will be required to provide a 35% match for the project proposed. We believe there needs to be a better understanding of the cause of the riverbank erosion and undermining of the road and guardrail to adequately protect the roadway, municipal water line and the riverbank. Additional information needs to be collected to effectively evaluate the cause of the erosion and range of alternatives.

Sincerely,

Robert Thompson, Chair

cc: Town of Cummington
National Park Service

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

MassWildlife

Wayne F. MacCallum, *Director*

September 26, 2006

Robert Russo
US Army Corps of Engineers
New England District
Engineering/Planning
696 Virginia Road
Concord, MA 01742

RE: Emergency riverbank stabilization along the Westfield River, Cummington, Massachusetts
NHESP File No. 05-17473

Mr. Russo,

The Natural Heritage and Endangered Species Program (NHESP) of the MA Division of Fisheries & Wildlife is responsible for the regulatory protection of imperiled species and their habitats as codified under the Massachusetts Endangered Species Act (M.G.L. c.131A). The Massachusetts Endangered Species Act (MESA) was enacted in December 1990. Implementing regulations (321 CMR 10.00) were promulgated in 1992 and recently revised and implemented as of July 1, 2005. The MESA provides a framework for review of projects or activities that occur within mapped area of the state, called *Priority Habitat*, and published in the Natural Heritage Atlas.

The (NHESP) has reviewed the Public Notice for the proposed riverbank stabilization project. Based on a review of our database and the information provided in the Public Notice, this section of the Westfield River provides habitat for the following species:

Common Name	Scientific Name	Taxa	MESA Status
Riffle Snaketail	*Ophiogomphus carolus*	Invertebrate: Dragonfly	Threatened
Lake Chub	*Couesius plumbeus*	Vertebrate: Fish	Endangered
Longnose Sucker	*Catostomus catostomus*	Vertebrate: Fish	Special Concern
Dwarf Scouring-rush	*Equisetum scirpoides*	Vascular Plant	Special Concern

These species and their habitat are protected pursuant to the provisions of the MA Endangered Species Act (M.G.L. c.131A) and it's implementing regulations (321 CMR 10.00).

The MESA is administered by the NHESP of the MA Division of Fisheries & Wildlife, and prohibits the "take" of state-listed species. The "take" of state-listed species is defined as "in reference to animals, means to harass, harm, pursue, hunt, shoot, hound, kill, trap, capture, collect, process, disrupt the nesting, breeding, feeding or migratory activity or attempt to engage in any such conduct, or to assist such conduct, and in reference to plants, means to collect, pick, kill, transplant, cut or process or attempt to engage or to assist in any such conduct. Disruption of nesting, breeding, feeding or migratory activity may result from, but is not limited to, the modification, degradation or destruction of Habitat." (321 CMR 10.02). Projects resulting in the "take" of state-listed species may only be permitted if they meet the performance standards for a "Conservation and Management Permit" pursuant to the MESA (321 CMR 10.23) and may require a filing pursuant to the MA Environmental Policy Act Regulations (301 CMR 11.03(2)(b)).

Based on the information provided in the Public Notice, there appears to be a risk of "take" of state-listed species habitat through directly killing or harming individuals and interfering with nesting, feeding, breeding and migratory activities pursuant to 321 CMR 10.02. The Public Notice states that a "riparian buffer" will be created 25 feet into the River from the toe of the riverbank by moving materials from the mid-shoal to between the hardened bank and the buffer. In effect, this appears to remove a secondary channel to the north through infilling and widening of the larger southern channel of the River. It appears that this will require about 150,000 square feet of river bed alteration. The NHESP is concerned about the short- and long-term impacts caused by the alteration of the flow within the river and the impact of sediments entering the river. It is unclear if the widened bank area and riparian buffer are intended to restore a pre-bank failed state or to create a bank that did not previously exist.

While we recognize that the proposed plan includes erosion control measures, the short-term mobilization of sediments would not be insignificant. Further, it is unclear from the information presently available if any portion of the area would require dewatering. If so, how will sediments be isolated from the pumped water? The *Environmental Impact Statement* currently being drafted should include more detailed information about the reasoning behind the proposed project, how construction will be sequenced and timed to reduce impacts to the water quality of the river, what measures will be utilized to isolate the work site, what measures will be taken to avoid directly killing fish during and shortly after construction, what impacts to the River's flow direction(s) and velocities are expected during and after construction, and describe long-term alterations to habitat within the River for the above listed species. Additionally, all work should be timed to avoid critical activity periods for the above-listed species: *O. carolus* emerges during June and July; *C. catostomus* spawn in early spring when temperatures are above 5 degrees centigrade and demersel eggs hatch 2 weeks later; *C. plumbeus* likely spawn in early spring after moving up to 10 km during the spawning season and demersel eggs likely hatch several weeks later. Finally, engineered plans with alternatives should be provided for the NHESP's review. We note that surveys for state-listed species within and near the project may be necessary as part of the NHESP's review of the project.

If you have any questions about this letter or would like to schedule a meeting to discuss the NHESP's concerns about the project, please feel free to contact Misty-Anne R. Marold (Endangered Species Review Biologist) at ext. 166.

Sincerely,

Thomas W. French

Thomas W. French, Ph.D.
Assistant Director

cc: MA Department of Environmental Protection, Western District, Wetlands
MA Riverways Program, Brian Graber

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

RECEIVED
FEB 14 2008
MASS. HIST. COMM
RC.43746

REPLY TO
ATTENTION OF

February 12, 2008

Engineering/Planning Division
Evaluation Branch

Ms. Brona Simon, Executive Director
State Historic Preservation Officer
Massachusetts Historical Commission
Massachusetts Archives Building
220 Morrissey Boulevard
Boston, Massachusetts 02125

Dear Ms. Simon:

The U.S. Army Corps of Engineers, New England District (NAE), is preparing an Environmental Assessment for a proposed Emergency Erosion Control project to protect a roadway, water line, and electrical utility poles located adjacent to the Westfield River in Cummington, Massachusetts (Figure 1). We would like your comments on this proposed project.

This project is authorized under the special continuing authority in Section 14 of the 1946 Flood Control Act (as amended). Section 14 allows the U.S. Army Corps of Engineers to participate in the planning and construction of economically justified erosion control projects in situations where public facilities are threatened. Due to the emergency nature of the erosion, there is a streamlined implementation process allowing the project study and design to be completed concurrently in an abbreviated time frame. The authority requires a complete comprehensive solution solving the immediate erosion problem in a manner that does not obligate or imply future Federal participation. Once projects are completed, they are turned over to the local non-Federal sponsor. Each project is assessed in terms of its effectiveness in preventing future erosion damages to the public infrastructure, long and short-term ecological effects, public acceptability, and its cost effectiveness.

Riverine erosion is threatening a 500 linear feet section of West Main Street in Cummington, Massachusetts (Figure 1). Sections of the roadway have recently collapsed due to the undermining of the bank from high river storm flows. The project area is located in the northwestern corner of the town, on the north bank of the Westfield River. West Main Street supports mostly local residential traffic and provides access to nearby State Highway Route 9. An underground public water supply pipe and electric utility poles along the road are also being threatened by the erosion. If the erosion is not addressed, the sections of the road will collapse into the river, requiring local officials to close the road, and relocate the water and electrical utilities.

In the study reach, the northern bank of the river channel has receded to the base of the constructed bank of the roadway (Figure 2). This erosion appears to have been caused by aggradation of the channel, and formation of a new channel during high flows, through the left bank floodplain, forming an island (right side of Figure 2). The southern bank has also shown 20 to 30 feet of recession, with vertical or undercut banks 4 feet high, composed of alluvial soils (Photos 1 and 2). In this reach, the river has braided and almost tripled in width, from 50 feet to 140 feet. A series of aerial photos from 1972 to the present reveal that the channel widened over 40 years with the formation of mid-channel bars and formation of the northern vegetated island in what was a floodplain surface in 1972 (Figures 3, 4, 5) The excess sediment load deposited in the aggraded reach has developed into a series of mid-channel, or longitudinal bars, with lengths 2 to 3 times the width of the river in this area (Figure 6). One of these, called the center island will be used as borrow or fill for the proposed project.

The recommended plan will remove the entire mid-channel island, fill the channel on the north side of the river (reconnecting the north island with the northern floodplain), and armor a short section of the shoreline (Plan sheets C-101A, C-301, and C-305). The upstream edge of the channel plug will be protected with rock. The color of the stone protection will match the color of bedrock and boulder outcrops in the river to the extent practical, as this portion of the Westfield River is within an area designated a National Wild and Scenic River. Natural looking rounded boulders will be used as much as possible in lieu of angular rock, along the north and south riverbanks. The random fill in the restored floodplain area will be capped with 6 inches of sandy topsoil, seeded with native seed mix, and planted with shrubs.

We believe that this proposed alternative to correct the erosion problem along 500 ft. of riverbank on the Westfield River should have no effect on historic properties. This assessment is based on a review of background research on the history of the area and the photographs of the existing conditions at the proposed project site. There is little to no riverbank remaining at this location due to the extent of erosion. What remains is steep and slumped, and is assessed as having a low archaeological sensitivity based on a lack of physical integrity, and the close proximity of the road. The northern "island" will be reconnected to the floodplain, and no further erosion will occur. The southern side of the river will be protected by the placement of random, loose rocks, no riverbank disturbance is anticipated, and will prevent further erosion of the alluvial materials. While this reach of the river is roughly in the center of a proposed West Cummington Historic District, there are no structures in the immediate vicinity, and the riverbank adjacent to West Main Street, will be restored as much as possible to its pre-flood appearance. A Public Notice for this project was sent to your office on August 23, 2006. We received no comments at that time. NAE would like your concurrence with our no effect determination.

ATTACHMENT B

Finding of No Significant Impact (FONSI)

FINDING OF NO SIGNIFICANT IMPACT

Emergency Streambank Protection Project
Cummington, Massachusetts

Riverine erosion is threatening a 500 linear feet section of West Main Street in Cummington, Massachusetts (see EA, Figure 1, Project Location Map). The project area is located on the Westfield River, a federally designated wild and scenic river. West Main Street supports mostly local residential traffic and provides access to nearby State Highway Route 9. An underground public water supply pipe and electric utility poles along the road are also threatened by the erosion. If the erosion is not addressed, a section of the road will collapse into the river, requiring local officials to close the road and relocate water and electrical utilities.

Alternatives considered include no action, stone slope protection, a modular wall, and road relocation. The recommended alternative would remove a mid channel island, fill the channel on the north side of the river (reconnecting the north island with the northern floodplain), and armor a 500 foot section of the shoreline. Figures 2, 3, and 4 of the EA show the features of this alternative. Riverine material, mostly sands, gravel, cobbles, and small boulders from a mid-channel shoal, would be used to fill the northern channel. The upstream edge of the channel plug would be protected with rock. The color of the stone protection would match the color of bedrock and boulder outcrops in the river to the extent practical. Natural looking rounded boulders would be used as much as possible in lieu of angular rock. The random fill in the restored floodplain area would be capped with 6” of sandy topsoil, seeded with a native seed mix, and planted with shrubs. Construction is projected to occur in 2008. Work in the river would occur during the low flow period (August - September) and the work area would be isolated from the river with a temporary Jersey barrier coffer dam to minimize impacts to water quality. The work is expected to take up to three months to complete. A private contractor under contract to the Corps would perform the work. The restored riparian habitat would be monitored for colonization by oriental knotweed and other invasive plant species. During and initial 2 year monitoring period, knotweed and other invasive plants would be removed by hand pulling or herbicide application. Knotweed control would continue during the subsequent Operation and Maintenance period.

No significant adverse impacts to the environment are anticipated. My determination of a Finding of No Significant Impact is based on the Environmental Assessment and the following considerations:

a) The recommended plan is in compliance with Wild and Scenic Rivers Act and is acceptable to the National Park Service. Adverse aesthetic impacts to the river are minimized to the extent practicable.

b) Construction may result in a localized, short-term increase in suspended solid load in the Westfield River. Sediment loading will be minimized by working in cells isolated from the river, by employing standard erosion control techniques, and by scheduling the construction during the low flow season.

c) No adverse long term effects on stream temperature or other water quality parameters are expected.

d) Removal of the mid channel island will result in a net increase in aquatic habitat. There will be a net small decrease in vegetated riparian habitat.

e) There will be no significant long-term adverse impacts on aquatic habitat.

f) This project will have no impact on any Federal listed threatened or endangered species and no significant impact on state listed special concern, threatened or endangered species.

g) The project will have no impact on essential fish habitat.

h) The project area has low potential to contain significant archaeological resources.

i) Measures listed in Section 7.0 of the Environmental Assessment to minimize adverse environmental consequences will be implemented.

Based on my review and evaluation of the environmental effects as presented in the Environmental Assessment, I have determined that the Cummington, Massachusetts Streambank Protection Project is not a major Federal action significantly affecting the quality of the human environment. Therefore, I have determined that this project is exempt from the requirement to prepare an Environmental Impact Statement.

_____ _____

Date

Curtis L. Thalken
Colonel, Corps of Engineers
District Engineer

ATTACHMENT C

404(b)(1) Evaluation

NEW ENGLAND DISTRICT
U.S. ARMY CORPS OF ENGINEERS, WALTHAM, MA
CLEAN WATER ACT SECTION 404(b)(1) EVALUATION

PROJECT: Cummington, Massachusetts Streambank Protection Project

PROJECT MANAGER: Mr. Robert Russo EXT. 978-318-8553

FORM COMPLETED BY: Mr. Michael Penko EXT. 978-318-8139

PROJECT DESCRIPTION:

Riverine erosion is threatening a 500 linear feet section of West Main Street in Cummington, Massachusetts (see EA, Figure 1, Project Location Map). The project area is located on the Westfield River. West Main Street supports mostly local residential traffic and provides access to nearby State Highway Route 9. An underground public water supply pipe and electric utility poles along the road are also threatened by the erosion. If the erosion is not addressed, a section of the road will collapse into the river, requiring local officials to close the road and relocate water and electrical utilities.

The recommended alternative would remove a mid channel island, fill the channel on the north side of the river (reconnecting the north island with the northern floodplain), and armor a 500 foot section of the shoreline. Figures 2, 3, and 4 of the EA show the features of this alternative. Riverine material, mostly sands, gravel, cobbles, and small boulders from a mid-channel shoal, would be used to fill the northern channel. The upstream edge of the channel plug would be protected with rock. The color of the stone protection would match the color of bedrock and boulder outcrops in the river to the extent practical. Natural looking rounded boulders would be used as much as possible in lieu of angular rock. The random fill in the restored floodplain area would be capped with 6” of sandy topsoil, seeded with a native seed mix, and planted with shrubs. Construction is projected to occur in 2008. Work in the river would occur during the low flow period (August - September) and the work area would be isolated from the river with a temporary Jersey barrier coffer dam to minimize impacts to water quality. The work is expected to take up to three months to complete. A private contractor under contract to the Corps would perform the work. The restored riparian habitat would be monitored for colonization by oriental knotweed and other invasive plant species. During and initial 2 year monitoring period, knotweed and other invasive plants will be removed by hand pulling or herbicide application. Knotweed control will continue during the subsequent Operation and Maintenance period.

NEW ENGLAND DISTRICT
U.S. ARMY CORPS OF ENGINEERS, CONCORD, MA

PROJECT: Cummington, MA Streambank Protection Project

CLEAN WATER ACT
Evaluation of Section 404(b)(1) Guidelines

1. Review of Compliance (Section 230.10(a)-(d)).

a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose;

__X__YES ___ NO

b. The activity does not appear to:
1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA;
2) jeopardize the existence of Federally listed threatened and endangered species or their critical habitat; and
3) violate requirements of any Federally designated marine sanctuary,

__X_YES ___ NO

c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values;

__X_YES ___ NO

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem.

__X_YES ___ NO

2. Technical Evaluation Factors (Subparts C-F).

	N/A	Not Signif-icant	Signif-icant*
a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C).			
1) Substrate.	_____	__X__	_____
2) Suspended particulates/turbidity.	_____	__X__	_____

3) Water.	_____	__X__	_____
4) Current patterns and water circulation	_____	__X__	_____
5) Normal water fluctuations.	_____	__X__	_____
6) Salinity gradients.	__X__	_____	_____

b. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D).

1) Threatened and endangered species.	_____	__X__	_____
2) Fish, crustaceans, mollusks and other aquatic organisms in the food web.	_____	__X__	_____
3) Other wildlife.	_____	__X__	_____

c. Potential Impacts on Special Aquatic Sites (Subpart E).

1) Sanctuaries and refuges.	__X__	_____	_____
2) Wetlands.	__X__	_____	_____
3) Mud flats.	__X__	_____	_____
4) Vegetated shallows.	__X__	_____	_____
5) Coral reefs.	__X__	_____	_____
6) Riffle and pool complexes.	_____	__X__	_____

d. Potential Effects on Human Use Characteristics (Subpart F).

1) Municipal and private water supplies.	_____	__X__	_____
2) Recreational and Commercial fisheries.	_____	__X__	_____
3) Water-related recreation.	_____	__X__	_____
4) Aesthetics.	_____	__X__	_____
5) Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves.	_____	__X__	_____

3. <u>Evaluation and Testing (Subpart G).</u>

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Only those appropriate are checked.)

1) Physical characteristics..... __X__
2) Hydrography in relation to known or anticipated sources of contaminants..... __X__
3) Results from previous testing of the material or similar material in the vicinity of the project..... _____
4) Known, significant sources of persistent pesticides from land runoff or percolation..... _____
5) Spill records for petroleum products or designated hazardous

substances (Section 311 of CWA)..... _____

6) Public records of significant introduction of contaminants from industries, municipalities, or other sources..... _____

7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities..... _____

8) Other sources (specify)..... _____

List appropriate references. See 2008 Environmental Assessment for the subject project.

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints. The material meets the testing exclusion criteria.

4. Disposal Site Delineation (Section 230.11(f)).

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

1) Depth of water at disposal site..... ____
2) Current velocity, direction, and variability at disposal site..... ____
3) Degree of turbulence..... _____
4) Water column stratification..... _____
5) Discharge vessel speed and direction..... _____
6) Rate of discharge..... _____
7) Dredged material characteristics (constituents, amount, and type of material, settling velocities)..... ____
8) Number of discharges per unit of time..... _____
9) Other factors affecting rates and patterns of mixing (specify)..... __X_

List appropriate references. See Environmental Assessment.

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or mixing zone are acceptable.

__X_ YES ____ NO

5. Actions To Minimize Adverse Effects (Subpart H).

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.

__X_ YES ____ NO

6. Factual Determination (Section 230.11).

A review of appropriate information as identified in items 2 - 5 above indicates that

there is minimal potential for short or long term environmental effects of the proposed discharge as related to:

a. Physical substrate (review sections 2a, 3, 4, and 5 above). _X_ YES ____ NO

b. Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5). _X_ YES ____ NO

c. Suspended particulates/turbidity (review sections 2a, 3, 4, and 5). _X_ YES ____ NO

d. Contaminant availability (review sections 2a, 3, and 4). _X_ YES ____ NO

e. Aquatic ecosystem structure, function and organisms(review sections 2b and c, 3, and 5). _X_ YES ____ NO

f. Proposed disposal site (review sections 2, 4, and 5). c, 3, and 5). _X_ YES ____ NO

g. Cumulative effects on the aquatic ecosystem. _X_ YES ____ NO

h. Secondary effects on the aquatic ecosystem. _X_ YES ____ NO

7. Findings of Compliance.

The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines.

_____ _____

Date

Curtis L. Thalken
Colonel, Corps of Engineers
Commanding

ATTACHMENT D

Air Quality Compliance

RECORD OF NON-APPLICABILITY (RONA)

Emissions Calculations for:

Westfield River Section 14, Project
Cummington, Massachusetts

GENERAL CONFORMITY - RECORD OF NON-APPLICABILITY

Project/Action Name:	Westfield River Section 14, Project Cummington, Massachusetts
Project/Action Point of Contact:	*Jay Mackay, Chief Environmental Resources Section* *phone: 978-318-8142*

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project/action because:

Total direct and indirect emission from this project/action are estimated at less than 100 tons for Ozone, and are below the conformity threshold value established at 40 CFR 93.153(b) of 100 tons/year of Ozone;

AND

The project/action is not considered regionally significant under 40 CFR 93.153(i).

Supporting documentation and emissions estimates are:

(X) ATTACHED
(X) APPEAR IN THE NEPA DOCUMENTATION (Section 6.8)
( ) OTHER

SIGNED_____
Jay Mackay, Evaluation Branch

General Conformity Review and Emission Inventory for Cummington, MA Erosion Control Project

Construction Duration: 3 months (90 days)

Table 1. Project Emission Sources and Estimated Power

hp-hr = # of engines*hp*LF*hrs of operation

Load Factor (LF) represents the average percentage of rated horsepower used during a source's operational profile.

Equipment/Engine Category	# of engines	hp	LF	hrs/day	days of operation	hp-hr
Asph Sealcoater 200 Gal 108" W	1	20	1.00	12	2	480
Track Excavator 70ft. Reach	1	166	1.00	12	60	119520
Crane Hyd TRK MTD 90T/114' Boom	1	192	1.00	12	10	23040
Dewatering Pump 12" Diesel	1	32	1.00	12	40	15360
LDR, BH, WH 1.25CY FE Bkt	1	86	1.00	12	60	61920
LDR, BH, WH 0.80CY FE Bkt	1	60	1.00	12	60	43200
Roller, VIB, DD, SP 6.0 T	1	130	1.00	12	2	3120
TRK Flatbed, 8'x12'	1	330	1.00	12	90	356400
TRK Rear Dump Body, 12 CY	2	240	1.00	12	60	345600
TRK, HWY 8,800GVW 4x4 3/4T-PKUP	2	137	1.00	12	90	295920

Table 2. Emission Estimates (NOx)

Emissions (g) = Power Demand (hp-hr) * Emission Factor (g/hp-hr)
Emissions (tons) = Emissions (g) * (1 ton/907200 g)

NOx Emissions Factor for Off-Road Construction Equipment is 9.20 g/hp-hr

Equipment/Engine Category	hp-hr	EF (g/hp-hr)	Emissions (tons)
Asph Sealcoater 200 Gal 108" W	480	9.20	0.00
Track Excavator 70ft. Reach	119520	9.20	1.21
Crane Hyd TRK MTD 90T/114' Boom	23040	9.20	0.23
Dewatering Pump 12" Diesel	15360	9.20	0.16
LDR, BH, WH 1.25CY FE Bkt	61920	9.20	0.63
LDR, BH, WH 0.80CY FE Bkt	43200	9.20	0.44
Roller, VIB, DD, SP 6.0 T	3120	9.20	0.03
TRK Flatbed, 8'x12'	356400	9.20	3.61
TRK Rear Dump Body, 12 CY	345600	9.20	3.50
TRK, HWY 8,800GVW 4x4 3/4T-PKUP	295920	9.20	3.00
	Total NOx Project Emissions (tons) =		**12.82**

Table 3. Emission Estimates (VOCs)

Emissions (g) = Power Demand (hp-hr) * Emission Factor (g/hp-hr)
Emissions (tons) = Emissions (g) * (1 ton/907200 g)

VOC Emissions Factor for Off-Road Construction Equipment is 1.30 g/hp-hr

Equipment/Engine Category	hp-hr	EF (g/hp-hr)	Emissions (tons)
Asph Sealcoater 200 Gal 108" W	480	1.30	0.00
Track Excavator 70ft. Reach	119520	1.30	0.17
Crane Hyd TRK MTD 90T/114' Boom	23040	1.30	0.03
Dewatering Pump 12" Diesel	15360	1.30	0.02
LDR, BH, WH 1.25CY FE Bkt	61920	1.30	0.09
LDR, BH, WH 0.80CY FE Bkt	43200	1.30	0.06
Roller, VIB, DD, SP 6.0 T	3120	1.30	0.00
TRK Flatbed, 8'x12'	356400	1.30	0.51
TRK Rear Dump Body, 12 CY	345600	1.30	0.50

TRK, HWY 8,800GVW 4x4 3/4T-PKUP	295920	1.30	0.42
	Total VOCs Project Emissions (tons) =		**1.81**

Table 4. Pollutant Emissions from Employee Vehicles

Assumptions:	Average trip distance (1 way) =	25	miles
	Average NOx vehicle emission factor =	0.96	g/mile
	Average VOC vehicle emission factor =	0.84	g/mile
	Work crew comprised of	10	people
	Every member of the work crew drives their own vehicle.		
	Project construction period =	90	days
	Project construction occurs 5 days per week.	5	days/week
	There are 10 holidays in a calendar year.	10	holidays/year
	There are 30 weather days (no work) in a year.	10	weather days/year

Actual work days = Construction Period - Weekend Days off - Holidays off - Weather Days off

Actual work days = 80

NOx Calculation: # of workers * # of work days * 2 trips/work day * # of miles/trip * 0.96 g of NOx/mile

Total NOx resulting from employee vehicles = 0.04 tons

VOC Calculation: # of workers * # of work days * 2 trips/work day * # of miles/trip * 0.84 g of VOC/mile

Total VOCs resulting from employee vehicles (tons) = 0.04

ATTACHMENT E

Public Notice

PUBLIC NOTICE

US Army Corps
of Engineers ®
New England District

Engineering/Planning
696 Virginia Road
Concord, MA 01742-

Date: 23 August 2006
Comment Period Ends: 25 September 2006
In Reply Refer To: Robert Russo
Or by e-mail: robert.s.russo@usace.army.mil

PUBLIC NOTICE

EMERGENCY RIVERBANK STABILIZATION ALONG THE WESTFIELD RIVER CUMMINGTON, MASSACHUSETTS

Interested parties are hereby notified that the Town of Cummington Board of Selectmen, and the U.S. Army Corps of Engineers, New England District (Corps), plan to provide emergency erosion protection to a section of riverbank off of West Main Street along the Westfield River in Cummington, Massachusetts. The project will be completed under the provisions of the Section 14 Continuing Authorities program. Attachment No. 1 lists pertinent laws, regulations, and directives.

Project Description: Riverine erosion is currently threatening a 500 linear foot section of West Main Street (see Location Map, Figure 1). The roadway supports mostly residential local traffic access to the nearby State Highway Route 9. In addition to the roadway, an underground water supply pipe and electrical utility poles are being threatened. Sections of the roadway have recently collapsed due to the undermining of the bank from high river storm flows. If the erosion is not addressed the road will collapse further into the river, requiring local officials to close the road and relocate the water and electrical supply lines. The bank's slope is relatively steep (1 vertical :2 horizontal). The bank is mostly vegetated with native grasses and trees.

It is proposed that a project be constructed to protect the roadway, public utilities and prevent future erosion. It is proposed that a 2.5-foot thick rip rap stone slope protection be constructed on the affected riverbank's lower and mid slope. On the upper slope a turf reinforcement membrane would be placed under 6-in of topsoil and seeded. Approximately 25 feet into the river from the toe of the riverbank a riprap buffer would be constructed. Riverine material, mostly sands and gravel, from a mid-channel shoal, would be relocated and placed between the slope protection and the buffer. This area would be planted with riparian trees and vegetation. Construction is projected to occur in 2007. Appropriate siltation control measures (e.g. floating silt fencing) would be implemented throughout

construction. The work is expected to take up to three months to complete. A private contractor under contract to the U.S. Army Corps of Engineers would perform the work. Figures 2 and 3 show the features of the proposed project.

The following alternatives were also considered as solutions as part of the alternative analysis process.

Vegetated Modular Wall – Vegetated Modular wall construction involves the stacking of soil-filled PVC modular sections along the eroded bank and backfilling with random fill material. This method would provide for a nearly vertical face. Although this wall would provide effective slope protection, the cost of the alternative was higher than that for the competing riprap stone slope and buffer protection plan.

Road and utility relocation – Relocation of the road and its associated utilities was found to be the most difficult and most expensive solution due to topographic features of the site. Blasting of the hillside's face would be required to move both the road and its utilities landward away from the river were found impractical due to its costs.

Additional Information: Additional information may be obtained from the Engineering/Planning Division of the U.S. Army Corps of Engineers, Mr. Mike Penko, Environmental Manager, and Mr. Robert Russo, Project Manager, at the return address shown, telephone numbers (978) 318-8138/8553, respectively. Collect calls will be accepted weekdays between 9:00 a.m. and 3:00 p.m.

Coordination: The proposed work is being coordinated with the following Federal, State, and local agencies.

Federal

U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency
National Marine Fisheries Service
National Park Service

State of Massachusetts

Atlantic Salmon Commission
Massachusetts Department of Environmental Protection
Massachusetts Department of Inland Fisheries and Wildlife
Massachusetts Historical Preservation Office

Other Information:

Local sponsor(s): The Town of Cummington, Massachusetts is the local sponsor for the proposed project.

Floodplain Management: In accordance with Executive Order 11988, the Corps of Engineers has determined that the proposed project will not contribute to negative impacts or damages caused by floods.

Cultural Resources: The proposed project will be coordinated with the Massachusetts Historical Preservation Office (MASHPO) in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

Additional Requirements: The NMFS will be providing comments on the project's essential fish habitat assessment pursuant to the Magnuson-Stevens Act. An application for Water Quality Certification will be submitted to the Massachusetts Department of Environmental Protection under Section 401 of the Clean Water Act of 1977 (P.L. 95-217).

The decision whether to perform the work will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits that reasonably may be expected to accrue from the proposal will be balanced against its reasonably foreseeable detriments. All factors that may be relevant to the proposal will be considered; among these are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, and the public welfare.

An Environmental Assessment of the proposed work is being prepared and will be available for public review. I have made a preliminary determination that an Environmental Impact Statement for the proposed slope stabilization is not required under the provisions of the National Environmental Policy Act of 1969. This determination will be reviewed in light of facts submitted in response to this notice, and if appropriate, a Finding of No Significant Impact (FONSI) will be developed.

Any person who has an interest that may be affected by the proposed slope protection project may request a public hearing. The request must be submitted in writing to me within 30 days of the date of this notice and must clearly set forth the interest that may be affected and the manner in which the interest may be affected by this activity.

Please bring this notice to the attention of anyone you know to be interested in this project. Comments are invited from all interested parties and should be directed to me at, U.S. Army Corps of Engineers, New England District, 696 Virginia Road, Concord, Massachusetts, 01742-2751, ATTN: Engineering-Planning Division, within 30 days of this notice.

Curtis L. Thalken
Colonel, Corps of Engineers
District Engineer

Attachments

PERTINENT LAWS, REGULATIONS AND DIRECTIVES

National Environmental Policy Act of 1969 (42 U.S.C. 4321-4347)

Fish and Wildlife Coordination Act (16 U.S.C. 661-666c)

National Historic Preservation Act of 1966 (16 U.S.C. 470)

Endangered Species Act of 1973 as amended (16 U.S.C. 668aa-668cc)

Clean Water Act, as amended (33 U.S.C. 1251 et. seq.)

Clean Air Act, as amended (42 U.S.C. 1221 et. seq.)

Federal Water Project Recreation Act, as amended (16 U.S.C. 4601- 12 et. seq.)

Code of Federal Regulation, Title 33, Parts 335 through 338

Land and Water Conservation Fund Act of 1965, as amended (16 U.S.C. 4601-4 et.seq.)

Executive Order 11988, Floodplain Management, 24 May 1977

Executive Order 11990, Protection of Wetlands, 24 May 1977

The Wild and Scenic Rivers Act (16 U.S.C. 1271 et seq.), as amended

The Water Resources Development Act 1976 (Pub. L 94-587)

Executive Order 11593, Protection and Enhancement of the Cultural Environment, Regulation 33 CFR 209.145.

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations, 11 February 1994

Fish and Wildlife Act of 1956 (16 U.S.C. 472a, et. seq.)

Magnuson-Stevens Act, as amended, 16 U.S.C. 1801 et seq.