OFFICE OF ADJUDICATIONS

IN THE MATTER OF	***:***	***APPLICATION NO. IW-2002-101***
CONNECTICUT DOT RT. 7 - BROOKFIELD	***:***	***AUGUST 25, 2006***

PROPOSED FINAL DECISION

I

SUMMARY

The Connecticut Department of Transportation (applicant) has applied to the Department of Environmental Protection Inland Water Resources Division for an inland wetland and watercourses permit. General Statutes §22a-39. The permit would allow the applicant to conduct regulated activities associated with the construction of an extension of the existing Route 7 by approximately 2.9 miles in the Towns of Brookfield and New Milford. The project will permanently impact 1.25 acres of wetlands and an additional 7.19 acres of open water.

The applicant and the DEP are the only parties in this matter. DEP staff supports issuance of this permit and has submitted into the record a revised draft permit that would authorize the applicant's proposed regulated activities (Attachment B).

The purpose of this project is to increase the capacity of Route 7 to handle high volumes of traffic and improve public safety. The extension is intended to divert traffic around the intersection of Routes 7 and 25 in Brookfield, which would significantly improve traffic flow and avoid significant impacts to business and historic resources in the area.

The project has been planned to minimize wetland impacts while meeting current highway design and safety standards. These proposed regulated activities, if conducted in accordance with the terms and conditions of the revised draft permit, would be consistent with the applicable legal standards for issuance of the permit. I therefore recommend that the permit be issued.

II

DECISION

A

FINDINGS OF FACT

I adopt the parties' stipulated proposed findings of fact (Attachment A). These facts include a description of the project and its purpose, descriptions of the impact sites, consideration of alternatives to the project, the permanent and temporary impacts of the project on the environment and the applicant's mitigation plans. These proposed findings and the additional findings that follow provide the basis for my conclusions.

1. The draft permit specifically authorizes the applicant to alter 719 feet of stream channel, 1.25 acres of inland wetlands and watercourses, 7.19 acres of open water and temporarily alter approximately .20 acres of inland wetlands and watercourses. The permit sets forth the terms and conditions for the project including, but not limited to, restrictions on activities during specific weather conditions and seasonal periods, maintenance of a 100-foot buffer along all streams, and installation of culvert crossings to allow species of special concern access to specific habitat areas. (Exs. DEP-5, 5B.)

2. Prior to the close of the record on June 29, 2006, the parties stipulated to the admission of a revised draft permit. In addition to the terms and conditions set forth in the initial draft permit, the revised permit requires the applicant to submit a comprehensive plan that thoroughly defines the scope of the mitigation efforts to be undertaken as part of the project. The applicant is further required to retain

ownership of the mitigation sites and manage, monitor and remediate those sites in accordance with the mitigation plan. (Ex. DEP-5B.)

B

CONCLUSIONS OF LAW

The purposes and policies set forth in the Inland Wetlands and Watercourses Act are secured through the process and criteria outlined in §22a-41 of the General Statutes. Section 22a-41(b)(1) provides that where a permit application has been the subject of a hearing, the Commissioner must find that there is no feasible and prudent alternative to the proposed action before issuing a permit. In determining whether such an alternative exists, the Commissioner must consider all relevant facts and circumstances, including but not limited to, the six statutory factors outlined in §22a-41(a).

The six factors set forth in §22a-41(a) are:

(1) The environmental impact of the proposed regulated activity on wetlands or watercourses;

(2) The applicant's purpose for, and any feasible and prudent alternatives to, the proposed regulated activity which alternatives would cause less or no environmental impact to wetlands and watercourses;

(3) The relationship between the short-term and long-term impacts of the proposed regulated activity on wetlands or watercourses and the maintenance and enhancement of long-term productivity of such wetlands or watercourses;

(4) Irreversible and irretrievable loss of wetland or watercourse resources which would be caused by the proposed regulated activity, including the extent to which such activity would foreclose a future ability to protect, enhance or restore such resources, and any mitigation measures which may be considered as a condition of issuing a permit for such activity including, but not limited to, measures to (A) prevent or minimize pollution or other environmental damage, (B) maintain or enhance existing environmental quality, or

(C) in the following order of priority: restore, enhance and create productive wetland or watercourse resources;

(5) The character and degree of injury to, or interference with, safety, health or the reasonable use of property which is caused or threatened by the proposed regulated activity; and

(6) Impacts of the proposed regulated activity on wetlands and watercourses outside the area for which the activity is proposed and future activities associated with, or reasonably related to, the proposed regulated activity which are made inevitable by the proposed activity and which may have an impact on wetlands and watercourses.

See also Regs., Conn. State Agencies §22a-39-6.1.

Applying these factors to this permit application, I conclude as follows:

(1) *Environmental Impacts*

The proposed project will result in some loss of wetlands and watercourses and some disturbance to wetlands during construction. The project has been designed to avoid or minimize impacts on natural resources and adjacent properties as much as possible. Permanent impacts have been minimized by such design features as the alignment of the highway, the placement of drainage and bridge structures, and stable embankment slopes that allow for vegetation.

The project has been designed to minimize encroachment into the floodway and floodplains. Any increases in flow due to a significant loss of storage capacity of Quarry Pond will be mitigated by improvements to the existing culverts that carry Limekiln Brook under North Mountain Road. In addition, the applicant has received a Conditional Letter of Map Revision from the Federal Emergency Management Agency indicating that the altered hydrology of the Limekiln Brook watershed meets the minimum floodplain management criteria of the National Flood Insurance Program.

Public water supply resources in the area have been identified. The applicant intends to cap those wells located on its property or on property acquired for the project. A portion of the

water main of the primary public water supply that will be impacted by the project will be relocated. Stormwater conveyance and treatment has been designed to avoid impact to other public wells located in the project area.

Any loss of the functional values of the wetlands and of watercourses that will be permanently impacted by this project has been minimized. The applicant has incorporated measures proposed by the DEP Fisheries Division in its design plans and construction contracts to minimize impacts to fisheries resources and to enhance fish habitats. Loss of wildlife habitat will be limited by the use of bridges designed to allow for wildlife migration and to minimize the use of fill. Features have been incorporated into the project stormwater collection design to improve the quality of runoff.

Short-term impacts during construction will be reduced through measures to control erosion and sedimentation, stabilize embankments, restore vegetation, and maintain stream flows. Secondary impacts to the wetland areas will be minimized by adherence to appropriate Best Management Practices during construction.

To compensate for the loss of wetlands and watercourses, the applicant intends to create and restore 3.8 acres of mitigation wetlands to provide wildlife habitat and sediment functions. The applicant will provide for the preservation of 87.8 acres of floodplain and upland sites. The applicant has also agreed to restore outlet structures located in the Wyantenock State Forest to enhance fish habitat. The permit requires additional mitigation measures designed to protect wildlife and plant species of special concern.

The project will result in permanent impacts to 1.25 acres of wetlands and watercourses and 7.19 acres of man-made open water and temporary impacts to 0.2 acres of wetlands. These impacts, although unavoidable, have been minimized and will be compensated for by the mitigation and preservation efforts required of the applicant. The short-term impacts will be controlled during construction. As a result of the project, some wildlife habitat and fisheries resources in or adjacent to the impacted areas will be enhanced. The improvements to culverts and related efforts will prevent flooding and facilitate drainage. The proposed project, coupled with these enhancements and the mitigation plan, will not diminish the overall natural capacity

of the wetland and watercourse systems to support desirable biological life, prevent flooding, control sediment, facilitate drainage, and promote public health and safety.

(2) *Alternatives*

There are no feasible or prudent alternatives to the project plan proposed by the applicant. Various alternatives, including taking no action, would not meet the goals of the project to increase the capacity of the roadway to meet existing and projected traffic demands thereby improving safety and traffic flow. The applicant considered numerous alternatives to the bypass and, after determining that the bypass better met the project goals, considered several different alignments for the bypass to reduce impacts to wetlands and control costs. The applicant reasonably rejected alternatives to the proposed design where area neighborhoods and historic resources would be negatively impacted or where the authorization for federal transportation funds would be jeopardized. The project has been designed to minimize environmental impacts to the greatest extent possible. The applicant's proposed plan is reasonable in light of the social benefits to be derived from a safer roadway. The applicant has sufficiently demonstrated that there is no feasible and prudent alternative to the final proposed bypass alignment.

(3) *Short-term Uses of the Environment/Maintenance and Enhancement of Long-term Productivity*

The short-term impacts of the project, primarily due to the construction activities, will be minimized through erosion and sedimentation control guidelines that will be included in the construction contracts as required by the applicant. These guidelines will protect ground and surface water quality, minimize the possibility of siltation and sedimentation and minimize adverse effects to fisheries or riparian habitat.

The project will improve the functioning of some areas of the present wetland systems that contain invasive species and display signs of erosion and degradation. Other improvements will support wildlife habitat, fisheries resources and improved stream flows. Stable outlets and embankment slopes and improvements to the stormwater collection system will minimize sedimentation and improve water quality. The new wetland mitigation site, an area larger than

the area of wetlands to be lost, will create and restore a functioning wetland to replace the long-term values lost to the project.

The project will have short-term and long-term impacts on the environment. However, the long-term impacts will be minimized and the short-term impacts due to construction will be mitigated by the use of sedimentation and erosion controls and will abate after construction is completed as will the temporary disturbance to wildlife. Some improvements will enhance the long-term productivity of the impacted areas and the mitigation site will compensate for areas that are permanently lost. The project will have minimal impact on the maintenance and enhancement of long-term productivity of the existing wetlands or on the natural development of the wetlands in the future.

(4) *Irreversible/Irretrievable Commitment of Resources and Mitigation Measures*

The proposed project has been carefully designed to minimize the irreversible and irretrievable commitment of wetlands resources. In recognition of wetlands as an indispensable, irreplaceable fragile natural resource, the project is designed to protect existing wetland areas to the greatest extent possible. To compensate for the irretrievable loss of 1.25 acres of wetlands, the mitigation site will be created. The primary goal of this site is to provide wildlife habitat. The mitigation plan also includes a preservation area consisting of 87.81 acres.

The project will also improve and enhance some of the functions of existing wetlands by enhancing fisheries resources, stabilizing areas of existing erosion, improving drainage, removing invasive species and debris, and promoting wildlife migration. The commitment of wetland resources to the proposed project will not result in an unacceptable loss of irretrievable or irreplaceable wetland resources and the project will create, restore and enhance productive wetland resources.

(5) *Impact on Safety and Health*

The project, which will result in improved traffic flow and a safer roadway, has been designed to avoid adverse impacts to the wetlands to the greatest extent possible. The applicant will take measures to mitigate the potential for harm during construction, including the

protection of ground and surface water. The success of these measures will be monitored through regular inspections during the construction phase of the project. Potential impacts to wildlife and fisheries resources will be minimized through measures that include the incorporation of recommendations of the DEP. When concluded, improvements such as stabilized slopes and replacement culverts, new stormwater drainage systems, the shallow shelf on the Quarry Pond embankment, and access to wetlands from upland areas will facilitate wildlife movement, increase fisheries resources and will enhance the ability of the wetlands to control stormwaters. A DEP Stormwater Discharge Registration and associated Pollution Control Plan will be required for the entire project. The impacts to the wetlands do not pose a threat of injury or interference with the public health or safety or the reasonable use of property.

(6) *Impact on Wetlands Outside the Area and Inevitable Future Activities*

There is no evidence that the proposed project will have a negative impact on wetlands outside of the project area. The measures that will be taken during construction will prevent erosion and sedimentation that could encroach upon surrounding wetlands. The bypass will result in an inevitable increase in traffic and roadway runoff, which may have a moderate impact on wildlife habitat. However, improvements as a result of the project will offset the impacts to existing wetlands. The wetland mitigation sites and preservation areas will have a beneficial impact, and could benefit wetland systems that surround that area. The project as designed will not prevent future activities in and around Route 7.

III

RECOMMENDATION

The requirements of General Statutes §22a-41(b) have been met by this permit application. The record presented and all relevant facts and circumstances, including the six factors outlined in §22a-41(a), demonstrate that there is no feasible and prudent alternative to the proposed project that meets the purpose of the project and that would cause substantially fewer impacts to the natural resources.

The construction of the Route 7 Bypass will result in a safer and better roadway and more efficient transportation system. The proposed plan strikes an appropriate balance between the obligation of the applicant to improve a road that is presently a risk to human health and safety and the mission of the DEP to protect the environment. I therefore recommend that the permit that is the subject of this application be issued.

August 25, 2006
Date

/s/ Jean F. Dellamarggio
Jean F. Dellamarggio, Hearing Officer

STIPULATED FINDINGS OF FACT

1. The Application

On January 14, 2002, the Department of Transportation (DOT) submitted an application to the Department of Environmental Protection (DEP) Inland Water Resources Division for an Inland Wetland and Watercourses permit. A Notice of Tentative Determination and Status Conference was issued on April 13, 2006. (Exhibit DEP – 1) Staff requested a hearing upon determination of significant impact, and a hearings were held on June 14, 2006 and June 20, 2006. The record remained open until June 22, 2006 to allow time for the submission of additional written public comments. (Ex. DEP-1)

2. The Project

a. The proposed regulated activities that are the subject of this permit application (the "project") are all associated with the construction of the Route 7 Brookfield Bypass. The project will involve construction of the Bypass to allow traffic to circumvent the congested Brookfield Four Corners area by extending the existing expressway section of U.S. Route 7 by approximately 3.75 kilometers (2.3 miles). The expressway will be extended from its current terminus with Route 202 in the vicinity of Laurel Hill Road to a new terminus with Route 202 approximately 460 meters (1500 feet) south of the New Milford Town Line. From this point, U.S. Route 7 and Route 202 will be reconstructed to provide a four lane arterial roadway with a center median that will extend into New Milford and match into the U.S. Route 7 improvements currently under construction. The total length of the project is 4.6 kilometers (2.9 miles). The proposed construction includes the completion of the diamond interchange at the Route 7/Route 202 southerly interchange, three bridges, one retaining wall, minor improvements to North Mountain Road, and a new access drive to the Industrial Park near the New Milford town line. (Ex. APP-1, APP-2, APP-6C) Construction of the U.S. Route 7 Bypass will affect wetlands, watercourses, floodplains and other natural resources of the area. Regulated activities will occur at 12 wetland impact areas, identified as Wetland Impact Areas 1 through 5, and 7 through 13. Impacts previously associated with Wetland Area 6 were eliminated in the process of design refinement. (Ex. APP-1, APP-2, APP-7C)

   Regulated activities involve excavation and fill required to construct the Bypass roadway, reconstruct portions of Route 7/202, minor improvements to North Mountain Road, including bridges, drainage structures, and the new Industrial Park Access Drive. The project will entail storm water discharge from the new or reconstructed roadway sections, with discharges to the Limekiln Brook system (including the brook itself, associated wetlands, and the Quarry Pond), Domain Pond, and the tributaries of Still River, as well as to uplands in these watersheds. Some of these activities occur within the Limekiln Brook floodway and the 100-year floodplains of Limekiln Brook and the Still River. (Ex. APP-1, APP-7C)

A variety of measures were taken to avoid or reduce impacts on natural resources within the project area. Some impacts, however, were unavoidable. Total permanent impacts to vegetated wetlands and watercourses amount to approximately 0.51 hectares (1.25 acres). There will be an additional 1.87 hectares (4.62 acres) of impact to man-made open water associated with the surface area of Quarry Pond, corresponding to 2.91 hectares (7.19 acres) of pond bottom (impacts calculated to the projected toe of slope). Temporary wetland impacts above and beyond the permanent impacts amount to approximately 0.08 hectares (0.20 acres). The storm drainage design for the catch basins and piping in the project area conforms to applicable state and federal guidelines. (Ex. APP-7C, APP-8C)

b. The U.S. Route 7 corridor in Brookfield to New Milford has been recognized by the Department of Transportation since the 1980s for increased traffic, highlighting the need for improvement. The existing roadway cannot adequately service the high volumes of regional traffic that characterizes the corridor. The need was recognized during the mid-1980s based on unacceptable existing peak-hour traffic and excessive accident rates in the corridor. Since then, the traffic volumes and roadside development have increased, placing increased volumes of through-traffic in conflict with frequent turning movements along this two-lane road. The regional and local plans indicate that this area will continue to experience residential, retail, and industrial growth, further increasing traffic congestion. (Ex. APP-6C, APP-9 & APP-10)

   The Level of Service (LOS) is a rating that defines the quality of traffic service provided by a specific highway facility under traffic demands. The LOS characterizes the operating conditions on the highway in terms of traffic performance measures related to speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. The ratings range from LOS A (least congested) to LOS F (most congested). The LOS in Year 1994 for the Four Corners Intersection operated at a LOS F during the A.M. and P.M. peak hours. The projected LOS for the Year 2015 under with out any improvements at the Four Corners Intersection and the Route 7 Southbound and Northbound On/Off Ramps will operate at the LOS F. Under this project, the level of service will improve at these intersections as demonstrated in the operational analysis for the Year 2025. The results indicate that all three signals would operate at a LOS B for majority of the peak hours. (Ex. APP-6C, APP-9 & APP-10)

   The need for the project was documented in the Final EA/ Section 4(f) Evaluation and the Final Connecticut Finding of No Significant Impact for the U.S. Route 7 Corridor Brookfield-New Milford. The documents have identified the major purpose of the project as:

   - Increased capacity to adequately handle high volumes of through traffic; and
   - Improved safety and traffic flow by reducing conflicts resulting from turning movements at businesses and residences.

By diverting traffic around the Four Corners, the project will achieve significant improvements for traffic, while avoiding considerable impacts to businesses and historic resources in that heavily developed area. (Ex. APP-6C, APP-9 & APP-10)

c. The DOT classifies the Bypass as an "Urban Principal Arterial - Expressway." The DOT designed the Bypass to accommodate year 2025 projected average daily traffic ("design year") volumes for the Brookfield Bypass of approximately 11700/18000 vehicles per day. (Ex. APP –7C)

d. The limited access highway portion of the project begins approximately 0.7 kilometers (0.4 miles) south of the existing interchange with Federal Road and extends northerly approximately 3.7 kilometers (2.3 miles). The typical section of the limited access portion of the highway includes two 3.6m (12 foot) lanes, 3.0m (10 foot) right and 2.4m (8 foot) median shoulders in each direction separated by a concrete barrier. (Ex. APP-1, APP –7C)

The proposed alignment bypasses Brookfield Four Corners and merges with Route 202 at a new at-grade intersection approximately 0.5 kilometers (0.3 miles) south of the New Milford town line. North of this intersection, Route 7 and 202 merge and become a four-lane arterial highway with median, extending approximately 0.8 kilometers (0.5 miles) north to the project limit. The typical section of the arterial portion of the Bypass includes two 3.6m (12 foot) lanes and 1.2m (4 foot) shoulders in each direction separated, in part, by a raised median. (Ex. APP-1, APP –7C)

The proposed improvements have been designed to avoid or minimize impacts to adjacent properties. A corridor width (highway right of way) of 70.0 meters (230 feet) is proposed for the Bypass and a 32.5 meter (140 feet) wide corridor for the four lane arterial Routes 7 and 202. (Ex. APP-1, APP –7C)

The project includes completion of the existing interchange at the Route 202 (Federal Road) overpass, three bridges, one retaining wall, minor improvements to North Mountain Road, and a new access drive to the Industrial Park near the New Milford town line. (Ex. APP-1, APP-6C, APP –7C)

The three bridges for the project include a 58-meter (190 foot) single span crossing a wetland and brook in the vicinity of Hoyt's Pond (18-113-06563), a 139.5-meter (458-foot) three-span bridge crossing North Mountain Road and Limekiln Brook (18-113-06565), and a 132-meter (433-foot) two-span bridge crossing a tributary brook and wetland near Quarry Road (18-113-06564). The retaining wall (18-113-101) is approximately 145-meters (476-foot) long and approximately 12-meters (39-feet) high and supports a slope at the rear of the Laurel Hill Cemetery Property. . (Ex. APP-1, APP –7C)

Three signalized intersections are part on the project, two at the ramps of the diamond interchange with Route 202 (Federal Road), and the third at the northern end of the proposed Bypass where it will intersect with Route 202 (Federal Road) and the Industrial Park Access Drive. . (Ex. APP-1, APP –7C)

The proposed Industrial Access Driveway will provide safe access to and improve traffic flow on U.S. Route 7 compared to retaining existing access driveways. This improvement reduces traffic conflicts resulting from turning movements into the industrial area located just north of the at grade intersection of the Bypass and the Reconstructed Route 7/202. . (Ex. APP-1, APP –7C)

Illumination for the interchange area and for the limited access highway portion north to Structure 18-113-06563 near Hoyt's Pond is also included in the project. . (Ex. APP –7C)

Design criteria used to develop the improvements for the Bypass as well as the other roads and ramps are in accordance with the DOT's standards. All proposed design elements and the existing elements within the project limits meet or exceed minimum recommended values of the governing standards. (Ex. APP –7C)

e. The 1995 Environmental Assessment ("EA") document stated the Route 7 Corridor between 1988 to 1992 experienced high frequency of accidents. Today the trend continues with high number of accidents, 137 in a 3-year period within the existing Route 7 Brookfield project limits. Without the construction of the Bypass , it is reasonable to assume the rate of accidents will increase, particularly with the expected increase in traffic volumes in this area. (Ex. APP-6C, APP-9 & APP-10)

Watercourses/ Flood Control

f. The project was designed to minimize encroachment of project elements and construction activities into the floodway and 100-year floodplains. However, in several areas, encroachment was unavoidable. Work will occur in the Limekiln Brook floodplain and floodway near North Mountain Road (Wetland Impact Area 5). Work in the floodplain of the Still River occurs at a tributary drainage channel near the south end of the project (Wetland Impact Area 1), at Wetland 18 (Wetland Impact Area 12), and along a portion of the embankment for U.S. Route 7 and 202 from station 5+580 to 5+630. (Ex. APP-1, APP –7C)

g. The project was designed to minimize encroachment of project elements and construction activities into the floodway and 100-year floodplains. However, in several areas, encroachment was unavoidable. Work will occur in the Limekiln Brook floodplain and floodway near North Mountain Road (Wetland Impact Area 5). Work in the floodplain of the Still River occurs at a tributary drainage channel near the south end of the project (Wetland Impact Area 1), at Wetland 18 (Wetland Impact

Area 12), and along a portion of the embankment for U.S. Route 7 and 202 from station 5+580 to 5+630. (Ex. APP –7C)

LIMEKILN BROOK

The Town of Brookfield Flood Insurance Study (FIS) dated 1978 does not account for the substantial changes to the Limekiln Brook watershed that occurred since the study became effective. The most significant change is the large impoundment of water, Quarry Pond, created as a result of breaching of Limekiln Brook's channel and inundation of the adjacent quarry area. This large body of water provides a significant attenuation of the watershed's runoff. One of its consequences is reduction of peak discharges in Limekiln Brook's reach as compared to the flows reported in FIS. Another consequence is a significant increase in inundation limits in the area adjacent to the pond. (Ex. APP –7C)

As part of the project, the DOT developed new hydrologic and hydraulic models for the Limekiln Brook. The purpose of the new analysis was to establish the existing flooding limits and examine the effects of the proposed highway construction. (Ex. APP –7C, APP-21, APP-22)

The proposed project will have an effect on the hydrologic characteristics of the Limekiln Brook watershed. The most significant change is the reduction in storage from the placement of embankment fill in Quarry Pond. The DOT will mitigate increases in flow from the pond through modifications to and replacement of the culvert carrying Limekiln Brook under North Mountain Road. Another change is the loss of flood storage due to placement of embankment fill in Domain Pond. However the storage loss at this location was found to be negligible. Other changes within the watershed include an increase in surface runoff from the highway pavement, and minor decreases in the system lag time due to the proposed highway storm drainage system. (Ex. APP –7C, APP-21, APP-22, APP-24)

In order to demonstrate the compliance of the proposed project with the National Flood Insurance Program (NFIP) regulations the DOT, on behalf of the Town of Brookfield, applied for a Conditional Letter of Map Revision (CLOMR) from the Federal Emergency Management Agency (FEMA). (Ex. APP –7C, APP-24)

In a CLOMR, FEMA comments on whether a proposed project located within a special flood hazard area meets the minimum floodplain management criteria of the NFIP and, if so, what revisions will be made to the community's NFIP map if the project is completed as proposed. (Ex. APP –7C, APP-24)

The effects of the proposed construction on Limekiln Brook hydrology and redefined stream floodplain and floodway limits were presented to FEMA. On January 26, 2006, FEMA found the project met the flood management criteria of NFIP and issued the CLOMR for the Limekiln Brook. . (Ex. APP –7C, APP-25)

STILL RIVER

None of proposed construction activities in or adjacent to the Still River floodplain are anticipated to have any impact on river flood levels. (Ex. APP –7C)

h. The project area is located in the Still River Drainage Basin (DEP Basin number 6600) which lies within the Housatonic Major Drainage Basin. Within the project limits, the Still River lies to the east Other watercourses consist of Limekiln Brook and three unnamed perennial streams. Open water resources consist of Hoyt's Pond, Quarry Pond and Domain Pond. Water quality of Lime Kiln Brook is unclassified by the Connecticut Department of Environmental Protection (CTDEP), so presumed to be class A. The groundwater quality in the project area is GA. (Ex. APP-1, APP –8C)

PUBLIC WATER SUPPLY RESOURCES

During early project coordination, the public water supply resources within the project area were investigated in 1997 and again in November 2001. Public water supply well data were obtained primarily from the Connecticut Department of Public Health (DPH), which monitors and keeps listings of wells that serve more than 25 persons each. Based on that early coordination with DPH, there were two existing community public water supply sites identified within or close to the Route 7 Bypass construction corridor. Follow-up coordination with the DPH in 2005 further revealed that records of community and non-community wells within the project corridor were incomplete. The DOT has since updated this information in our files. (Ex. APP-1, APP –8C, APP-27)

One of the community sites originally identified consisted of three spring boxes located along the south side of North Mountain Road, above Quarry Pond. Groundwater seeping from the mountain flows from box to box in series and into the distribution system located under North Mountain Road. These boxes have the capacity to serve seven properties in the Brookfield Four Corners area, but in November 2001 were reported to serve only two properties. More recent documents clarified that this public water supply was owned and operated by Iron Works, a small water company unregulated by the Department of Public Utility Control, (DPUC). Some elements of the Iron Works System, which date back to the 1800's, are undersized and in poor condition. As a result of a joint investigation in 2003 of the Iron Works Aqueduct Company, the DPUC and DPH issued a decision with numerous conditions ordering the Brookfield Water Company (BWC) to assume ownership and control of all components of Iron Works. The reconstruction of North Mountain Road would have potentially impacted these spring boxes and the distribution system, but the reconstruction of this local road has been eliminated from the project, and therefore, no impact is anticipated. (Ex. APP-1, APP –8C, APP-26)

The other community water supply site originally identified was a well located on property formerly owned by Fairfield Resources, on the south side of the entrance to

the quarry access road from Laurel Hill Road. This well had historically been used for quarry operations (i.e., washing down gravel and trucks) and was still active at the time of the original permit application. Since the filing of the application, the quarry has been acquired by the DOT which plans to cap this well prior to construction. (Ex. APP-1, APP –8C, APP-27)

During the permit process, the DOT became aware that the BWCwas in the process of constructing a water supply infrastructure, [and became a recognized public water supply] in the project area. Two wells at the southwest end of Quarry Pond had been installed, as approved by the Town of Brookfield, the Department of Public Utility Control (DPUC), and the DPH. In January of 2001, BWC obtained a certificate of convenience and necessity from the DPUC and DPH to service the Meadows, a 37 lot residential subdivision in Brookfield. In 2003, BWC was temporarily servicing the two former Iron Works customers. As a result of BWC development, a water main now runs through the acquired Fairfield Resources property, a small section of which will have to be relocated during construction of the Route 7 Bypass. Thus, the DOT identified the BWC system as another public water supply in the project area. (Ex. APP-1, APP –8C, APP-26)

The DOT has been coordinating with DPH and BWC regarding the relocation of the water main. BWC has retained a consultant to prepare the design of the relocated water main, which will be incorporated into the project plans. The water main is currently at an elevation significantly above the proposed bypass elevation. The DOT proposes to install a new section of water main at a location offset from the existing, so that portions of the existing pipe can remain in service. The new main will be constructed of the same type and size (12" DIP) as the existing pipe. Upon completion of the new main, it will be tested and chlorinated in accordance with DPH requirements before connection to the system. (Ex. APP-1, APP –8C, APP-27)

Index maps of the project corridor which overlay existing well locations, wellhead protection areas and proposed staging areas were completed by the DOT. Although other wells serving public places are present within the project area, proper stormwater conveyance and treatment have been incorporated to avoid impact to these wells. Since the project will impact the well currently servicing the DOT Maintenance facility on existing Route 7, , the DOT plans to provide a water company hook up for this facility during construction, and properly abandon the existing well. Another well, which is no longer in use, will be properly capped at the property which has been acquired on Production Drive. The DOT construction plans demonstrate that construction staging and storage areas will remain outside of wellhead protection areas. In order to protect drinking water resources within the area, the DOT will issue a Notice to Contractor, requiring the contractor to utilize construction staging and storage areas as outlined in the plans. The DOT will require the contractor to use Best Management Practices (BMP's) throughout construction to protect groundwater resources throughout the project. (Ex. APP –8C, APP-17, APP-17A, APP-27)

Wetland Impact Sites/ Proposed Activities

i. The impacted areas on this project consist of an intermittent drainage ditch, palustrine forested, scrub-shrub and emergent wetlands, man made lacustrine wetlands (rock bottom), and Riverine wetlands, both unconsolidated and rock bottom types. The current project will impact 12 wetland sites. Total permanent impacts to vegetated wetlands and watercourses amount to 1.25 acres and there will be an additional 4.62 acres of impact to open water associated within the surface area of Quarry Pond, and Domain Pond corresponding to 7.19 acres of pond bottom (impacts calculated to toe of slope). Temporary wetland impacts above and beyond the permanent impacts amount to 0.20 acres. Most of these impacts are minimal and are unavoidable with the proposed alignment. (Ex. APP -1 and APP –8C)

1. *Site 1* (Station 1+250)

• Impact Area 1 is an existing drainage ditch which lies within the right-of-way of existing Route 7/202, currently discharging roadway runoff to the Still River. Its primary function is to convey runoff, and it may provide some nutrient removal. The channel itself displays a silty bottom. Vegetation along the channel is dominated by cherry saplings *(Prunus serotina)* and tree of heaven *(Ailanthus altissima)* in the canopy layer, with most individuals being affected by Asiatic bittersweet *(Celastrus orbiculatus)* vines. Multiflora rose *(Rosa multiflora)* and autumn olive *(Elaeagnus umbellata)* dominate the shrub layer, with various goldenrods *(Solidago sp.),* trillium and sensitive fern *(Onoclea sensibilis)* in the herbaceous layer. (Ex. APP -1 and APP –8C)

Temporary impacts to a small section of this drainage channel will result from the reshaping of the channel which will convey runoff from the reconstructed Route 7. Installation of the channel will involve excavation and placement of erosion control matting, with final grades being slightly lower than existing grades to achieve proper flow. The temporary impact will be approximately 72 square meters (m^2), (775 square feet (ft^2)) or 0.018 acre. Once stabilized, the channel will be similar to pre-construction conditions, replacing its primary functions of conveying drainage and nutrient removal. The use of erosion control matting will aid in stabilization and also allow the channel to revegetate, minimizing impacts. There will be no permanent impacts at this site. (Ex. APP-1, APP-7C & APP-8C)

Impacts at Wetland Impact Area 1 are relatively small with few options for avoidance or minimization. The project design at this area represents

the best efforts to minimize impacts through refinements of alignment and/or placement of drainage structures. (Ex. APP-7C)

2. <u>Site 2</u> (Station 2+400) (Hoyt's Pond) – also known as (aka) Wetland A

• Wetland A is a perennial stream and associated wetland fringe that drains into Hoyts Pond. The wetland is relatively narrow for most of its length, but broadens where it meets the pond. The overall wetland vegetation is dominated in the tree canopy by American beech *(Fargus grandifolia)*, eastern hemlock *(Tsuga canadensis)* and sycamore *(Plantanus occidentalis);* in the shrub layer by ironwood *(Carpinus caroliniana),* spicebush *(Lindera benzoin),* and red maple saplings *(Acer rubrum),* and in the herbaceous layer by a mix of jewelweed *(Impatiens capensis),* skunk cabbage *(Symplocarpus foetidus),* blue cohosh *(Caulophyllum thalictroides),* jack-in-the-pulpit *(Arisaema atrorubens)* and Christmas fern *(Polystichum acrostichoides).* In the proposed impact area, red maple (A. rubrum) and beech *(F. grandifolia)* dominate the canopy layer, but the shrub layer is dominated by burning bush *(Euonymus atropurpureus)* and honeysuckle *(Lonicera sp.),* with goldenrod *(Solidago sp.),* sensitive fern *(O. sensibilis)* and stunted *Phragmites.* Asiatic Bittersweet *(C. orbiculatus)* is the dominant vine. (Ex. APP -1 and APP – 8C)

The pond itself is shallow and roughly one acre in size. The pond is mostly open water, but displays some scrub-shrub, and emergent marsh wetland components. An area of common reed *(Phragmites australis)* dominates the southern portion of the pond. Steep bedrock outcrops and large boulders dominate the pond's western edge. The southern embankment leading down to the pond is characterized by evidence of fill material, but is still vegetated with some weeping willow *(Salix babylonica)* and beech *(F. grandifolia)* in the canopy layer. Shrubs dominating the embankment are those species typical of disturbed areas, including multiflora rose *(R. multiflora)*, honeysuckle *(Lonicera sp.),* burning bush *(E. atropurpureus)* and small cedars *(Juniperus sp.).* Virginia creeper *(Parthenocissus quinquefolia)* is the dominant vine. The toe of slope is dominated by a monoculture of Phragmites. A man-made weir structure is present at the outlet, but appears to be in disrepair. Although there are areas of common reed, cattail and evidence of green filamentous algae, indicating that the pond is eutrophic in nature, the presence of varied wildlife indicates viable wetland and aquatic habitat. (Ex. APP -1 and APP –8C)

The primary value of the overall area is wildlife habitat. The convergence of wetland types, the pond's connection to the forested wetland stream channel (Wetland A), and the surrounding upland forested habitat all contribute to this value. In addition to wildlife habitat, Hoyt's Pond

displays value for floodflow alteration, sediment trapping and toxicant retention. The emergent wetland portions of the stream corridor and pond also function in excess nutrient removal. Non-consumptive recreation human use is also evident by worn footpaths through the vicinity, but is not considered a primary function due to the lack of public access and parking. (Ex. APP -1 and APP –8C)

Approximately 0.175 acre (707 m^2 or 7,610 ft^2)of Wetland A, (a strip along the southern side of the wetland where it connects with Hoyts Pond), will be permanently impacted by the placement of fill to support the new Route 7 Bypass roadway and the southern abutment of the proposed bridge (Structure 1). A drainage outfall (at Sta. 2+349) will extend slightly beyond the fill embankment, contributing slightly to the area of permanent impact. Temporary wetland impacts will occur within the streambed due to minor regrading along the southern abutment, resulting in approximately 0.021 acre (85 m^2 or915 ft^2) of impact. Approximately half of the permanently impacted area is wooded swamp and the other half is emergent marsh dominated by *Phragmites*, with a narrow scrub-shrub fringe. The primary functions of this impacted area are excess nutrient removal and wildlife habitat. (Ex. APP -1 APP-7C and APP –8C)

Permanent impacts to Wetland A were minimized through the placement of the highway alignment at the narrowest point of the wetland and the use of the bridge structure spanning the riparian corridor, allowing for continued movement of wildlife under the bypass on natural substrate. The DOT chose fill embankment slopes of 2:1 (horizontal:vertical)for this area to ensure a stable fill embankment and to allow for planting of native vegetation. There will be a net loss in total habitat area, much of which is upland, but access to adjacent habitats will be maintained. Habitat quality will be moderately decreased due to the addition of roadway traffic and roadway runoff. The small permanent loss of wetland area is unlikely to affect the wetland's overall capacity for nutrient removal. (Ex. APP -1 APP-7C and APP –8C)

Prior to construction of the permanent bridge, a temporary structure spanning Wetland A will be constructed for the haul road linking the southern project area with the Quarry Pond work/staging area (Staging Area 2). This temporary bridge will not incur any additional impacts, as it lies within the footprint of proposed impacts from the permanent bridge structure. The DOT will minimize secondary impacts to the wetland through adherence to the appropriate BMP's during construction. . (Ex. APP -1 APP-7C and APP –8C)

3. *Site 3* (Approximately Station 3+100 to 3+500) (Quarry Pond)

• Quarry Pond is approximately 32 acres in size and is a man made open water body within a large and deep former quarry excavation encompassing the former Lime Kiln Brook channel, created by limestone quarry operation and a breach of the former Limekiln Brook channel in the early 1980's. The pond is approximately 32 acres in surface area, with very limited aquatic growth due to the lack of shallow water. The steep rock faces around the eastern and southern sides of the pond are devoid of vegetation and render the pond inaccessible to wildlife from those sides. The northern end has a flat graded edge dominated by autumn olive *(Elaeagnus umbellata)* and cedars *(Juniperus sp.)*. The western edge is characterized by a steep rise to a forested slope. The pond's primary functions are groundwater discharge, floodflow alteration and fish habitat due to observations of warm water species of fish. (Ex. APP -1 and APP – 8C)

The proposed fill for the roadway embankment will impact approximately 3.55 acres of the surface of Quarry Pond, and 5.87 acres when measured to the toe of slope, or pond bottom. A design update in 2004 included lowering the profile between Stations 2+900 & 3+700 which reduced these permanent open water impacts. The proposed western fill embankment within this area will be 2:1, with a shallow shelf created on the embankment 0.3 meters (approximately 1 foot) below the normal water surface elevation. This shelf will run for approximately 984 linear feet along the fill embankment and will provide for emergent vegetation and fish spawning habitat. Structural "pockets" of various lengths and approximately 1.2 meters (4 feet) deep will be incorporated along the shelf. The pockets will be lined with pebbles and sand to promote fish spawning. This will substantially enhance the habitat value of the pond for fish. The proposed eastern fill embankment will slope down at 4:1 into a vegetated swale and 0.38 acre wet pond to be created to accept and filter stormwater from the roadway drainage system. (Ex. APP -1 APP-7C and APP –8C)

The partial filling of Quarry Pond will reduce the capacity of the pond for groundwater discharge, floodflow alteration and fish habitat. Since the existing excavated sides of the pond are steep and essentially unable to support wetland vegetation or habitat structure, the tiered shelf designed to provide vegetation and fish habitat will be a beneficial addition. These features will likely enhance this man-made area's functions and values, despite a reduction in pond size. (Ex. APP -1 and APP –8C)

• The permanent impact to the surface water of Quarry Pond amounts to approximately 14,399 m^2 (154,990 ft^2). Total open water impacts to the toe of slope amount to approximately 23,778 m^2 (255,944 ft^2). (Ex. APP – 8C)

The proposed construction sequence involves building an access causeway from the south end of the pond to North Mountain Road. The causeway will be placed along the westernmost edge of the proposed roadway embankment across the entire section of the pond to be filled. This initial fill will create a barrier between the pond area to be filled and the section to remain unaltered. After the causeway is constructed, filling of the remaining eastern section of the pond will continue. This sequence of operation is put in place to minimize the turbidity in the rest of the pond. (Ex. APP –8C, APP-17 and APP-17A)

The roadway embankment will be constructed from rock up to an elevation approximately 3 feet above the water surface, which will minimize downstream turbidity during construction. The fill material being used, along with planned construction sequencing and BMP's will minimize temporary impacts during construction. (Ex. APP-7C, APP –8C, APP17 and APP-17A)

4. <u>*Site 4*</u> (Station 150+310) (Lime Kiln Brook) – aka Wetland B South

• The wetland which lies south of North Mountain Road is a disturbed portion of the former Lime Kiln Brook channel, immediately adjacent and downstream of the northwest corner of Quarry Pond. This wetland receives flow out of the pond through an elevation-controlled rip-rap outlet. It consists mostly of open water with some scrub-shrub edges and some emergent marsh vegetation as well. Plant species near the riprap outlet include purple loosestrife *(Lythrum salicaria),* autumn olive *(E. umbellata)* and goldenrod *(Solidago sp.).* The wetland edges are dominated by silky dogwood *(Cornus amomum),* honeysuckle *(Lonicera sp.)* and purple loosestrife *(L. salicaria)*. In the vicinity of the existing culvert, slope paving and asphalt continue to the water's edge. A metal cage is currently in place at the inlet, likely placed by the Town to prevent clogging of the pipe by beaver. The wetland retains shallow water throughout the year and white sucker fish have been observed in this wetland. Due to its small size, its functions are somewhat limited, with the primary function being sediment/toxicant retention, enhanced by its basin-like structure and position adjacent to (below) North Mountain Road. (Ex. APP -1 and APP –8C)

The DOT will replace the existing culvert under North Mountain Road in order to maintain the downstream hydrology of Limekiln Brook affected by the lost storage as a result of partial filling of Quarry Pond as described under impact area 3. The proposed crossing will consist of an arch pipe replicating the hydraulic characteristics of the existing downstream flow conditions in Limekiln Brook. Permanent wetland impacts associated with this culvert replacement amount to 0.049 acre (200 m^2 or2,153 ft^2). This impact is not anticipated to adversely affect the wetland's function and values, but rather will allow for a more stable outlet and vegetated slopes in this vicinity. Proper water handling and BMP's will minimize impacts during construction. The improvements at this culvert will protect wetland B in the long-term by providing a more stable slope. (Ex. APP -1, APP-7C and APP –8C)

This portion of the project uses the best design and construction means available to minimize impacts. (Ex. APP –7C)

5. <u>*Site5*</u> (Station 3+550) (Lime Kiln Brook) - aka Wetland B North

• Wetland B is a complex of forested swamp, scrub-shrub and emergent wetland types extending approximately 1,300 feet (0.25 miles) along Lime Kiln Brook from North Mountain Road northerly to the vicinity of Domain Pond and Quarry Road. The wetland lies at the base of a steep slope to the west. This upland slope is dominated by Eastern Hemlock with very little understory. Where Lime Kiln Brook enters the wetland through the existing culvert under North Mountain Road, the channel shows evidence of scour and deposition as well as a build up of woody debris, likely from past beaver activity. Former runoff events have deposited layers of sand along the channel floor and trees have been uprooted. Immediately north of North Mountain Road, the area is best characterized as red maple swamp. Along the stream channel, red maple *(A. rubrum)* and American elm *(Ulmus americana)* dominate the canopy, with arrowwood *(Viburnum recognitum)* spicebush *(L. benzoin),* and alder *(Alnus sp.)* dominating the shrub layers. Grape and poison ivy are the dominant vines. Throughout other areas east of the stream channel, red maple trees, cattail *(Typha latifolia)* and skunk cabbage *(S. foetidus)* dominate with non-native and conspicuious yellow iris (Iris pseudocorus) also present. Small patches of *Phragmites* and purple loosestrife *(Lythrum salicaria)* have been noted over the past few years and do appear to be spreading. The northern portion of the wetland is a forested swamp which has displayed varying water levels over the years, and at times functions as an amphibian breeding habitat. A wildlife study was performed and finalized in 2001 which documents the species utilizing this area. The mix of habitat types within wetland B and the adjacent forested upland provide for wildlife habitat in a corridor which is otherwise heavily developed.

The quality of fish habitat is not known, but white sucker were observed by DOT's consultant spawning in this portion of the brook in the mid-1990's. Existing culverts downstream may be restricting fish passage, but portions of the natural channel appear unpassable as well due to sedimentation, likely from past quarry operations upstream. (Ex. APP -1 and APP –8C)

Wetland B, in addition to being an important wildlife habitat, also carries out the functions of floodflow alteration, production export, sediment trapping and nutrient removal and transformation. (Ex. APP -1 and APP –8C)

The wetlands associated with Lime Kiln Brook north of North Mountain Road will be impacted by the culvert replacement described previously, and construction of Structure 3, the bridge over North Mountain Road and a portion of Lime Kiln Brook. Five support columns for Piers 1 and 2 are located within wetland boundaries. These columns and a small encroachment into the wetland from the embankment at the northern bridge abutment comprise the permanent impacts at this location, which will amount to 0.036 acre (144 m^2 or1,550 ft^2). (Ex. APP -1, APP-7C and APP –8C)

A crane mounted on temporary trestles will accomplish most of the bridge construction work, with materials brought in by truck. The piers will be constructed within cofferdams that will be dewatered during construction, with the dewatering basins located on uplands adjacent to the piers. The portions of the cofferdams within wetlands will result in temporary impacts. The pile caps for the piers will be set approximately 3 feet below finished grade, allowing the replacement of natural substrate and natural restoration of vegetation over the pier construction area. The piers have been located out of the main flow channel of Lime Kiln Brook to minimize impacts. Other temporary impacts to the wetland will result from the installation of piles to support the temporary work trestle required for erection of the bridge. The trestle will be a pile-supported timber deck with a layer of geotextile fabric, with piles driven from uplands or from the trestle as its construction progresses out over the wetland. Cutting of vegetation in the paths of the bridge deck and the temporary trestle will be necessary to clear the construction zone. Temporary impacts total 0.048 acre (196 m^2 or2,110 ft^2) in this area. (Ex. APP -1, APP-7C and APP –8C)

This portion of wetland B is degraded somewhat due to it's proximity to the existing roadway and sedimentation and erosion due to past upstream quarry operations. Land disruption and noise during construction will impact wildlife usage temporarily. Permanent impacts to functions and

values have been minimized by the use of a bridge in this area which has been designed to allow for wildlife passage and minimizes fill. The use of trestles for construction minimizes temporary impacts. Adherence to the appropriate BMP's during construction will minimize secondary impacts to the wetlands. (Ex. APP -1, APP-7C and APP –8C)

6. *Site 6* (Station not applicable)

• This wetland area is a small red maple swamp located on the hillside adjacent to North Mountain Road. Spicebush *(L. benzoin),* dominates the shrub layer and skunk cabbage (*S. foetidus)* dominates the herbaceous layer. The wetland is fed by seepage from groundwater, which keeps it moist year-round. Its primary function is groundwater discharge. Its small size, position adjacent to the road and a residence diminish its potential for wildlife use. It may receive a small amount of roadway runoff, so it also has a minor value for sediment/toxicant retention. (Ex. APP -1 and APP –8C)

No impacts will occur at this area due to the elimination of the full reconstruction of North Mountain Road, which is now limited to the immediate vicinity of the culvert replacement described under wetland impact area 4. (Ex. APP -1, APP-7C and APP –8C)

7. *Site7* (Approximately Station 3+800) Tributary to Wetland B North

• Impact area 7 consists of a perennial stream which drains into Wetland B approximately 600 feet north of North Mountain Road. This tributary originates west of wetland B and is characterized as a narrow and steep rocky channel. Farther upstream from wetland B, where there are large grade changes in the natural topography, the stream is characterized by large boulders and waterfalls. Due to the rocky substrate, the extent of wetlands is mostly limited to the immediate riparian fringe along the water, which is dominated by sweet and yellow birch *(Betula sp.),* American elm *(U. americana)* and eastern hemlock *(T. canadensis)* in the canopy. The shrub layer is somewhat limited, with witch-hazel *(Hamamelis virginiana)* dominating, and Japanese barberry *(Berberis sp.)* and spicebush *(L. benzoin)* also present. The herbaceous layer is dominated by skunk cabbage (*S. foetidus)*, trillium, cinnamon fern *(Osmunda cinnamomea)* and various sedges *(Carex sp.).* The primary functions of this stream are groundwater discharge, wildlife habitat, and visual quality. The stream collects surface runoff and groundwater seepage from the mountain, provides a reliable source of freshwater for wildlife, and provides for aesthetic appreciation. During the 2001 wetland B wildlife study, it was revealed that this stream corridor may act as an

important link between wetland B and the upland habitat on the ridge. (Ex. APP -1, APP –8C)

Impacts to this tributary stream will occur at the Bypass crossing, where a 132 meter (or 433 feet) two-span bridge structure (Structure 6) will be constructed, resulting in permanent impacts of 0.194 acre (784 m^2 or8,439 ft^2). Direct wetland impact was avoided and minimized to the greatest extent possible by incorporating a bridge structure for this crossing, with numerous structure lay-outs investigated. The design preserves the structure and hydrology of the tributary stream to the extent possible. The bridge abutments are located on uplands, but the pier (Pier 1) with its four support columns will be constructed in the wetland. The pile cap for the pier will be set approximately 3 feet below finished grade, allowing the replacement of natural substrate over the construction area. Permanent wetland impacts also include a linear strip of fill for the embankment associated with the southern bridge abutment. This fill will also accommodate access to the temporary trestle during construction. (Ex. APP -1, APP-7C and APP –8C)

The pier will be constructed within a cofferdam, resulting in temporary impacts. A dewatering basin will be located on uplands north of the pier. Other temporary impacts to the wetland will result from the installation of the temporary work trestle construction required for erection of the bridge. The trestle will be a pile-supported timber deck, with piles driven from uplands or from the trestle as its construction progresses out over the wetland. Trees and shrubs in the path of the construction will need to be cleared as the trestle is built. This will be accomplished by manual means, with no heavy equipment allowed directly in the wetland. Cutting will be above ground, allowing roots and lower stems/trunks to remain in place. Temporary impacts will total 0.043 acre (176 m^2 or1,894 ft^2) at this site. (Ex. APP -1, APP-7C and APP –8C)

Wildlife usage will be impacted temporarily during construction due to land disruption and noise. Permanent impacts to functions and values have been minimized by the use of a bridge in this area which has been designed to allow for wildlife passage and minimizes fill. While the overall carrying capacity of the wetland for wildlife will be partially compromised by the impacts to this site, the tributary stream corridor and much of the forest adjacent to the most active wildlife movements (as observed during the wildlife survey) will not be disturbed. The finished roadway embankment adjacent to wetland B will incorporate topsoil and native plantings to provide a more natural transition to the wetlands at the base of the slope. Temporary impacts have been minimized via the use of trestles for construction. Secondary impacts to the wetland will be minimized through adherence to the appropriate BMP's during construction. (Ex. APP -1, APP-7C and APP –8C)

Wetland impacts at this location will include fill for the Bypass embankment. The DOT explored alternate alignments at this location in order to minimize the potential impacts to the wildlife passage routes. The resulting configuration balances the amount of steep rock cut slopes on the western side of the Bypass with fills on the east side. Additionally it provides a structure over the unnamed tributary brook and wetland to allow for unobstructed wildlife migration from the upland areas to the wetland. (Ex. APP -1, APP-7C and APP –8C)

8. *Site 8* (Approximately Station 4+000) Domain Pond

• Domain Pond is a man-made excavation, approximately 3 acres in size. It is characterized by broad areas of relatively shallow depths, and is therefore classified as a eutrophic, warm water resource. It supports some pockets of wetland vegetation, which at the time of the original application was dominated by cattail, but is now dominated by *Phragmites*. Cottonwood saplings *(Populus deltoids)* dominate the pond edge along with autumn olive *(E. umbellata)* in the shrub layer. Purple loosestrife *(Lythrum salicaria)* is also present. Domain Pond is lightly used as a recreational area and for occasional fishing and does have a small gravel parking area and picnic tables. This value is diminished however, by local dumping and lack of maintenance at the site. Sunfish and largemouth bass have been observed in the pond. Its values include groundwater discharge, recreation, fish habitat, and some flood storage value. (Ex. APP -1 and APP –8C)

Domain Pond will be partially filled by the 2:1 fill slope of the proposed Bypass. The embankment was originally designed as a 1.5:1 riprap slope to reduce direct impacts, but upon request from the Town of Brookfield, and as agreed upon by the regulatory agencies, a 2:1 slope was incorporated to allow for native plantings and shading. (Ex. APP -1, APP-7C and APP –8C)

The permanent impact to the surface area of the pond is slightly over 1 acre (4,312 m^2 or46,414 ft^2), with the impact as measured to toe of slope at 1.31 acre (5,304 m^2 or57,092 ft^2). No additional temporary impacts are proposed. Large boulders have been incorporated into the toe of slope to enhance the remaining fish habitat. The partial filling will result in loss of fish habitat, and flood storage. Substantial loss of the groundwater discharge function is not expected, but recreational value is expected to be reduced, due to the proximity of the new roadway. (Ex. APP -1, APP-7C and APP –8C)

To prevent siltation of the remaining portion of the pond a temporary turbidity curtain will be installed at the toe of underwater fill during construction. The existing upland area runoff and the highway drainage will be collected in a swale parallel to the new roadway. The drainage will be piped under the roadway and discharged into the plunge pools at the southern and northern ends of Domain Pond. . (Ex. APP -1, APP-7C, APP-17, APP-17A)

9. *Site 9* (Approximately Station 4+450) aka Wetland C

• Wetland C is a configuration of two rocky watercourses that converge near the toe of the Carmen Ridge slope and wind through a broader scrub-shrub and emergent wetland. Up on the ridge, the forest is dominated by oak *(Quercus sp.)*, hemlock *(T. canadensis)* and birch *(Betula sp.)* in a mature canopy layer. Witch hazel *(H. virginiana)* is dominant in the sparse shrub layer and various ferns dominate the herbaceous layer. The streams fall over rock ledges and boulders and pass among rocks with mosses and ferns. Within the wetland at the toe of the ridge, the tree canopy is dominated by red maple *(A. rubrum)* and ironwood *(C. caroliniana)*. Spicebush *(L. benzoin),* dominates the sparse shrub layer. Skunk cabbage (*S. foetidus)* dominates the herbaceous layer. (Ex. APP -1, APP –8C)

The primary functions of Wetland C are groundwater discharge, wildlife habitat, production export and visual quality. More recent field inspections have revealed worn footpaths through the area, adding recreational value. The streams, although probably not capable of supporting lasting fish populations, do support invertebrates. (Ex. APP -1, APP –8C)

Impacts at this site are due to the crossing of the two streams which lead to Wetland C. The streams will be enclosed in separate parallel pipes in the vicinity of the bypass. Approximately 60 linear meters of natural streambed will be lost within each leg of the stream. The work will involve rock cuts above and fill slopes below the bypass. Channels above the culvert inlets will be stabilized with gabion mattresses. Outlets of the culverts will be protected with preformed rip-rap scour holes located within the broader wetland downstream. The roadway drainage system collected within the crossing area will not be discharged directly into Wetland C. A small portion of the runoff will be discharged into upland areas through properly designed flow dispersion. The majority of the roadway drainage will be conveyed into water quality basins that will be created to store and treat drainage at the Bypass intersection with Federal Road and Industrial Park Access Drive. (Ex. APP -1, APP-7C, APP –8C)

The impacts will affect the two narrow rock-lined stream channels and a portion of the emergent wetland below. The construction will result in

diminished aesthetic values at the impact area and loss of wildlife habitat. During construction of the culverts, stream flows will be maintained by diverting the flows of the stream under construction into the other stream. Minor temporary impacts of 0.01 acre are anticipated due to water handling. The finished drainage system will include vegetated swales, to be constructed along the west side of the proposed roadway, that will collect up-slope drainage and convey the drainage into the culverts. Secondary impacts to the wetland will be minimized through adherence to the appropriate BMP's during construction. (Ex. APP -1, APP-7C, APP – 8C)

Impacts at Wetland Impact Area 9 are relatively small with few options for avoidance or minimization. The project design at this area represents the best efforts to minimize impacts through refinements of alignment and/or placement of drainage structures. (Ex. APP -1, APP-7C)

10. <u>*Site 10*</u> (Station 50+200) aka Wetland D

• Impact Area 10 is an intermittent stream channel which displays signs of dramatic erosion. The waterflow itself originates from the northwest, flowing down the ridge through a rocky, but stable streambed. At the toe of the ridge, the stream has high, eroding banks, indicating variable, higher velocity flows. The waterflow continues through this area to the south east to the remaining portion of wetland D. This stream typically does not persist through the summer months, and actually terminates within wetland D, and therefore is not deemed capable of supporting fisheries. Vegetation along the banks includes red maple *(A. rubrum)*, multiflora rose *(R. multiflora)* and blackberry *(Rubus sp.)* brambles. The primary function of this portion of the stream is limited to flow conveyance due to it's unstable nature in this particular area. Wetland D as a whole, functions in sediment retention, wildlife habitat and some floodflow alteration. During the permit process, additional survey work in this area revealed that a portion of the natural flows of this stream are diverted under the industrial park parking lot by a drainage structure at the toe of the ridge. (Ex. APP -1, APP-8C)

Construction of the industrial park access drive will impact a portion of the stream channel. . The new driveway will cross the channel, where a culvert will be installed to permanently convey the stream flow. To stabilize the stream, the reconstructed drainage channel will be lined with rip-rap upstream of the crossing, and a modified rip-rap scour hole will be placed at the discharge end of the culvert. Permanent impacts will amount to approximately 0.076 acre (306 m^2 or3,294 ft^2). Direct impacts are not anticipated to result in loss of functions and values given the degraded nature of the stream channel. During construction, the stream flow will be

maintained through a temporary diversion and bypass pumping as needed. As part of a restoration effort, the flows currently diverted into the parking lot drainage system will be returned into the natural streambed. The DOT has agreed to re-creation and stabilization of this channel which will be incorporated as part of wetland mitigation site J. This restoration effort will result in the stabilization and re-creation of approximately 260 meters of open channel. (Ex. APP -1, APP-7C, APP –8C)

The impact occurs at a narrow portion of the perennial stream and the proposed culvert has been sized to maintain stream flows. (Ex. APP -1, APP-7C)

Impacts at Wetland Impact Area 10 are relatively small with few options for avoidance or minimization. This portion of the project uses the best design alignment, placement of drainage structures and construction means available to minimize impacts. (Ex. APP-7C)

11. *Site 11* (Station 4+950) aka Wetland D

• This portion of Wetland D is located in a nearly flat, formerly excavated area between the DOT's local maintenance facility and the industrial park to the north. At the time of the first application submittal, this disturbed wetland area was relatively open with a group of cottonwood *(P. deltoids)* saplings dominating the wetland. The surrounding area contained a more mature tree canopy dominated by larger cottonwoods and American elm *(U. Americana),* with a developing shrub and herb layer of silky dogwood *(Cornus amomum)* and sedges. Horsetail dominated the herbaceous layer closer to the roadway. The canopy within the wetland has since matured and a slightly more robust understory is present, consisting of multiflora rose *(R. multiflora),* autumn olive *(E. umbellate)*, and young cedars. (Ex. APP -1, APP –8C)

The primary function of this portion of Wetland D is sediment/toxicant retention, attributable to its topography and its ability to hold some surface runoff. (Ex. APP -1, APP –8C)

A portion of Wetland D will be impacted by filling for the Route 7 Bypass roadway and the new industrial park access drive, for a permanent impact of 0.087 acre (352 m^2 or3,789 ft^2). The slight reduction in the total size of Wetland D will result in a corresponding slight reduction in the capacity of the wetland to perform sediment/toxicant retention, its primary function. However, mitigation site J which will be 1 acre in size, will be constructed adjacent to this portion of wetland D, and is expected to more than compensate for this functional loss in the immediate area.

Impacts at Wetland Impact Area 11 are relatively small with few options for avoidance or minimization. This portion of the project uses the best

design alignment, placement of drainage structures and construction means available to minimize impacts. (Ex. APP -1, APP-7C, APP –8C)

12. *Site 12* (Station 5+000) aka Wetland 18

• Wetland 18 lies to the east of existing Route 7 and is a combination of scrub-shrub swamp and emergent marsh within the Still River floodplain complex. The functions of Wetland 18 include sediment retention, toxicant removal, nutrient removal, floodflow alteration, and wildlife habitat. Vegetation adjacent to the roadway displays a sparse canopy layer dominated by cherry saplings, with silky dogwood, skunk cabbage, purple loosestrife and marsh marigold dominating. In the vicinity of wetland impact area 12, recent development appears to have cleared and graded a swath of land at the toe of slope of which various grasses, bedstraw and garlic mustard now dominate. Within this previously disturbed wetland-roadway edge, the best developed functions are sediment/toxicant retention and nutrient removal. (Ex. APP -1, APP –8C)

A portion of Wetland 18 will be filled at this location to construct the widened roadway embankment and the reconstructed drainage system. Three drainage discharges with properly designed outlet protection will be located at the edge of the wetland (and the 100-year flood limit). The drainage systems incorporate deep sumps and a drainage swale and a dry detention basin to improve water quality prior to entering Wetland 18. Along the embankment, 2:1 slopes have been used to allow for a vegetated slope. Permanent wetland impacts will amount to approximately 0.157 acre (635 m^2 or6,835 ft^2). Temporary wetland impacts are anticipated as the result of regrading the existing channel to an elevation that will provide the proper slope to convey the flow from the outlets 19A and B (Plan Sheet 156 of 554 of Ex. APP-17). The vegetated channel will amount to approximately 0.059 acre (240 m^2 or2,583 ft^2) of temporary impact. (Ex. APP -1, APP-7C, APP –8C)

Because of the large size of the Still River wetland complex, along with recent disturbance from private development, the proposed impacts at this site will have a negligible effect on the overall capability of the system to perform the functions served by Wetland 18. (Ex. APP -1, APP –8C)

13. *Site 13* (Station 5 + 570) aka Wetland 19

• Wetland 19 is a scrub-shrub and emergent wetland similar to Wetland 18 in its vegetative community with a more developed canopy layer dominated by maple *(Acer sp.)* and birch *(Betula sp.)* near the roadway. This wetland is another portion of the same larger floodplain wetland system associated with the Still River. Like Wetland 18, the functions of Wetland 19 include sediment retention, toxicant removal, nutrient

removal, floodflow alteration, and wildlife habitat. Recent private development has also occurred adjacent to this wetland area. (Ex. APP -1, APP –8C)

A small portion of Wetland 19 adjacent to the existing roadway will be filled during construction of the embankment for the reconstructed Route 7/202 toward the northern limits of the project. The permanent impact area is approximately 0.023 acre (95 m^2 or1,023 ft^2). Along the highway embankment, 1.5:1 slopes have been used to minimize wetland impacts. No temporary impacts are anticipated. (Ex. APP -1, APP-7C, APP –8C)

Because of the large size of the Still River wetland complex, the small impacts at this site will have a negligible effect on the overall capability of the system to perform functions and values. (Ex. APP -1, APP –8C)

j. **Habitat**

Habitat value was identified as a primary function of some of the impacted areas.

Site 2

At impact site 2, the primary value of the overall area is wildlife habitat. The convergence of wetland types, the pond's connection to the forested wetland stream channel (Wetland A), and the surrounding upland forested habitat all contribute to this value. Permanent impacts to Wetland A were minimized through the placement of the alignment at the narrowest point of the wetland and the use of the bridge structure spanning the riparian corridor, allowing for continued movement of wildlife under the bypass on natural substrate. Fill embankment slopes of 2:1 were chosen for this area to ensure a stable fill embankment and to allow for planting of native vegetation. There will be a net loss in total habitat area, much of which is upland, but access to adjacent habitats will be maintained. Habitat quality will be moderately decreased due to the addition of roadway traffic and roadway runoff. (Ex. APP-1, APP-8C)

Site 5

At impact site 5, the northern portion of the wetland is a forested swamp which has displayed varying water levels over the years, and at times functions as an amphibian breeding habitat. A wildlife study was performed and finalized in 2001 which documents the species utilizing this area. The mix of habitat types within wetland B and the adjacent forested upland provide for wildlife habitat in a corridor which is otherwise heavily developed. Wildlife usage will be impacted temporarily during construction due to land disruption and noise. Permanent impacts to functions and values have been minimized by the use of a bridge in this area which has been designed to allow for wildlife passage and minimizes fill. Temporary impacts have been minimized via the use of trestles for

construction. Secondary impacts to the wetland will be minimized through adherence to the appropriate BMP's during construction. (Ex. APP-1, APP-8C)

Site 7

One of the primary functions of the stream at impact area 7 is wildlife habitat. The stream collects surface runoff and groundwater seepage from the mountain, provides a reliable source of freshwater for wildlife, and provides for aesthetic appreciation. During the 2001 wetland B wildlife study, it was revealed that this stream corridor may act as an important link between wetland B and the upland habitat on the ridge. Direct wetland impact was avoided and minimized to the greatest extent possible by incorporating a bridge structure for this crossing, with numerous structure lay-outs investigated. The design preserves the structure and hydrology of the tributary stream to the extent possible. The bridge abutments are located on uplands, but the pier (Pier 1) with its four support columns will be constructed in the wetland. The pile cap for the pier will be set approximately 3 feet below finished grade, allowing the replacement of natural substrate over the construction area. Permanent wetland impacts also include a linear strip of fill for the embankment associated with the southern bridge abutment. This fill will also accommodate access to the temporary trestle during construction. Wildlife usage will be impacted temporarily during construction due to land disruption and noise. Permanent impacts to functions and values have been minimized by the use of a bridge in this area which has been designed to allow for wildlife passage and minimizes fill. While the overall carrying capacity of the wetland for wildlife will be partially compromised by the impacts to this site, the tributary stream corridor and much of the forest adjacent to the most active wildlife movements (as observed during the wildlife survey) will not be disturbed. The finished roadway embankment adjacent to wetland B will incorporate topsoil and native plantings to provide a more natural transition to the wetlands at the base of the slope. Temporary impacts have been minimized via the use of trestles for construction. Secondary impacts to the wetland will be minimized through adherence to the appropriate BMP's during construction. (Ex. APP-1, APP-8C)

Site 9

Wildlife habitat is one of the primary functions at impact area 9. The streams, although probably not capable of supporting lasting fish populations, do support invertebrates. The impacts will affect the two narrow rock-lined stream channels and a portion of the emergent wetland below. The construction will result in diminished aesthetic values at the impact area and loss of wildlife habitat. (Ex. APP-1, APP-8C)

The project is designed to minimize long-term reduction in habitat values for existing wildlife species. Mitigation Site H, located to the east of existing Route 7 and adjacent to the Still River will create over 2 acres of scrub shrub and wet meadow with a primary goal to provide wildlife habitat. In addition, 87.81 acres of preservation, along with fisheries enhancements are also proposed to provide for a comprehensive mitigation package based on wetland functions and values.
(Ex. APP-1, APP-8C, APP-27 and APP-29)

k. DEP Fisheries Division recommended several measures to minimize impacts to fisheries resources. DOT has incorporated all of these recommendations into design plans and construction contracts. Coordination with the CTDEP Fisheries Division during the permitting process led to over 1200 feet of stream mitigation in the form of enhancements along Lime Kiln Brook and the formation of a shelf for fish habitat within the fill embankment for the open water portions of the quarry. Additionally, plantings on 2:1 slopes adjacent to open water resources as well as wetland B have been incorporate into the planting plans. Large boulders have been incorporated at the toe of slope at Domain Pond to provide fish habitat. The restoration of flows into a natural channel at proposed mitigation site J will restore approximately 60 m (196 linear feet) of open channel habitat. The incorporation of vegetated swales, proper erosion and sedimentation (E&S) control measures, construction staging, proper water handling and BMP's will all be implemented to avoid and mitigate potential downstream impacts during construction. Furthermore, as a result of a February 9, 2006 meeting with DEP Fisheries Division staff, the DOT has agreed to additional efforts to restore outlet structures at two wildlife marshes within the Wyantenock State Forest in Kent. The purpose of this in-kind replacement of the structures will be to enhance the Northern Pike spawning efforts at these two sites.
(Ex. APP-1, APP-8C, APP-17, APP-17A, APP-27, APP-29)

3. Mitigation

a. At the time of the permit application submittal to DEP, the mitigation package consisted of the following: over 1200 feet of stream mitigation in the form of enhancements along Lime Kiln Brook and the formation of a shelf for fish habitat within the fill embankment for the open water portions of the quarry; 3.8 acres of wetland enhancement, creation and restoration; and over 28 acres of preservation of both floodplain and upland sites, with plans for 13.7 acres to potentially be turned over to the adjacent Still River Preserve, John Peckham Sanctuary. During the permit review process, an additional 59 acres of preservation off of Elbow Hill

Road was added to the package in order to protect the headwaters of Lime Kiln Brook and preserve one of the last large tracts of land in the project vicinity, bringing the preservation acreage total to 87.8 acres. The proposed 3.8 acres of wetland creation, enhancement and restoration consists of the following sites:

- Site B, located just south of North Mountain Road, will provide 0.42 acre of scrub shrub and emergent wetland with an additional 0.38 acre wet pond incorporated into the system to treat Stormwater before it enters the mitigation site. The goal of this site is to perform sediment/toxicant retention and nutrient removal.
- Site H, located to the east of existing Route 7 and adjacent to the Still River will create over 2 acres of scrub shrub and wet meadow with a goal to provide wildlife habitat.
- Site J, located between existing Route 7 and the proposed industrial park access road will create and enhance 1 acre of scrub shrub wetland. The goal of this site is to perform sediment/toxicant retention and nutrient removal.
- Site Q, located along Lime Kiln Brook consists of 0.24 acre, or approximately 230 linear feet of invasive species removal and replacement native plantings.

The total of these sites well exceeds the 1.25 acre of permanent wetland impact. 87.81 acres of preservation, along with fisheries enhancements are also proposed to provide for a comprehensive mitigation package based on wetland functions and values. Mitigative measures for threatened and endangered grasses are outlined in the 2006 Revised Mitigation Plan for these and other plant species within the corridor. (Ex. APP-1, APP-4, APP-5,APP-8C, APP-17, APP-17A, APP-27, APP-29)

b. The mitigation areas have been developed following many months of coordination on both the state and federal level. In 2003, a Mitigation Plan, including a completed Army Corps of Engineers (ACOE) Checklist for review was submitted to the appropriate regulatory agency staff for review. (Ex. APP-8C, APP-27)

c. The hydrology at the sites is conducive to this proposed mitigation site plan. (Ex. APP-1, APP-17, APP-17A)

d. The planting plan for the sites has been designed to provide and maintain the ecological diversity and productive habitat function and value for the wetlands. The plan has also been designed to maximize species diversity, minimize erosion, and discourage the establishment of invasive species. (Ex. APP-1, APP-17, APP-17A)

e. The non-inundated areas of the sites will be seeded at the completion of excavation resulting in several overlapping vegetative zones. The seed mix will be selected to represent varying degrees of drought tolerance; seedlings will establish themselves based upon micro-topography and the resulting variation in soil moisture. Wet conservation grass seed mix will be used on the slopes to establish sod cover to minimize erosion. (Ex. APP-1, APP-17, APP-17A)

f. The creation of the wetland will be monitored after construction and planting of herbaceous plant materials. One of the goals of monitoring will be to determine whether the wetlands are maintaining their functional values. Woody plantings will be delayed one year to ascertain hydrologic conditions. The permit will require the preparation and submission of monitoring reports for 5 years following the completion of construction. Minor modifications may be made at the time of construction; necessary modifications to grade will be made within a year of construction. Modifications to the plan will only be implemented with the authorization of the DEP. (Ex. APP-27)

Construction Mitigation: Erosion and Sedimentation Controls

g. Short-term impacts will be minimized through erosion and sedimentation control guidelines that will be included in the construction contract for the project as required by the DOT. (*Standard Specifications for Roads, Bridges and Incidental Construction* Form 816 (2004) *and Supplemental Specifications* (2000); *On-site Mitigation for Construction Activities*, Connecticut DOT Environmental Planning Division 1994.) These guidelines address the installation, schedule for implementation, maintenance, inspection and expected results for the selected methods for erosion and sedimentation control. Adherence to these guidelines will assure minimization of adverse effects to fisheries or riparian habitat as a result of this project. These guidelines provide for protection of ground and surface water quality, and minimize the possibility of siltation and sedimentation within the area of regulated wetlands and watercourses. (Ex. APP-1, APP-27)

h. Specific care and special construction methods will be used. When existing piping is being repaired or upgraded, drainage work will be done during seasonal periods of low rainfall and flow. In drainage installations, accepted water-handling methods will be used. These include cofferdamming and piping to an adequate basin in accordance with Best Management Practices. (Ex. APP-1, APP-17 and APP-17A)

i. The following specific erosion and sedimentation control measures are proposed:

1. Silt fencing will be installed in conjunction with all disturbed and new soil slopes that could affect other areas;
2. Exposed soils will be seeded with an approved erosion control mixture within seven days of the contractor reaching the appropriate grade;
3. Sedimentation control measures will be installed around all catch basins receiving flow from unstabilized areas;
4. Curbing use will be minimized to allow storm runoff to sheet flow off the roadway in order to filter sediment and any pollutants through roadside vegetated areas;

5. Vegetated swales will be used in some areas; some will be lined with erosion control matting prior to turf establishment to reduce the risk of erosion and allow a quicker establishment of vegetation; and
6. Riprap splash pads or plunge pools, as appropriate, will be installed at stormwater discharge locations where erosion potential has been determined to be high.

(Ex. APP-1, APP-17 and APP-17A)

STORMWATER TREATMENT

The following features of the stormwater collection system intended to improve the quality of runoff prior to its discharge to surface waters were incorporated in the project:

- The proposed drainage systems have catch basins with sumps to trap sediment and oils;
- Grass swales and use of 4:1 or flatter vegetated side slopes wherever possible;
- Storm systems carrying "clean" water from off road or uncurbed areas are kept separate from stormwater from curbed areas to the extent possible;
- Storm drains outlet to vegetated channels for stormwater renovation prior to entering a wetland or water body.
- Water quality basins with wetland vegetation (Wet Ponds) have been incorporated at Outlets 2, 8, and 16 to store and treat the water quality volume (first 25mm or 1" of rainfall) from the contributing drainage areas for 24 hours;

PROPOSED CONSTRUCTION SEQUENCE

The DOT will work with the construction contractor to develop a construction sequence for the project based upon the proposed sequence below in order to minimize impacts to wetlands and watercourses.

All construction is proposed to be completed utilizing access from the existing U.S. Route 7 limited access highway, existing U.S. Route 7 and 202 arterial, and the proposed rough graded Bypass alignment. Use of local roads for material hauling and construction equipment access is prohibited without specific authorization from the Engineer, except during first phase of the project Laurel Hill Road and North Mountain Road may be used, on a limited basis, as needed for construction and maintenance of the temporary sedimentation basin in the vicinity of Quarry Pond / Wetland Mitigation Site B.

The DOT identified four construction staging areas that the Contractor may use to store equipment and materials and to access the project. All of the four construction staging areas are located outside of regulated areas.

All appropriate sediment and erosion control measures including temporary sediment traps and temporary sedimentation basins will been installed and approved by the DOT

Project Engineer prior to starting construction. (Ex. APP-1, APP-7C, APP-17 and APP-17A)

Other Mitigative Measures

j. Site specific measures taken during design to minimize impacts to wetlands and watercourses are as follows:

Site 1 - Impacts at Wetland Impact Area 1 are relatively small with few options for avoidance or minimization. The project design at this area minimizes impacts through refinements of alignment and/or placement of drainage structures. (Ex. APP-7C)

Site 2 - Impacts to Wetland A were minimized through the location of the alignment at the narrowest point of the wetland crossing and use of the bridge structure over the central watercourse/wetland. The bridge will allow for continued movement of wildlife under the Bypass on natural substrate.

Options considered in reducing impacts at this crossing:

- utilize 1.5:1 fill slopes.

  The 1.5:1 fill slopes were found to be ineffective in reducing impacts as the difference in the area impacted was similar with 2:1 slopes. 2:1 slopes were therefore chosen as they could be planted and better blend in with the surrounding landscape. (Ex. APP-7C)

Site 3 - A design update in 2004 included lowering the profile between Stations 2+900 & 3+700 which reduced these permanent open water impacts. (Ex. APP -1 APP-7C and APP –8C) The proposed construction sequence involves building an access causeway from the south end of the pond to North Mountain Road. The causeway will be placed along the westernmost edge of the proposed roadway embankment across the entire section of the pond to be filled. This initial fill will create a barrier between the pond area to be filled and the section to remain unaltered. After the causeway is constructed, filling of the remaining eastern section of the pond will continue. This sequence of operation is put in place to minimize the turbidity in the rest of the pond. (Ex. APP –8C, APP-17 and APP-17A)

Site 4 - This portion of the project uses the best design and construction means available to minimize impacts. (Ex. APP-7C)

Site 5 - Alternatives considered in reducing impacts to Wetland B and Limekiln Brook from the Bypass crossing over North Mountain Road and the southern portion of Wetland B were:

- utilize a 105m (344 foot) two-span bridge with skewed piers and abutments;
- utilize a 120m (394 foot) two-span bridge with radial piers and abutments; and

- utilize a 139.5m (458 foot) three-span bridge with radial piers and abutments.

The DOT did not give further consideration to the 105m two-span bridge because the northern abutment's proximity to the water course channel, and the skew angle of the abutment would adversely affect the hydraulics of Limekiln Brook. The 139.5m (458 foot) three-span bridge was preferred over the 120m (394 foot) bridge because it provided a greater overall span length over the wetland and would provide a wider opening for wildlife movement to and from the wetland. (Ex. APP-7C)

Site 7 - The DOT explored alternate alignments at this location in order to minimize the potential impacts to the wildlife passage routes. The resulting configuration balances the amount of steep rock cut slopes on the western side of the Bypass with fills on the east side. Additionally it provides a structure over the unnamed tributary brook and wetland to allow for unobstructed wildlife migration from the upland areas to the wetland.

The primary design options at this impact area were:

- utilize a 132m (433 foot) three-span bridge shifted approximately 10 meters (30 feet) further north than the proposed bridge;

- utilize a 132m (433 foot) three-span bridge at the same location as the proposed 132m (433 foot) two-span bridge;

- utilize a retaining wall on the east side of the Bypass; and

- utilize 1.5 : 1 riprap slopes on the southeast side of the Bypass.

The DOT did not choose to shift the three-span bridge to the north since that location would compromise a sensitive upland area on the south side of the unnamed tributary to Limekiln Brook. Upland areas on both the north and south sides of the tributary are important to the movement of different amphibian species.

The DOT did not choose the 132m (433 foot) three-span bridge at the same location as the proposed two-span bridge because it would have resulted in greater obstruction to wildlife movement beneath the bridge. The proposed two-span option provides a greater distance between the center pier and the existing unnamed tributary brook than that provided by the three-span bridge.

The DOT did not choose to use a retaining wall along the east side of the Bypass adjacent to the wetland due to the need for a maintenance road at the base of the wall. The wetland impacts associated with the maintenance road would have offset any reduction in wetlands impact from the use of a retaining wall, when compared to the proposed 2:1 slope of the proposed embankment.

Steeper highway embankment slope of 1.5:1with riprap was discarded since it was determined that a 2:1 vegetated embankment slope would provide a more natural transition to the wetland areas at this location. (Ex. APP-7C)

Site 8 - The primary option considered to reduce impacts of filling Domain Pond was:

- retaining wall to support the Bypass roadway embankment.

The required height of the retaining structure would approach 15 meters (49 feet). Consultation with the Town of Brookfield revealed that such a high wall would be aesthetically unacceptable at this site. Additionally, as indicated in APP-8C, the low function and values of the wetlands and Domain pond do not justify the construction and maintenance costs associated with such a high retaining structure. (Ex. APP-7C)

Site 9 - Impacts at Wetland Impact Area 9 are relatively small with few options for avoidance or minimization. The project design at this area minimizes impacts through refinements of alignment and/or placement of drainage structures. (Ex. APP-7C)

Site 10 - The impact occurs at a narrow portion of the perennial stream and the proposed culvert has been sized to maintain stream flows. Impacts at Wetland Impact Area 10 are relatively small with few options for avoidance or minimization. The project design at this area minimizes impacts through refinements of alignment and/or placement of drainage structures. (Ex. APP-7C)

Site 11 - Impacts at Wetland Impact Area 11 are relatively small with few options for avoidance or minimization. The project design at this area minimizes impacts through refinements of alignment and/or placement of drainage structures. (Ex. APP-7C)

Site 12 - Options considered in reducing fill impacts adjacent to the proposed intersection of Bypass and Route 7/202 were:

- utilize 1.5 : 1 slopes; and

To minimize the extent of impacts, the DOT will use a 1.5:1 slope. (Ex. APP-7C)

Site 13 - Options considered to reduce fill impacts adjacent to the proposed reconstruction of Route 7/202 were:

- utilize 1.5 : 1slopes.

To minimize the extent of impacts, the DOT will use the 1.5:1 slope. (Ex. APP-7C)

k. A DEP Stormwater Discharge Registration will be required for the entire project. A Pollution Control Plan will also be developed in association with that registration.

l. During construction, the contractor is required to inspect, report and repair any erosion. An on-site DOT Project Engineer and staff of the DOT Environmental Planning Division will monitor the contractor's work to ensure compliance with DEP and DOT regulations and guidance. (Ex. APP-27)

4. State Threatened, Endangered, or Species of Special Concern

Early project coordination with U.S. Fish and Wildlife Service (USFWS) and the Connecticut Department of Environmental Protection (CTDEP) originally revealed that no state or federally listed or candidate wildlife species occur in the project vicinity. The CTDEP noted that the area was once habitat for the endangered bog turtle, but that a 1990 agency survey indicated that the site was no longer suitable for the bog turtle. (Ex. APP-8C, APP-27)

In correspondence dated September 15 1998, CTDEP recommended site inspections for bog turtles *(Clemmys muhlenbergii)* in May. The 2001 Wetland B Wildlife Survey encompassed the time period March through June and no bog turtles were detected. Site observations confirmed that key habitat features for the bog turtle were lacking in the vicinity of Wetland B. (Ex. APP-8C, APP-27)

As a result of correspondence with CTDEP during the permitting process, DOT requested updated information from CTDEP's Natural Diversity Database in May of 2002. In July 2002 responses, CTDEP identified three reptile species; the Eastern Box Turtle *(Terrapene Carolina)*, the hognose snake *(Heterodon platirhinos),* both species of special concern and the bog turtle *(Clemmys muhlenbergii),* a state endangered and federally threatened specie. By this time, an official protocol was now in place for the bog turtle, and as a result, a Phase I Bog Turtle study was conducted in October of 2004 for the entire project corridor. The purpose of a Phase I study is to determine whether or not potential habitat exists based on the presence and condition of suitable hydrology, soils and vegetation. The report, which was finalized in February of 2005, concluded that suitable habitat was present in Wetland B. Since all direct and indirect effects to the wetland could not be avoided, this finding triggered the need for a Phase II study in accordance with the USFWS Guidelines for bog turtle surveys, (revised May 2001). The purpose of a Phase II study is to determine the presence / absence of bog turtles. This study was conducted in the appropriate spring and summer months of 2005, and the report was finalized in July of 2005. The report concluded that no bog turtles are present in wetland B, or in other areas within the project vicinity which were thought to be suitable habitat. Copies of these reports were sent to the appropriate regulatory agencies and both the CTDEP Wildlife Division and the USFWS concurred with this finding. (Ex. APP-8C, APP-14, APP-15, APP-27)

Additional wildlife habitat assessments were performed in 2005 to determine habitat suitability for several state listed species of reptiles and amphibians, including species not necessarily listed, but considered to be in "decline" by the herpetological community. This report, which was finalized in August of 2005, dismissed the presence of certain species but confirmed the presence of 2 species of special concern, the Eastern Box Turtle *(Terrapene Carolina)*, and the hognose snake *(Heterodon platirhinos)* in the vicinity of Production Drive. This report made new recommendations to minimize

impacts to these species. The DOT met with DEP Wildlife staff to discuss the proper implementation of the recommendations made. As a result, the DOT has committed to the following additional mitigative measures to protect these species:

- Incorporation of four 72" arch pipes in order to maintain ecological connectivity in the area just north of Domain Pond. These arches will include grate openings in the vicinity of the median to allow in natural light. Provisions will call for natural cover materials to be placed in and around the crossings, along with proper plantings. The final placement of these pipes will be determined following field studies currently underway which will monitor the existing movement patterns of the species of special concern. For now, the culverts are depicted on plan sheets at even intervals from approximately Station 4+100 to 4+400. In this vicinity, a permanent concrete barrier will be properly placed to lead the animals to the crossings and protect them from entering the travelway.

- Creation of 1.12 acres of early successional habitat at a parcel on the northern edge of Production Drive, early in the 2007 construction season and enhancement of 5.56 acres of habitat. The enhancements will consist of removal of invasive species and selected debris removal from a state owned site north of Production Drive and at Staging area 4. The size of Staging area 4 will be limited during construction, and the area will be converted to early successional habitat upon completion of work in this area.

- The elimination of Stormwater detention basins in this area to minimize disruption to habitat for these species.

- The DOT has agreed to carry out and has already begun radiotelemetry tracking studies of these two species. Baseline data will be collected in 2006 and 2007, coupled with tracking during construction. Two years of post-construction monitoring of the species will also be carried out to determine the effectiveness of the mitigation efforts, including use of the reptile crossings and created habitats. (Ex. APP-8C, APP-16, APP-17, APP-17A, APP-27)

Plants

During early project coordination, CTDEP also noted that two plant species of state special concern had been documented in the project area, purple cress (*Cardamine dougallii*) and small-flowered agrimony (*Agrimonia parviflora*). Extant populations of the state-threatened northern white cedar were also noted. Subsequent plant surveys by CTDEP found populations of the small-flowered agrimony and three other state special concern species in the southern and central portions of the project area, *Carex trichocarpa*, *Carex tuckermanii*, and *Carex tetanica.* (Ex. APP-1, APP-8C)

Following up on reports of rare grass species near the Route 7 extension at the southern limit of the project, DOT authorized a survey of the area in October 1997. At that time, the survey determined that the species of special concern listed above were outside of the project limits, but revealed a state endangered grass species, *Sporobolus cryptandrus*, and a different state special concern species, *Sporobolus asper*. Formal consultation meetings

between CTDEP, DOT and the Office of Policy and Management (OPM) occurred in 1998, leading to a ruling that the impact to the species was an incidental take, and that the requirements set forth in CGS sections 26-310 and 26-311 had been satisfied. Mitigation and monitoring plans were submitted and approved by CTDEP and the Office of Policy and Management in 1999 and initial portions of the mitigation plan were implemented and monitored in 2001, 2002 and 2004. (Ex. APP-1, APP-8C, APP-11, APP-12, APP-13, APP-27)

During the permitting process, further coordination with the Natural Diversity Database revealed that *S. asper* (now *S. compositus*) and *Agrimonia parviflora* had been removed from the state Endangered, Threatened and Special Concern Species List (as updated in 2004) but that additional state-listed species had been identified at the site. At that time, the engineering design had also advanced to final design. These changes precipitated the need for an updated Mitigation Plan. (Ex. APP-8C, APP-12, APP-13, APP-27)

Further field reconnaissance was conducted and a Revised Mitigation Plan was finalized in February of 2006. This updated plan contains information on existing populations, impacts to and mitigation measures for four species of plants; *Sporabolus cryptandrus* (State Threatened)*, Sporabolus neglectus,* which is state endangered*,* as well as *Aristida purpurascens and Draba reptans*, two state special concern species. Following coordination efforts between the two agencies, the final Revised Mitigation Plan was submitted to DEP on February 15, 2006 and received DEP approval on February 27, 2006. The Revised Mitigation Plan consists of a mixture of habitat creation and enhancement sites, seed banking and monitoring. On March 8, 2006, OPM issued a finding that the revision of the 1998 Mitigation Plan for Incidental Take is adequate pursuant to the requirements of the Connecticut Endangered Species Act (CGS Sec 26-310(d)), and further found that given the mitigation measures delineated in the proposed plan, the proposed action would not appreciably reduce the likelihood of the survival or recovery of an endangered or threatened species and would therefore constitute an incidental taking of the four plant species impacted by the project.
(Ex. APP-1, APP-8C, APP-12, APP-13, APP-27)

5. Alternatives

During the planning and design of this project, a continuous examination of design alternatives was conducted. Numerous alternatives were considered in consultation with the various units of the DOT, as well as the DEP, the U.S. Army Corps of Engineers, the Town of Brookfield, the Housatonic Valley Council of Elected Officials "HVCEO", concerned citizens and regulatory agencies. Among the factors considered when assessing alternatives were geometric constraints, historical and archeological concerns, impacts to private property, and environmental concerns. (Ex. APP-1, APP-8C, APP-28)

Draft and Final Environmental Assessment (EA) documents were prepared in 1995 and 1996, respectively (FHWA and DOT), which examined a variety of project alternatives to

meet the local and regional transportation needs in the U.S. Route 7 corridor through Brookfield and into New Milford. Seven project alternatives were considered, including the No-Build, a transportation system management (TSM)/transit alternative, a widening of existing Route 7 alternative, and four by-pass alternatives numbered 1, 2, 3, and 4. The current project represents the Brookfield portion of the corridor segment studied in the EA, and is a refinement of the alignment put forth as Bypass Alternative 4. (Ex. APP-1, APP-8C, APP-9, APP-10, APP-28)

Descriptions of the alternatives considered and the findings of the Draft EA (Exhibit APP-9) are described below:

The No-Build Alternative was to maintain the existing transportation system, with limited improvements for safety, drainage, and hazard elimination. This alternative was found to be impractical because it did not meet the project purpose/need of relieving congestion on Route 7/202 in Brookfield and was inconsistent with local and regional plans. (Ex. APP-1, APP-8C, APP-9, APP-28)

The TSM/Transit Alternative involved measures to reduce single-vehicle occupancy by improving public transit, commuter rail service, fringe/commuter parking areas, and bikeways. Like the No-Build, this alternative did not meet the project purpose and was inconsistent with other planning efforts. (Ex. APP-1, APP-8C, APP-9, APP-28)

The Widening Alternative called for widening the existing roadway alignment to four lanes. This alternative was determined to be the preferred course of action in the New Milford portion of the study area, but was harmful to historic and community resources in Brookfield, where a bypass better met transportation needs and received strong public support. (Ex. APP-1, APP-8C, APP-9, APP-28)

Bypass Alternative 1 traveled roughly parallel to Laurel Hill Road, crossing Laurel Hill Road immediately north of Station Road, merging with existing Route 7 at Production Drive. There was strong opposition to this alternative due, in particular, to its impact on the Laurel Hill neighborhood and historic resources. (Ex. APP-1, APP-8C, APP-9, APP-28)

Bypass Alternative 2 crossed the southern end of Quarry Pond and ran along the west side of the pond along the side of the ridge, merging with existing Route 7 north of Production Drive. Like Alternative 1, there was strong opposition to this alternative due to its impact on the Laurel Hill neighborhood. (Ex. APP-1, APP-8C, APP-9, APP-28)

Bypass Alternative 3 traveled approximately parallel to Laurel Hill Road, crossing Laurel Hill Road approximately 150 meters north of Station Road and merging with existing Route 7 south of Production Drive. Like Alternative 1, there was strong opposition to this alternative due to its impact on the Laurel Hill neighborhood and nearby historic resources. (Ex. APP-1, APP-8C, APP-9, APP-28)

Bypass Alternative 4 traveled east of the Quarry Pond, crossing west across the northern end of the Quarry Pond, then traveling north along the side of the ridge, merging with existing Route 7 north of Production Drive. This alternative had the fewest neighborhood and historic impacts and received strong support from the public and some agencies. (Ex. APP-1, APP-8C, APP-9, APP-28)

Alternatives 3 and 4 were thus evaluated further, while the other alternatives were dismissed. Modifications were made to the preliminary concepts of Alternatives 3 and 4 in an attempt to further reduce wetland impacts. Reductions in wetland impacts were possible for Modified Alternative 4 (4M) through minor alignment shifts and the use of retaining walls, whereas minimal reductions were possible for Modified Alternative 3 (3M) because its alignment was constrained by residential structures, historic resources, and the Laurel Hill Cemetery. (Ex. APP-1, APP-8C, APP-9, APP-28)

The FHWA and DOT issued a Finding of No Significant Impact dated June 19, 1997 with Alternative 4M as the preferred project alternative. (Ex. APP-10)

Design Options explored for Modified Alternative 4

As the Modified Alternative 4 (Alternative 4M) moved into the design stage, alternative design treatments/options were evaluated in order to reduce impacts on wetlands and watercourses. A number of studies and design changes for impact reduction, undertaken from Preliminary Design (PD) into Final Design (FD), were documented in a *Position Paper Update* dated December, 1999 (Exhibit APP-28). Modified Alternative 3 was evaluated again in March 2000 at the request of the Army Corps of Engineers (ACOE) to see if it would meet the purpose and need of the project. This additional design included effort to reduce impacts to wetlands from this alignment. The FHWA concluded that although Alternative 3 would meet the basic purpose and need for safety and traffic operations, it is not a practicable alternative due to adverse community impacts, and Section 4(f) of the U.S.Department of Transportation (DOT) Act of 1966 may preclude that alternative. Impacts to neighborhoods, historical residences and impacts to the Laurel Hill Cemetery would have occurred with Alternative 3. (Ex. APP-1, APP-8C, APP-9, APP-10, APP-27, APP-28)

As a result, DOT developed a number of potential design changes to the alignment in January 2002 in response to requests from CTDEP, USEPA, USFWS, and ACOE to avoid and/or minimize impacts. These included:

- Retaining walls along Alternative 4M in the vicinity of the unnamed tributary to Wetland B in order to avoid impacts to the natural stream channel.

- An easterly shifted alignment between North Mountain Road and Domain Pond to move the Bypass off the western ridge, including a 68-meter (200-foot) long single span structure to span Wetland B and the tributary brook in the vicinity of the seasonally flooded area. (Ex. APP-1, APP-8C, APP-27)

After consideration of these changes, the federal agencies and CTDEP requested investigation of other alternative alignments that would further shift the proposed roadway to the east to reduce impacts on the seasonally flooded area of Wetland B and on wildlife passage to/from Wetland B. In April 2002, DOT presented three alternative concepts called Alternatives 4A, 4B and 4C. The roadway cross section was the same for each (and the same as Alternative 4M), including the same narrow median section with 2.4-meter (8-foot) inside shoulders and a 760mm (2.5 foot) wide median barrier, two 3.6-meter (12-foot) travel lanes with 3.0-meter (10-foot) outside shoulders in each direction of travel, for a total roadway width of approximately 26 meters (86 feet). (Ex. APP-1, APP-8C, APP-27)

Alternative 4A

Alternative 4A was the western most of the three bypass alignments running along the east side of Wetland B. This alignment was located entirely within the eastern portion of Wetland B, and therefore required a 460-meter (1,500-foot) long bridge to reduce impact to the wetland. It was estimated that this alignment (versus Alternative 4M) would increase the probable construction cost of the bypass by approximately $16.5 million due to the long bridge structure. This alignment was not selected for further study due to the substantial increase in cost, as well as concerns from the regulatory agencies regarding the impact of a 26-meter (86-foot) wide by 460 meter (1,500-foot) long structure on the underlying wetland habitat. (Ex. APP-1, APP-8C, APP-27)

Alternative 4B

Alternative 4B was the middle of the three bypass alignments along the east side of Wetland B. This alignment placed the centerline of the bypass roughly along the eastern edge of the wetland, such that the southbound travel lanes would be located within the wetland, and the northbound lanes would be located outside of the wetland. This alignment was designed to balance the impacts on Wetland B and the residential properties/senior housing. The impact to the wetland would be along the eastern edge, while keeping the highway far enough from the residential properties/senior housing to allow mitigation of traffic noise and aesthetics through the use of noise barriers and plantings. This alternative was presented with both a retaining wall along the west side of the bypass as well as with 2:1 (horizontal to vertical) slopes at this location. Alternative 4B increased wetland impacts compared to Alternative 4M by approximately 1.9 acres if a retaining wall was used and by 1.07 hectares (2.64 acres) with the 2:1 slopes. Impact to Domain Pond was reduced by 2.27 acres (measured to the toe of slope), and property impacts were similar to Alternative 4A. It was estimated that this alignment (versus Alternative 4M) would decrease the probable construction cost of the bypass by approximately $5.4 million with a retaining wall, or approximately $7.8 million with 2:1 slopes. This alignment was not selected for further study due to the relatively high impact to Wetland B. (Ex. APP-1, APP-8C, APP-27)

Alternative 4C

Alternative 4C was the easternmost of the three bypass alignments along the east side of Wetland B. This alignment located the centerline completely on the east side of the wetland, which was a shift from Alternative 4M of approximately 160 meters (530 feet) to the east at its widest point. The eastern edge of pavement for this alignment was located approximately 23 meters (75 feet) from the closest residential units of the Senior Housing complex at the corner of Quarry Road and Laurel Hill Road. Use of a noise barrier was proposed at this location to mitigate those impacts. Both retaining walls and 2:1 fill slopes were examined for the fill slope on the western side of the alignment to identify impacts to the wetland. (Ex. APP-1, APP-8C, APP-27)

The profile for Alternative 4C was lowered from that of Alternative 4M in order to minimize slope impacts to the east side of Wetland "B". The bypass would be in a fill section along the eastern edge of this wetland, with either a 2 to 1 fill slope or a retaining wall to minimize wetland impact. In back of the residences along Laurel Hill Road, the roadway would be in a cut section approximately 5.0 meters (16 feet) deep due to the existing ridge in this area and the lowered profile of the bypass. This area would require a retaining wall on the side of the residences to minimize property impacts to the residential lots. (Ex. APP-1, APP-8C, APP-27)

Of the three new alternative alignments, Alternative 4C was agreed upon by the federal and state regulatory agencies as the best alternate to further explore in terms of impact to wetland habitat since it shifted the alignment the farthest east, along the eastern edge of Wetland B, away from the transition between wetland and the upland forested area. At the same time, it did not increase impacts to Wetland B to the same extent as Alternatives 4A and 4B nor increase costs excessively. DOT therefore agreed to present this alignment to the public for comment. (Ex. APP-1, APP-8C, APP-27)

A public informational meeting was held May 16 2002 to obtain public input on Alternative 4C. Responses from the public, including public officials and the Council of Governments, were overwhelmingly negative to the alignment, due to its proximity to Brookfield's senior housing complex and residential properties. (Ex. APP-1, APP-8C, APP-27)

Current law regarding the use of federal transportation funds gives oversight authority to the Metropolitan Planning Organizations (MPO) before federal money can be spent on a given project. The MPO in this case, the Housatonic Valley Council of Elected Officials (HVCEO), must approve of the project by placing it in their Transportation Implementation Plan (TIP). This must be done before the project can be added to the Statewide Transportation Improvement Plan (STIP) which is the authorization mechanism for the use of the federal transportation funds. The Chairman of the MPO in his letter concerning Alternative 4C stated that the MPO had determined that Alternative 4C is not a practical alternative due to its high impacts upon the human environment. The MPO has also stated that looking at the balance of impacts to wildlife, businesses and residents from the construction of Route 7, Alternative 4M is the preferred bypass

alignment. Without the HVCEO endorsement of Alternative 4C, the entire cost of the project would have to be funded with State funds. Without the use of the 80% federal funding, the cost to Connecticut residents would increase by 400 %. With the current financial situation, it is not realistic for the State to fund the project alone, making Alternative 4C, clearly, not a prudent alternative. As a result, the DOT determined that Alternative 4C was not practical so did not press forward with Alternative 4C and continued investigating modifications to previous alternatives. (Ex. APP-8C, APP-27, testimony of Thomas Harley)

Alternatives 4D1 and 4D2

New modifications to Alternative 4M, known as Alternatives 4D1 and 4D2, were presented to the regulatory agencies for discussion in July and August 2002. These alternatives both featured a two-span bridge over the southern portion of Wetland B near North Mountain Road and a bridge over the northern portion of Wetland B near the previously identified wildlife migration area. The Alternative 4D2 bridge was closer to the unnamed tributary stream to Wetland B while the Alternative 4D1 bridge was farther east. The design package for both alignments called for the elimination of improvements to North Mountain Road in order to eliminate the wetland impact associated with this work and to help maintain the project budget. Alternative 4D1 was determined to be preferable because it would have less impact on the forested slope than 4D2 while providing the same clearance for wildlife passage. (Ex. APP-1, APP-8C, APP-27)

This alignment was acceptable to Brookfield officials and was recognized by the regulatory agencies as the best compromise between wetland and social impacts. In a letter dated 12/18/02, the ACOE determined Alternative 4D1 to be the Least Environmentally Damaging Practicable Alternative (LEDPA). Alternative 4D1 is therefore the alignment upon which the project design is based. (Ex. APP-1, APP-8C, APP-27, APP-28)

ATTACHMENT B ***DRAFTED June 29, 2006***

PERMIT

Permittee: Connecticut Department of Transportation
2800 Berlin Turnpike
P.O. Box 317546
Newington, CT 06131-7546

Attn: Edgar T. Hurle, Director of Environmental Planning

Permit No: IW-2002-101
Permit Type: Inland Wetlands and Watercourses
Town: Brookfield
Project: DOT Project Number 18-113

Pursuant to Connecticut General Statutes Section 22a-39 the Commissioner of Environmental Protection hereby grants a permit to the Connecticut Department of Transportation (the "permittee") to conduct activities within inland wetlands and watercourses in accordance with its application and plans which are part thereof filed with this Department on January 14, 2002 and revised through April 10, 2006 signed by Edgar T. Hurle and dated December 28, 2001 (the "plans"). The purpose of said activities is to construct a four-lane limited access freeway from the terminus of the existing Route 7 four-lane freeway in the Town of Brookfield, 2.9 miles north to the Town of New Milford (the "site").

AUTHORIZED ACTIVITY

Specifically, the permittee is authorized to alter; 719 linear feet of stream channel, and 1.25 acres of inland wetlands and watercourses, 7.19 acres of open water and temporarily affect approximately 0.20 temporary acres of inland wetlands and watercourses for the construction of 2.9 miles of a four lane limited access freeway in accordance with said application and plans which are part thereof entitled: “Connecticut Department of Transportation Plan for Construction of the Route 7 Bypass in the Towns of Brookfield – New Milford” prepared by SEA Consultants Inc., dated July 2005 and revised through April 10, 2006.

This authorization constitutes the permits and approvals required by Section 22a-39 of the Connecticut General Statutes and is subject to and does not derogate any present or future property rights or other rights or powers of the State of Connecticut, conveys no property rights in real estate or material nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state, or local laws or regulations pertinent to the property or activity affected hereby.

PERMITTEE'S FAILURE TO COMPLY WITH THE TERMS AND CONDITIONS OF THIS PERMIT SHALL SUBJECT PERMITTEE AND PERMITTEE'S CONTRACTOR(S) TO ENFORCEMENT ACTIONS AND PENALTIES AS PROVIDED BY LAW.

This authorization is subject to the following conditions:

SPECIAL CONDITIONS

1. If any changes are proposed in the water-handling plan at the site from that which is shown on the permit plates, the permittee shall submit such changes to the Commissioner for review and written approval. The permittee shall not implement any such plan until an approval is issued.

2. If any changes are proposed in the storm drainage system at the site, including any proposed swales, from that which is shown on the permit plates, the permittee shall submit such changes to the Commissioner for review and written approval. The permittee shall not implement any such plan until an approval is issued.

3. If any changes are proposed in the slope protection from that which is shown on the permit plates, the permittee shall submit such changes to the Commissioner for review and written approval. The permittee shall not implement any such plan until an approval is issued.

4. No later than 60 days from the date of issuance, the permittee shall provide to the Commissioner a comprehensive mitigation plan under a single cover that contains the entirety of plans, specifications, details, provisions, and conditions that define the complete scope of mitigation efforts and elements to be undertaken including but not limited to land acquisition and ownership, and site specific construction, monitoring, assessment, and remediation.

   No construction activities may be initiated until after the Commissioner has written approval of the comprehensive mitigation plan.

   The mitigation plan should include the following sites as shown on plans entitled "U.S. Route 7 Bypass, Wetland Mitigation" found on sheets 343a through 355b of 554 and dated June 6, 2006:

   a. Restore the outlet structures at two wildlife marshes in the Wyantenock State Forest off Kenico Road, Kent for the sole purpose of creating a pike marsh;

b. Construct a "shelf" along the Route 7 fill slope in Quarry Pond in order to create habitat for the spawning of largemouth bass and sunfish, rearing areas for the recently hatched fish, and cover for juvenile-aged individuals to escape from predators;

c. "Daylight" approximately 498 feet of an unnamed watercourse off Industrial Park Drive in Mitigation Site J;

d. Purchase of a 59.11-acre parcel off Elbow Hill Road for preservation;

e. Purchase of a 13.7-acre parcel off Aldrich Road for preservation. The parcel contains a section of the Still River and abuts existing preserved open space of Weantinoge Heritage, Inc., a private land trust;

f. Purchase of 15 acres of upland on Carmen Ridge;

g. Remove 0.24 acres of invasive species at Site Q;

h. Restore 0.42 acres of existing wetland at Site B;

i. Create / enhance 1.0 acre of wetlands at Site J;

j. Create 2.16 acres of wetlands at Site H.

The mitigation sites shall be constructed prior to the expiration of this permit.

Any significant modification or alteration, addition or deletion of mitigation plan elements, details, or provisions requires the prior written approval of the Commissioner.

5. The permittee shall implement all elements, details and provisions of the mitigation plan including but not limited to land acquisition and ownership, and site-specific construction, monitoring, assessment, and remediation as specified in the mitigation plan approved by the Commissioner.

6. The permittee shall retain ownership of all of the mitigation sites and shall have responsibility for the management, monitoring and remediation of the mitigation sites until such time as the Commissioner issues a written approval or agreement authorizing alternate arrangements.

7. The permittee shall not make any alterations or modifications to the construction, operation, monitoring or maintenance of the mitigation sites without having obtained prior written authorization from the Commissioner.

8. The Commissioner may direct the permittee to implement specific actions to correct, modify, remediate site environmental or habitat conditions within the mitigation sites that are deemed by the Commissioner to be inconsistent with the goals and objectives of the mitigation plan.

9. The Commissioner may, based on the findings of the post-construction assessment conducted pursuant to the Mitigation Plan, direct the permittee to take corrective action to remediate deficiencies at the wetland mitigation areas.

10. The permittee shall conduct all in-water unconfined activities from June 1 through September 30. For the purposes of Domain and Quarry Ponds, the placement of clean rock fill shall not be considered an unconfined activity.

11. The permittee shall monitor NOAA weather radio for large storm events, anytime one of the "Temporary Hydraulic Facilities" is overtopped and water is directed through the work site the permittee shall stop work and remediate the site before work resumes.

12. The permittee shall provide bathymetric survey for pre and post conditions for the fill slope placed within Quarry Pond.

13. The permittee wherever possible shall maintain a 100-foot buffer of forested upland along all streams located within the project corridor. This condition shall not apply to areas located within or immediately adjacent to the footprint of the proposed project.

14. The permittee shall install four culvert crossings along Route 7 from Sta. 4+100 to 4+400 for the sole purpose of providing terrestrial access from the ridgeline to the early successional habitat area. At a minimum the crossings shall be 4 feet wide and have a natural bottom. The permittee shall conduct a study in order to determine the exact size and locations of the crossings. The study and monitoring protocol shall be in accordance with the February 14, 2006 Scope of Work entitled "Project 18-113, U.S. Route 7 Bypass, Brookfield, Eastern Box Turtle and Eastern Hognose Snake Monitoring".

    Sta. 4+100 to 4+400 shall not cleared and grubbed until; the first phase of the study is complete, the building at 6 Production Drive is demolished, and the early succesional habitat area is created. The permittee shall consult with the DEP, Wildlife Division and the Inland Water Resources Division for time of year restrictions prior to the construction of this section of highway including but not limited to clearing and grubbing.

    In the final phase the permittee shall construct the crossings according to the approved plan. The permittee shall monitor the crossings post construction for two seasons and document the succession or failure rate of each of the crossings.

15. The permittee shall avoid the use of early successional habitats for staging or storage areas. If the habitat areas are unavoidable then the permittee shall submit a construction schedule to the DEP for review and approval. This condition shall not apply to construction staging Area No. 4.

16. The pemittee shall implement the grass mitigation plan entitled "Grass Mitigation Plan" dated February 2006 by the expiration date of this permit.

GENERAL CONDITIONS

1. **Initiation and Completion of Work.** At least five (5) days prior to starting any construction activity at the site, the permittee shall notify the Commissioner of Environmental Protection (the "Commissioner"), in writing, as to the date activity will start, and no later than five (5) days after completing such activity, notify the Commissioner, in writing, that the activity has been completed.

2. **Expiration of Permit.** If the activities authorized herein are not completed by five years after the date of this permit this permit shall be null and void.

   Any application to renew or reissue this permit shall be filed in accordance with Sections 22a-6j and 22a-39 of the General Statutes and Section 22a-3a-5(c) of the regulations of Connecticut State Agencies. In order to be considered timely, any such application must be filed at least 120 days prior to the expiration date of this permit.

3. **Compliance with Permit.** All work and all activities authorized herein conducted by the permittee at the site shall be consistent with the terms and conditions of this permit. Any regulated activities carried out at the site, including but not limited to, construction of any structure, excavation, fill, obstruction, or encroachment, that are not specifically identified and authorized herein shall constitute a violation of this permit and may result in its modification, suspension, or revocation. In constructing or maintaining the activities authorized herein, the permittee shall not store, deposit or place equipment or material including without limitation, fill, construction materials, or debris in any wetland or watercourse on or off site unless specifically authorized by this permit. Upon initiation of the activities authorized herein, the permittee thereby accepts and agrees to comply with the terms and conditions of this permit.

4. **Transfer of Permit.** This authorization is not transferable without the written consent of the Commissioner.

5. **Reliance on Application.** In evaluating the permittee's application, the Commissioner has relied on information provided by the permittee. If such information subsequently proves to be false, deceptive, incomplete or inaccurate, this permit may be modified, suspended or revoked.

6. **Best Management Practices.** In constructing or maintaining the activities authorized herein, the permittee shall employ best management practices, consistent with the terms and conditions of this permit, to control storm water discharges and erosion and sedimentation and to prevent pollution. Such practices to be implemented by the permittee at the site include, but are not necessarily limited to:

   a. Prohibiting dumping of any quantity of oil, chemicals or other deleterious material on the ground;

   b. Immediately informing the Commissioner's Oil and Chemical Spill Section at 424-3338 of any adverse impact or hazard to the environment, including any discharges, spillage or loss of oil or petroleum or chemical liquids or solids, which occurs or is likely to occur as the direct or indirect result of the activities authorized herein;

   c. Separating staging areas at the site from the regulated areas by silt fences or haybales at all times.

   d. Prohibiting storage of any fuel and refueling of equipment within 25 feet from any wetland or watercourse.

   e. Preventing pollution of wetlands and watercourses in accordance with the document "Connecticut Guidelines for Soil Erosion and Sediment Control" as revised. Said controls shall be inspected by the permittee for deficiencies at least once per week and immediately after each rainfall and at least daily during prolonged rainfall. The permittee shall correct any such deficiencies within forty eight (48) hours of said deficiencies being found.

   f. Stabilizing disturbed soils in a timely fashion to minimize erosion. If a grading operation at the site will be suspended for a period of thirty (30) or more consecutive days, the permittee shall, within the first seven (7) days of that suspension period, accomplish seeding and mulching or take such other appropriate measures to stabilize the soil involved in such grading operation. Within seven (7) days after establishing final grade in any grading operation at the site the permittee shall seed and mulch the soil involved in such grading operation or take such other appropriate measures to stabilize such soil until seeding and mulching can be accomplished.

   g. Prohibiting the storage of any materials at the site which are buoyant, hazardous, flammable, explosive, soluble, expansive, radioactive, or which could in the event

of a flood be injurious to human, animal or plant life, below the elevation of the five-hundred (500) year flood. Any other material or equipment stored at the site below said elevation by the permittee or the permittee's contractor must be firmly anchored, restrained or enclosed to prevent flotation. The quantity of fuel stored below such elevation for equipment used at the site shall not exceed the quantity of fuel that is expected to be used by such equipment in one day.

h. Immediately informing the Commissioner's Inland Water Resources Division (IWRD) of the occurrence of pollution or other environmental damage resulting from construction or maintenance of the authorized activity or any construction associated therewith in violation
of this permit. The permittee shall, no later than 48 hours after the permittee learns of a violation of this permit, report same in writing to the Commissioner. Such report shall contain the following information:

(i) the provision(s) of this permit that has been violated;

(ii) the date and time the violation(s) was first observed and by whom;

(iii) the cause of the violation(s), if known

(iv) if the violation(s) has ceased, the duration of the violation(s) and the exact date(s) and times(s) it was corrected;

(v) if the violation(s) has not ceased, the anticipated date when it will be corrected;

(vi) steps taken and steps planned to prevent a reoccurrence of the violation(s) and the date(s) such steps were implemented or will be implemented;

(vii) the signatures of the permittee and of the individual(s) responsible for actually preparing such report, each of whom shall certify said report in accordance with section 9 of this permit.

For information and technical assistance, contact the Department of Environmental Protection's Inland Water Resources Division at (860)424-3019.

7. **Contractor Liability.** The permittee shall give a copy of this permit to the contractor(s) who will be carrying out the activities authorized herein prior to the start of construction and shall receive a written receipt for such copy, signed and dated by such contractor(s). The permittee's contractor(s) shall conduct all operations at the site in full compliance with this permit and, to the extent provided by law, may be held liable for any violation of the terms and conditions of this permit.

8. **Monitoring and Reports to the Commissioner.** The permittee shall record all actions taken pursuant to Condition Number 6(e) of this permit and shall, on a monthly basis, submit a report of such actions to the Commissioner. This report shall indicate compliance or noncompliance with this permit for all aspects of the project which is the subject of this permit. The report shall be signed by the environmental inspector assigned to the site by the permittee and shall be certified in accordance with Condition Number 9 below. Such monthly report shall be submitted to the Commissioner no later than the 15th of the month subsequent to the month being reported. The permittee shall submit such reports until the subject project is completed.

9. **Certification of Documents.** Any document, including but not limited to any notice, which is required to be submitted to the Commissioner under this permit shall be signed by the permittee, a responsible corporate officer of the permittee, a general partner of the permittee, or a duly authorized representative of the permittee and by the individual or individuals responsible for actually preparing such document, each of whom shall certify in writing as follows:

> "I have personally examined and am familiar with the information submitted in this document and all attachments and certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief, and I understand that any false statement made in this document or its attachments may be punishable as a criminal offense in accordance with Section 22a-6 under Section 53a-157b of the Connecticut General Statutes."

10. **Submission of Documents.** The date of submission to the Commissioner of any document required by this permit shall be the date such document is received by the Commissioner. Except as otherwise specified in this permit, the word "day" as used in this permit means the calendar day. Any document or action which falls on a Saturday, Sunday, or legal holiday shall be submitted or performed by the next business day thereafter.

Any document or notice required to be submitted to the Commissioner under this permit shall, unless otherwise specified in writing by the Commissioner, be directed to:

Denise Ruzicka, Director
DEP/Inland Water Resources Division
79 Elm Street, 3rd Floor
Hartford, Connecticut, 06106-5127

Issued by the Commissioner of Environmental Protection on:

Date

Gina Mc Carthy
Commissioner

P A R T Y L I S T

Proposed Final Decision In the matter of CT Dept. of Transportation
Route 7 Brookfield/App. No. IW-2002-101

PARTY	*REPRESENTED BY*
The Applicant	
CT Dept of Transportation	Charles Walsh, AAG Office of the Attorney General 55 Elm Street P.O. Box 120 Hartford, CT 061141-0120

Department of Environmental Protection

Jeffrey Caiola, IWRD
Bureau of Water Protection and Land Reuse
79 Elm Street
Hartford, CT 06106

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