

The Torrent



The Hartford Flood Control System

Many Connecticut citizens do not realize that Hartford is protected from flooding by an elaborate system of dikes, conduits, pumps and floodwalls. The original Hartford flood protection project was authorized by Congress under the Flood Control Act of 1936. The project was constructed by the U.S. Army Corps of Engineers (USACOE) in phases from 1938 to 1981 and provides protection for 3,000 acres of urban area, consisting of 34,000 feet of earth dikes, 4,400 feet of concrete floodwalls, six stop log structures, six pumping stations, two drainage basins, three pressure conduits, an auxiliary conduit, and additional drainage facilities designed to keep the Connecticut River out of Hartford and drain internal stormwater flow out of the city. This system is operated and maintained by the City of Hartford.

The dikes and floodwalls extend from high ground near the Hartford-Windsor town line south to high ground just below the Hartford-Wethersfield town line. The dikes are constructed of free draining river sand with a thick layer of dense impervious earth on the riverside extending down to a steel sheet pile cutoff to prevent water seeping through the dike. Both sides of the dike are covered with topsoil to prevent erosion and on the riverside where scour from the Connecticut River may occur riprap is provided. The floodwalls are constructed of reinforced concrete, consisting of a vertical stem wall on a base with a steel sheet piling cutoff wall. The walls were then backfilled up to natural ground to provide surface drainage.

Along this system there are six stop log structures and one bulkhead structure which are closed when floodwaters threaten to enter the protected area. Stop log structures consist of interlocking wooden boards that are stacked into side rails to form a barrier against water infiltration. Stop logs are removable and typically used at road or rail crossings and are put into place when flooding is imminent. During flood stage, storm water and sanitary sewerage is removed from the city by six pumping stations into the Connecticut River. Five of the pumping stations (Bushnell Park, Keeney Lane, North Meadows, Pope Park, and Armory) were built by the federal government, with the sixth station (South Meadows) built by the City of Hartford. Emergency generators are installed on all pumps to provide backup power in the event of a power failure. The three pressure conduits, constructed of reinforced concrete, discharge the Park River, Folly Brook and Gully Brook flows and prevent backwater flooding from the Connecticut River.

The dike system along the west bank of the Connecticut River is continuous from beginning to end except for a short section at the Bulkeley Bridge

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State of Connecticut
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Flood Management Program
79 Elm Street, 3rd floor
Hartford, CT 06106-5127
(860) 424-3706
<http://www.dep.state.ct.us>

Editor: Diane Ifkovic
State NFIP Coordinator
diane.ifkovic@po.state.ct.us

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where high ground is encountered. The dike is divided into four sections. The North Meadows Dike runs from the upper limits to the Bulkeley Bridge and is constructed entirely of earth, 16,400 feet in length with an average height of 27 feet. There are two railroad stop log structures on this dike.

The Riverfront Dike runs from the Bulkeley Bridge to a point approximately 1,000 feet below the Connecticut Resources Recovery Authority (CRRA) trash-to-energy plant. The Riverfront Dike is constructed of 5,300 feet of earth dike and 4,400 feet of concrete floodwall, the concrete floodwall being used due to restricted space for construction. Two concrete stop log structures are provided at the CRRA plant.

The construction of the Riverfront Dike blocked the flow of the Park River through Hartford and into the Connecticut River. The Park River was buried underground and enclosed in a twin barrel pressure conduit, from a point where any backwater would be retained within the banks, through the Riverfront Dike and emptying into the Connecticut River approximately 4,300 feet below the Bulkeley Bridge. The construction of the Park River Conduit blocked Gully Brook, which emptied into the Park River near the point where the railroad crosses Asylum Street. Gully Brook starts in Kenney Park. Flow through the downtown district was enclosed in 3,100 feet of single barrel pressure conduit constructed beneath Bushnell Park to empty Gully Brook into the Park River Conduit.

The South Meadows Dike, also known as the Clark Dike, is located south of Maxim Road and runs from a point below the CRRA plant to end at Wethersfield Avenue. It is constructed entirely of earth, 11,400 feet in length with an average height of 24 feet. Two stop

log structures and the pumping station constructed by the City of Hartford are located at the lower end of the dike.

The Folly Brook Dike extends for about 650 feet from the southwest corner of Wethersfield Avenue and Victoria Road to high ground along the Wilbur Cross Parkway-Wethersfield Avenue interchange in Wethersfield. The rolled earth fill dike has a minimum height of 10 feet.

lic trespass and encroachment.

A 4.4 mile gravel roadway will be constructed to provide future access for inspection, operation and maintenance. Riprap will be added where necessary and floodwalls will be repaired. Re-grading of 1.4 miles of the dike will occur. All woody vegetation will be cleared on the entire dike system. Trees and brush have taken root in many

View from atop Hartford dike looking west toward I-91



As part of the project agreement with the federal government, the Hartford Flood Commission was established in 1937 and is responsible for maintaining and operating the system upon completion by the USACOE. The Hartford flood control system is now more than 65 years old. Periodic maintenance has occurred over the years.

In 2005, the City of Hartford applied to the USACOE and the CTDEP for the necessary permits to perform repairs, improvements and maintenance activities in conformance with USACOE maintenance guidelines for the dike. These activities will address dike settlement, stability, seepage, drainage, slope protection, accessibility, debris removal, siltation, vandalism, and pub-

locations. Approximately 2.2 miles of open channel ditches designed to convey water away from the dike during a flood will be cleared of silt and vegetation that has accumulated since their construction. Animal control services will be provided to remove nuisance wildlife and the burrows that they have excavated into the dike will be filled and repaired. Hartford awarded the contract for these activities to Northern Land Clearing Inc. of Palmer, Massachusetts. The project will cost approximately \$3.65 million, with funding provided by City of Hartford municipal bonds. Construction activities began in August 2006 and will continue through 2007.

The Flood Zone Determination Industry

When applying for a mortgage or home equity loan, one of the many fees that the loan applicant must pay as part of the closing costs is a flood zone determination fee. Many applicants ask - "What is this fee for?"

Per federal law, lenders must determine if the property is located within a Special Flood Hazard Area (100-year floodplain) as depicted on a FEMA Flood Insurance Rate Map (FIRM) and require borrowers to purchase flood insurance if located in this area. In the past, lenders often were not diligent in determining if structures were located in flood zones and were not requiring flood insurance for many structures located in these areas as mandated by the National Flood Insurance Program (NFIP) regulations. Changes were made to the NFIP regulations in 1994 that authorized FEMA to impose civil penalties against lenders for not requiring flood insurance when necessary.

The authorization of civil penalties and subsequent FEMA actions against non-compliant lenders resulting in fines caught the lending industry's attention. It is now a standard practice for lenders to evaluate the location of structures relative to flood hazard risk and to require flood insurance as a prerequisite for a home loan. Most lenders will contract with a flood zone determination company to make these determinations that become the basis for the lender's decision to require a mortgagor to obtain flood insurance.

Besides flood zone determinations, industry services also include:

- **Life of Loan**— If a lender requires, the determination company can monitor an improved

property for any future map changes that affect the flood insurance requirement during the term of a loan.

- **Quality Assurance**—Companies review their data to ensure the quality of the determinations they provide to their clients.
- **Dispute resolution**—Companies employ a process to review and resolve a client's issues with specific determinations they have made.
- **Compliance**—Companies have become experts in their client's regulatory compliance requirements and have personnel on staff to help answer questions.

FEMA does not regulate or rate flood zone determination service companies for their qualifications, knowledge, and abilities to make proper and accurate determinations. Companies using the same flood maps and having the same level of background knowledge of floodplain management should theoretically make the same determination on any structure they review. However, differences in determinations do occur because the review and accuracy standards and level of risk vary with each flood zone determination service company.

The lack of consistent standards in the flood zone determination industry has led some to question the trustworthiness and actual benefit that the industry provides to floodplain management and the NFIP. Flood insurance and governmental NFIP stakeholders are working to provide a method of self regulation within the industry initially through the creation of the National Flood Determination Association (NFDA) and by subsequent develop-

ment of a certification program administered by the association. The NFDA is a non-profit organization dedicated to promoting the interests and success of its members involved in conducting flood zone determination reviews and the distributing and reselling of the flood zone determination findings. Its membership includes flood zone determination service companies, their vendors, re-sellers and other industry associates. More information on the NFDA can be found at their website, <http://www.floodassoc.com>.

Just as the flood zone determination companies establish their own individual standards for business operations and the level of risk they are willing to accept in making the flood zone determinations, so, do the lenders establish risk levels for their operations. Their choices can vary on a scale of very liberal to very conservative. The ultimate decision as to whether flood insurance will be required beyond the NFIP requirement is the lenders' choice. They could choose to be ultra conservative and require flood insurance on every mortgage they issue just as they would require a homeowners insurance policy. Even if a structure is very far removed from any flood risk, a lender could still require flood insurance.

If a loan applicant is faced with a situation where a lender is requiring flood insurance and there appears to be very good evidence that the structure being mortgaged is not in a flood zone regulated by the NFIP then the applicant has the option of shopping around for another lender.

FEMA Flood Map Modernization

The FEMA multi-year project to update the nation's Flood Insurance Rate Maps (FIRMs) is entering its third year of activity. For those of you who have not heard, Map Modernization was mandated by Congress in 2004 with the primary goal to reduce the loss of life and property, minimize suffering and disruption caused by disasters, and better prepare the nation to address the consequences of flooding hazards.

FIRMs are important tools in the effort to protect life and property. By showing the extent to which communities and individual properties are at risk for flooding, flood maps help business and property owners make better financial decisions about protecting their property. These maps also assist community planners, local officials, engineers, builders and other to make important determinations about *where* and *how* new structures and developments should be built.

Connecticut's FIRMs are on average 18 years old. Over time, water flow and drainage patterns have changed dramatically due to surface erosion, land use and natural forces. The likelihood of inland, riverine and coastal flooding in certain areas has changed along with these factors. New digital mapping techniques will provide more detailed, reliable and current data on flood hazards. The result: a better picture of the areas most likely to be impacted by flooding and a better foundation from which to make key decisions.

Map Modernization is a collaborative process that cuts across all layers of government. State and local government officials along with other stakeholders will be active in mapping operations. FEMA intends to produce more accurate and accessible flood maps by using advanced data gathering technology to produce digital flood insurance rate maps (DFIRMs). These maps will be available on the Internet and will enable stakeholders to assess risks using electronically based technology and data. Paper map products will also be available and will be digitized in a county-wide format.



Producing DFIRMs for a particular county takes approximately two years. In the first year, FEMA mapping contractors collect data and hold scoping meetings with local officials to determine flood mapping update needs. As part of the scoping process, communities are asked to review with the state and FEMA contractors, those areas within their community that might require restudy or review. Such areas might include places within the community that are currently under development or that were recently developed, areas that have known flooding problems, and where flood problems are currently understated or overstated on the existing maps.

Year two of the DFIRM production includes updating the existing DFIRM information and the Flood

Insurance Study (FIS). Once the Preliminary FIS and DFIRMs are ready for release, FEMA will conduct a formal public meeting to present this new information. This will be followed by an appeal period and a time for each community to update their floodplain management ordinance and adopt the new FIS and DFIRM.

The CTDEP has determined the sequencing of countywide mapping projects based upon a variety of flood risk factors which include population density, change in land use, age of maps, and the NOAA coastal vulnerability index. So far, Fairfield and New Haven Counties have been scoped with preliminary maps anticipated in 2008. Hartford and Middlesex Counties have preliminary dates of April 2007 and November 2006 respectively and will reflect new study data along the Connecticut River. New London County will be scoped beginning in October 2006 with preliminary maps projected for 2008.

Keeping stakeholders informed is a major goal of Map Modernization. As a participant in the National Flood Insurance Program, it is the responsibility of the community to regulate development within the identified special flood hazard areas. This can be difficult when citizens feel they were not involved in the map development process. Therefore, stakeholders must recognize that public awareness is critical in achieving mapping goals.

Contact Carla Feroni, Connecticut Mapping Coordinator with the CTDEP, at (860) 424-3390 if you have questions or concerns about the mapping process in your community.

News Briefs

Changes to the FEMA Elevation Certificate

FEMA's new Elevation Certificate was approved for use, effective February 13, 2006, through February 28, 2009. The new form now requires the certifier to provide the square footage of the enclosed area below the elevated floor, at least two photographs showing the front and rear of the structure, the structure's longitudinal and latitudinal locations, a building diagram number, and measurement of crawlspaces, attached garages and other areas. An electronic version of the new Elevation Certificate form and instructions is available on the FEMA website at www.fema.gov/business/nfip/elvinst.shtm.

The Elevation Certificate Revision Project began in July 2003 with the establishment of a work group that included representatives from FEMA, the Association of State Floodplain Managers (ASFPM), the American Congress of Surveying and Mapping, independent insurance agents, and property and casualty insurance companies. Notice of the proposed revision to the Elevation Certificate was published in the Federal Register in August 2005 and the U.S. Office of Management and Budget (OMB) granted approval in February 2006.

New Staff at CTDEP

Karen Michaels is a new staff member in the CTDEP flood management program. Ms. Michaels was hired in January 2006 to work on NFIP issues and act as a resource for municipalities, design professionals and residents. Ms. Michaels for-

merly worked at the Massachusetts Department of Environmental Protection for nearly ten years in the area of solid waste management and waste planning.

In addition, her planning background has included work within local community development agencies in Massachusetts. Ms. Michaels holds Masters degrees in Public Administration and Regional Planning, and is a member of APA and AICP. She can be contacted at (860) 424-3779 or via email at karen.michaels@po.state.ct.us.

The New eLOMA: Electronic Letter of Map Amendment

The Federal Emergency Management Agency (FEMA) has designed a new interactive online determination tool for Letter of Map Amendment (LOMA) requests called eLOMA. eLOMA is a web-based application that provides licensed land surveyors and professional engineers with a system to submit simple LOMAs to FEMA. This tool is designed to make a determination based on the information submitted by the licensed professional and allow them to generate a determination from FEMA in minutes.

The initial release of eLOMA will enable licensed professionals to make requests for existing single residential structures or properties, provided no fill has been placed to raise the elevations of the structure or property. Approximately half of the LOMAs processed annually, about 10,000 cases, meet the requirements of eLOMA.

The eLOMA was designed to facilitate the LOMA process. Historically, because of manual processing, obtaining a LOMA took up to 60 days, provided all required documentation was on file. Through the use of eLOMA, licensed professionals could receive a determination in the time that it takes to enter the required information online. A surveyor or engineer must set up an account using individual license certification information prior to submitting eLOMAs. More information on the eLOMA process and registration for licensed professionals can be found at: http://www.fema.gov/business/nfip/info_surv.shtm. A tutorial is also available online for surveyors on the elevation certificate at <http://training.nfipstat.com/ecsurveyor>.

New Flood Insurance Claims Handbook

To better address consumer questions regarding flood insurance claims, FEMA has created a new Flood Insurance Claims Handbook. The 9-page handbook not only describes what to do before and after a flood, but also outlines the process of appealing a claim.

Copies of the handbook can be ordered from the FEMA Distribution Center at (800) 480-2520, request publication F-687. A full-color pdf version of the handbook can be found at www.fema.gov/pdf/nfip/f687_claimshdbk.pdf. FEMA has also created a black and white version to allow for easy faxing and photocopying. This is available for download at <http://www.fema.gov/pdf/nfip/clmshdbkfx.pdf>.

UPCOMING CONFERENCES & WORKSHOPS

November 12-15, 2006. International Association of Emergency Managers 2006 Annual Conference, Orlando, Florida. Internet: www.iaem.com.

December 9-13, 2006: The 3rd National Conference on Coastal and Estuarine Habitat Restoration, New Orleans, Louisiana. Sponsored by Restore American Estuaries. Internet: <http://www.estuaries.org/conference>.

June 3-8, 2007. Association of State Floodplain Managers (ASFPM) 31st Annual Conference, Norfolk, Virginia. Internet: www.floods.org

UPCOMING EMERGENCY MANAGEMENT INSTITUTE COURSES

The Emergency Management Institute (EMI) is located at the Federal Emergency Management Agency (FEMA) National Emergency Training Center (NETC) in Emmitsburg, Maryland. EMI serves as the national center for emergency management training of federal, state, and local government officials. Tuition, housing, and all books and materials are provided at no cost. Participants are responsible for the cost of a meal pass (approximately \$100). The following is a list of upcoming EMI courses through September 2007. To apply, call Diane Ifkovic, CTDEP, (860) 424-3537 or email at diane.ifkovic@po.state.ct.us. For more information on the courses listed, visit the EMI website: <http://training.fema.gov/emiweb/>.

- E155 Building Design for Homeland Security — August 21-24, 2007
- E170 Advanced HAZUS MH for Hurricanes — January 22-25, 2007
- E172 Advanced HAZUS MH for Flood — June 25-28 and August 13-16, 2007
- E174 Advanced HAZUS MH for Earthquake — February 5-8, 2007
- E179 Application of HAZUS MH for Disaster Operations — Feb. 26-March 1 and April 3-May 3, 2007
- E190 Introduction to ArcGIS for HAZUS Mitigation Users — April 16-19, 2007
- E194 Advanced Floodplain Management Concepts — November 6-9, 2006, January 15-18, 2007
- E202 Debris Management — September 17-20, 2007
- E210 Recovery from Disaster: The Local Government Role — February 5-9 and August 13-17, 2007
- E234 Digital Hazards Data — January 15-18, 2007
- E241 Cooperating Technical Partners Program: Special Topics Training — February 12-15 and
July 30-August 2, 2007
- E273 Managing Floodplain Development through the NFIP — August 27-30, 2007
- E276 Benefit-Cost Analysis: Entry Level Training — November 6-8, 2006
- E278 NFIP Community Rating System (CRS) — August 13-16 & Sept. 24-27, 2007
- E313 Basic HAZUS Multi-Hazards — December 4-7, 2006, June 11-14, 2007
- E376 State Public Assistance Operations — March 12-15, 2007
- E386 Residential Coastal Construction — July 9-13, 2007
- E464 Disaster Resistant Jobs' Strategies for Community and Economic Risk Management —
August 20-23, 2007