

DAS

Division of Design and Construction



Environmental Planning

Civil Engineers' Workshop

DAS

Division of Design and Construction



Environmental Planning

Civil Engineers' Workshop

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W/O

CI

Environment

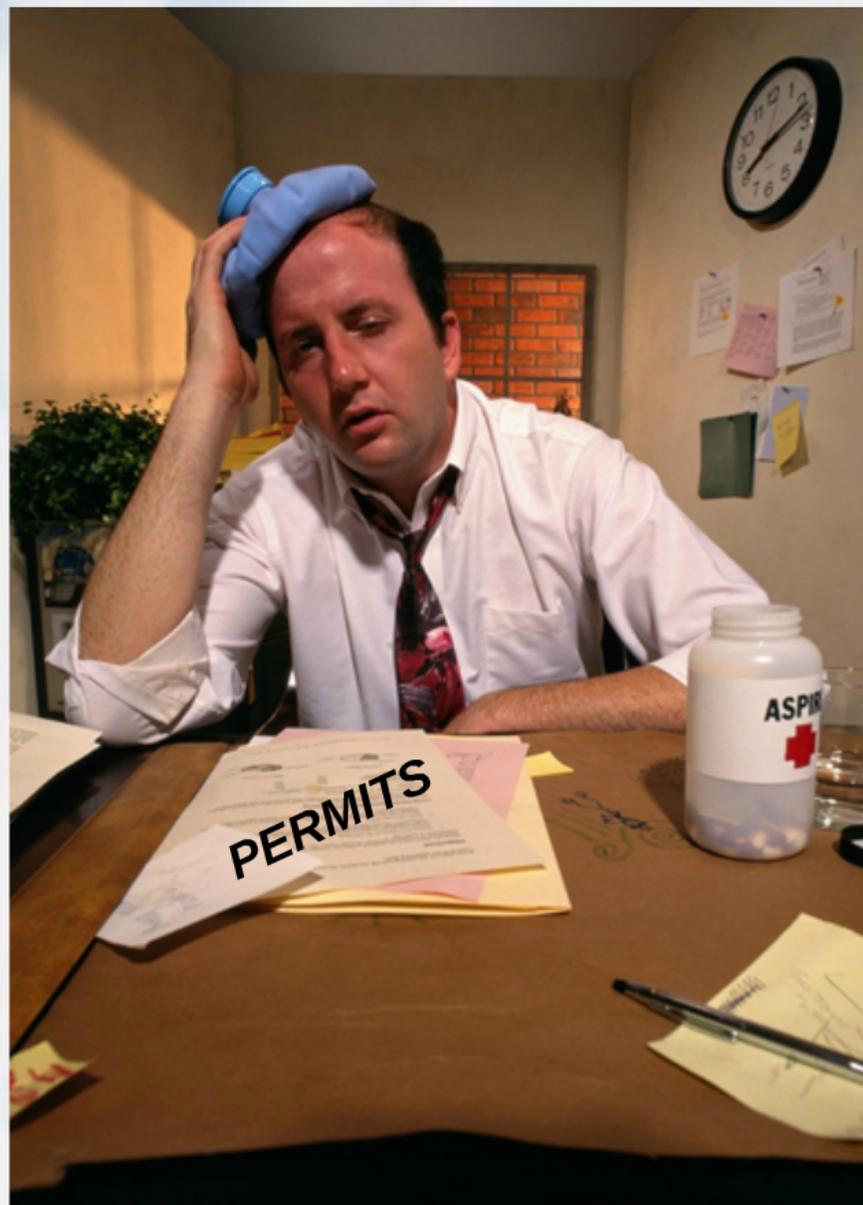
Better Environmental Coordination Equals Better Projects

Agenda

- ***DCS Environmental Policies and Procedures for DCS Projects***
- ***Local School Building Projects***
- ***New General Permit for Stormwater for Construction***
- ***New FEMA Coastal Flood Maps and 500-Year Elevations***
- ***Extreme Precipitation Discussion & Adaptation Measures***
- ***Open Discussion - ideas for better coordination***

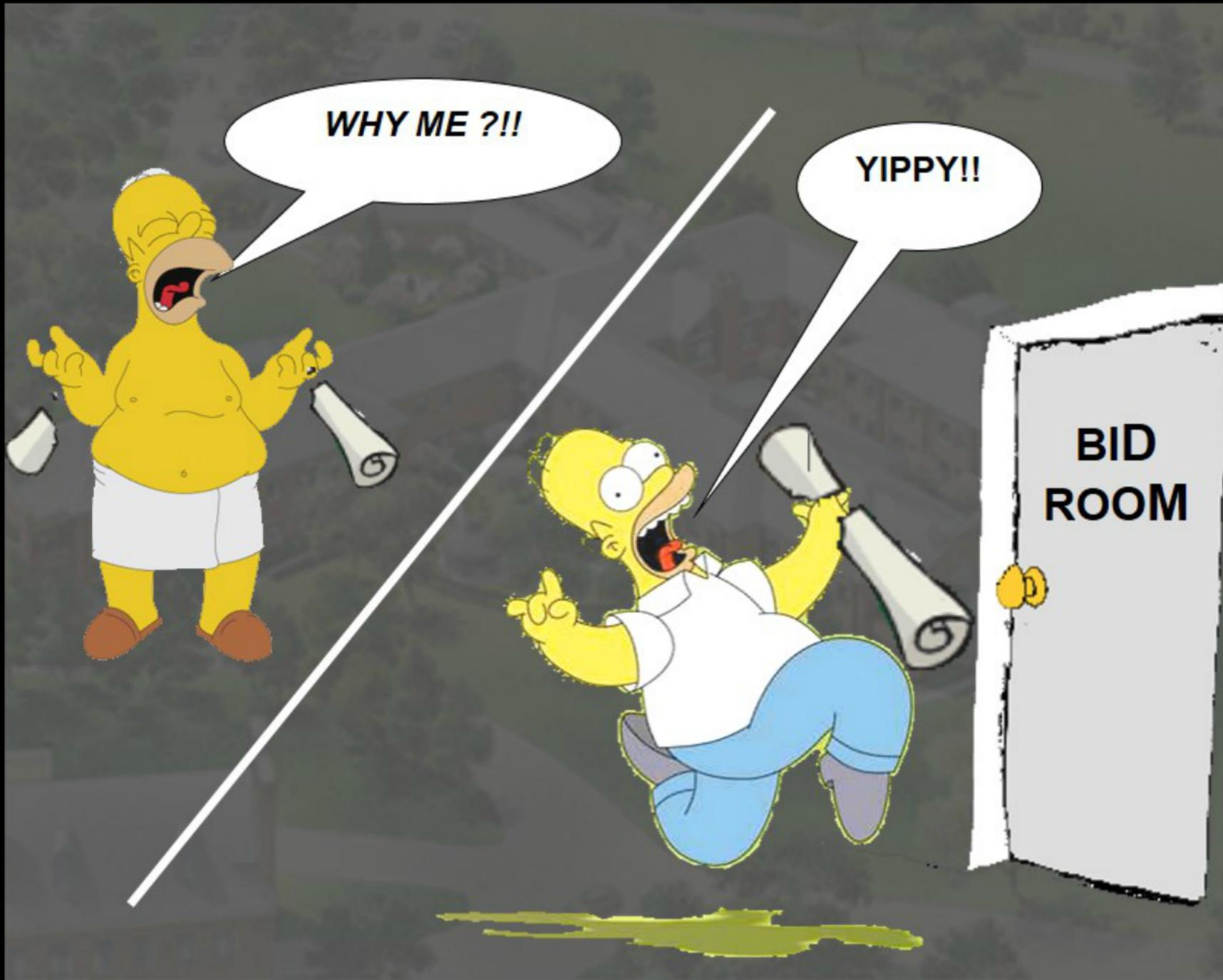
DCS Environmental Policies and Procedures

*One of our main goals is to take the **HEADACHE** out of the Environmental Process!!*



AND...the **FEAR** out of **Permits**!!





WHY ME ?!!

YIPPY!!

BID
ROOM

- Two Additional Key Points**
1. Soil Contamination: coordinate with geotech work for soil testing and identify areas for testing.
 2. Section 2.3.6 Boundary and Topographic Survey Requirements: submit completed surveys to DCS Environmental Planning for GIS integration.

CONSULTANTS PROCEDURE MANUAL



Construction Process Manual Highlights

- All 300-hour CE credits must be earned by the end of the calendar year.
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CE Credits, Contributions and Approvals Checklist Highlights

- All CE credits must be earned by the end of the calendar year.
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CE Credits, Contributions and Approvals Checklist Highlights

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Prepared by

STATE OF CONNECTICUT DEPARTMENT OF PUBLIC WORKS

Approved by: Raeanne V. Curtis Date: 10/14/2008
Raeanne V. Curtis, Commissioner

Consultant Procedure Manual Highlights

2.3.2 Stormwater Discharge Standards

- 2002 Connecticut Guidelines for Soil Erosion and Sediment Control
- 2004 Connecticut Stormwater Quality Manual
- Other Best Management Practices that meet LEED® Silver, or equivalent, standards and criteria for sustainable site design.
- A/E coordinate and accommodate drainage analysis and requirement needs between the DEEP and the Office of State Traffic Authority – DOT Drainage and Hydraulics.
- A/E prepares and submits the methods and design for the stormwater management facilities with the schematic design phase.

2.3.5 Permits, Certifications and Approvals Checklist and Policies

 Prezi
• Makes it clear DCS's policy is that a project cannot go to bid until the necessary permits are obtained.

- A/E coordinate and accommodate drainage analysis and requirement needs between the DEEP and the Office of State Traffic Authority – DOT Drainage and Hydraulics.
- A/E prepares and submits the methods and design for the stormwater management facilities with the schematic design phase.

2.3.5 Permits, Certifications and Approvals Checklist and Policies

- Makes it clear DCS's policy is that a project cannot go to bid until the necessary permits are obtained.
- Requires the Checklist to be submitted with consultant's proposal and revised and resubmitted with each design submittal.
- All DEEP Inland Water Resources Division and OSTA correspondences and applications to be coordinated with the DCS Supervising Environmental Analyst.
- Prior to construction permits need to be obtained during design development.
- The consultant shall not submit the project for review or "approval" to any municipal land use commission or board, unless the DCS PM approves such review; however, such review is only a courtesy, since state actions are exempt from local approvals, **EXCEPT** for demolition permits.

board, unless the DCS PM approves such review; however, such review is only a courtesy, since state actions are exempt from local approvals, **EXCEPT** for demolition permits.

Permits, Certifications and Approvals Checklist Highlights

- On DCS main web site – always download the latest version (www.ct.gov/dcs)

DAS DEPARTMENT OF ADMINISTRATIVE SERVICES
DIVISION OF CONSTRUCTION SERVICES

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Donald DeFronzo
Commissioner

School Building Projects Advisory Council
School Safety Infrastructure Council
Office of Design and Construction
Office of School Facilities
Office of Education and Data Management

[DCS Home](#) >> DCS Library

DCS Library (Forms & Publications)

Office of State Building Inspector Forms

The following link provides access to Office of State Building Inspector Forms that are available in electronic (PDF and/or Word) versions. If you cannot find the Form you are seeking, please contact the appropriate OSBI Bureau. [OSBI Forms](#)

Office of State Fire Marshal Forms

New Checklist Updated August 2013



3030

Checklist for Permits, Certifications, and Approvals

Page 1 of 11

DCS Project Manager:	_____	
DCS Project No.:		Date:
Project Title	_____	
Facility/Address::	_____	
Anticipated Bid Date	_____	

INSTRUCTIONS

Checklist: This Checklist shall be submitted with the A/E Consultant's ("Consultant") proposal and revised and resubmitted with each Preconstruction Phase Submittal to the DCS Project Manager for all DCS Projects. Copies of the Checklist are to be sent to DCS Environmental Planning and DCS Code Services. The Consultant shall submit drafts of all applications as part of the Design Development Phase Submission.

See Permit Evaluation and Letter Instructions (3030.1) at the end of the Checklist for additional information, including additional Checklist Instructions.

The Consultant must select the appropriate answer from the dropdown menus for each permit, certification, and approval.

Project Delivery Method:	<input type="checkbox"/> Design-Bid-Build	<input type="checkbox"/> Design-Build	<input type="checkbox"/> CMR
Submitted With:	<input type="checkbox"/> Proposal Phase <i>(Preliminary Applicable Review)</i> <input type="checkbox"/> SD Phase <input type="checkbox"/> DD Phase <i>(Include Completed Drafts Of All Applicable Permit Applications)</i> <input type="checkbox"/> CD Phase <input type="checkbox"/> Bid Phase <input type="checkbox"/> Environmental Phase		
Project Type: <i>(Check All Applicable to this Project)</i>	<input type="checkbox"/> New	<input type="checkbox"/> Major Renovation	<input type="checkbox"/> Addition <input type="checkbox"/> Minor Renovation
Other Information:			
Existing Gross Square Footage (GSF): _____	No. of Existing Parking Spaces _____		
Proposed New (GSF): _____	No. of Proposed New Parking Spaces: _____		
Proposed GSF To Be Demolished: _____	No. of Existing Parking Spaces To Be Demolished: _____		

AGENCIES / PERMIT	Telephone Number	Click On Drop Down Box In Each Category		
		Is the Permit Required?	Who is responsible to obtain Permit?	Permit Status

Permanent Utility Services

The Consultant is required to research, as applicable, potential connection fees associated with each permanent utility service provider.

Date Of Agreement	Permanent Utility	Connection Needed?	Potential Connection Fees	Is the Permit Required?	Who is responsible to obtain Permit?	Permit Status
	Cable TV					
	Closed Circuit TV <i>(Agency System)</i>					
	Electric <i>(NU, UL etc.)</i>					
	Fire Alarm <i>(Connected to Fire Dept.)</i>					
	Gas <i>(CNG, YES etc.)</i>					
	Security Systems					
	Septic <i>(DPH/DEEP)</i>					
	Sewer <i>(Town, MDC, agency-owned systems, etc.)</i>					
	Telephone					
	Water Supply <i>(Utility)</i>					
	Other:					
OTHER PERMITS						

ADDITIONAL CHECKLIST INSTRUCTIONS:

For DCS Design-Bid-Build Projects and CMR Projects, the Consultant (or in the case of a Design-Build Project, the design-build firm) shall ensure all the required permits, certificates, and/or approvals are obtained for the project. The Consultant shall review all prior environmental documents for the project to assist in determining required permits and/or mitigation measures.

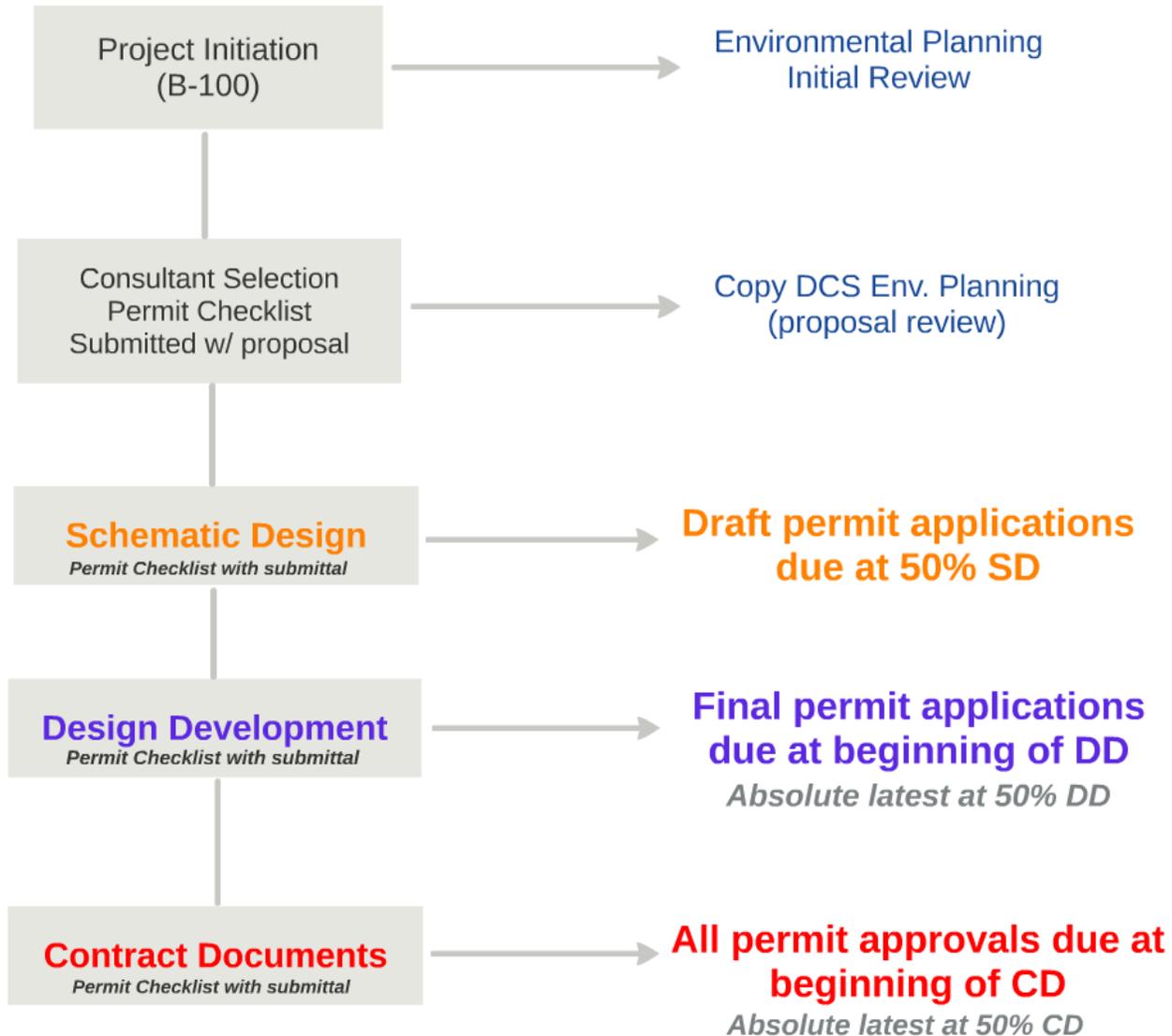
 **Permit Letter:** The Consultant shall submit a "Permit Letter" to DCS Environmental Planning documenting that all applicable permits (not code related) have been reviewed, and that the project has been designed in accordance with applicable permits (e.g., DEEP General Permits for Food Preparation Establishment Wastewater and/or Minor Boiler Blowdown Wastewater). See the Permit Evaluation and Letter Instructions (3030.1) at the end of the Checklist for additional information.

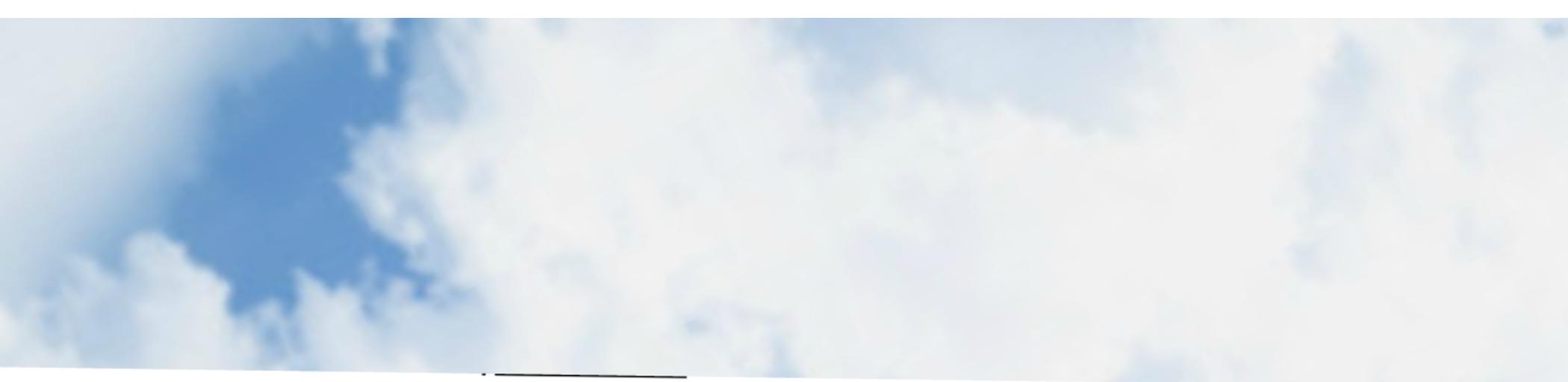
 **Permit Closeout Binder:** Once all environmental permits have been evaluated, submitted, registered, and/or approved, the Consultant shall submit a Permit Closeout Binder to DCS Environmental Planning, including, but not limited to, the Permit Letter, applicable calculations, operational requirements as per applicable permits, and all associated permits.

Project Permitting Process Flow Chart

PROJECT PHASES

ACTION





Two Additional Key Points

1. Soil Contamination: coordinate with geotech work for soil testing and identify areas for testing.
2. Section 2.3.6 Boundary and Topographic Survey Requirements: submit completed surveys to DCS Environmental Planning for GIS integration.

CONSULTANTS PROCEDURE MANUAL

Local School Building Projects

- ***Office of School Facilities (OSF) (formerly BSF)***

- ***Flood Management Certifications***



- ***Contaminated Soil***



- ***Site Selection / Site Approval***



- ***Consultant Selection for OSF Projects***



OSF Supplements to the Guidelines

It shall be the responsibility of the design professionals to thoroughly investigate the requirements of the Connecticut General Statutes regarding Flood Management Certification (FMC). If after their investigation(s) it is determined that certification is **not required**, the design professionals shall submit a *Flood Management Certification Notice letter* to the DCS/BSF at the first plan completion test meeting (PCT).

If after their investigation(s) it is determined that FMC is required, the design professionals shall submit a Flood Management Certification Notice letter to the BSF at the first plan completion test meeting (PCT), indicating that certification is required. The design professionals shall obtain (on-line) the necessary application forms (and instructions to complete them) from DEEP/IWRD.

Department of Construction Services (DCS)
Bureau of School Facilities (BSF)

FLOOD MANAGEMENT CERTIFICATION PROCESS

Any school construction project which adds impervious area to the site (including building area, pavement, sidewalks, etc.), or removes vegetated areas (wooded areas) to create open fields, or changes the grade slopes, may be required to submit an executed application to the State Department of Energy and Environmental Protection Inland Water Resources Division (DEEP/IWRD) for certification (at DEEP website).

It shall be the responsibility of the design professionals to thoroughly investigate the requirements of the Connecticut General Statutes regarding Flood Management Certification (FMC). If after their investigation(s) it is determined that certification is not required, the design professionals shall submit a Flood Management Certification Notice letter to the DCS/BSF at the first plan completion test meeting (PCT).

If after their investigation(s) it is determined that FMC is required, the design professionals shall submit a Flood Management Certification Notice letter to the BSF at the first plan completion test meeting (PCT), indicating that certification is required. The design professionals shall obtain (on-line) the necessary application forms (and instructions to complete them) from DEEP/IWRD.

The application shall be prepared with the **Department of Construction Services** as the **applicant**.

Any project activity* within a FEMA designated floodplain



Horizontal / Mapped

TABLE 11 - TRANSECT DATA - continued

Flooding Source and Transect Number	Stillwater Elevation				Total Water Level ¹	Zone	Base Flood Elevation (Feet NAVD88) ²
	10-percent-annual-chance	2-percent-annual-chance	1-percent-annual-chance	0.2-percent-annual-chance	1-percent-annual-chance		
LONG ISLAND SOUND - CONTINUED							
Entire shoreline within Madison							
Transect 51	6.1	8.0	9.1	13.1	11.2	VE AE	13-17 11-13
Transect 52	6.0	7.9	9.1	13.3	11.8	VE AE	14-18 12-14
Transect 53	6.0	7.9	9.1	13.5	12.0	VE AE	14-18 12-14
Transect 54	5.9	7.9	9.1	13.7	11.7	VE AE	19.0 *
Transect 55	5.9	7.9	9.1	13.8	11.1	VE AE	13-17 12-13

¹ Data not available

Vertical (based on elevation)

activity

* Activity vs. Critical Activity

Sec. 25-68b(4)

“Critical activity” means any activity, including, but not limited to, the treatment, storage and disposal of hazardous waste and the siting of hospitals, housing for the elderly, **schools** or residences, in the **.2 per cent floodplain** (500-YR) in which the commissioner determines that a slight chance of flooding is too great;

OSF Supplements to the Guidelines (cont.)

- This site is not owned or controlled by the state, and this project contains no actions or critical activity within a floodplain. Further, this project does not impact flood plains, either on-site or off-site.

Therefore, based upon the above criteria, Flood Management Certification is not required for the above noted project, and no application will be made to the State Department of Energy and Environmental Protection (DEEP)/Inland Water Resources Division (IWRD).

OR

- This site is owned or controlled by the state, and/or this project contains actions or critical activity within a floodplain (the project does impact flood plains, either on-site or off-site).

Therefore, based upon the above criteria, Flood Management Certification is required for the above noted project, and on behalf of the DCS as the “applicant”, we will be pursuing this approval with the DEEP/IWRD.

Important Information Required for an Application

Full-scale plans (1:40 minimum) and Details:

- Erosion and sediment control
- Contour/Grading elevations (existing and proposed)
- Identify watercourses and watershed areas
- Information addressing NFIP standards
- Existing and proposed drainage structures and pipelines
- Details for detention basins, swales, drywells, etc.

Support information:

- Peak flows - pre and post conditions (analyze 2, 10 and 100 year frequency storm)
- Storm drainage computation and outlet protection design
- Summary of discharges table for each design point
- Outlet velocity computations

Don't forget - CT DEEP's Hydraulic Analysis Guidance Document

New Timing Recommendations - "Front Loading"

- Prior to bidding on the project, assess if there are potential floodplain impacts.
- Discuss design and regulatory impacts with the Architect and/or District staff prior to submitting proposals.
- Follow the State Capital Projects application time frames (Consultants Procedure Manual).
- Coordinate with DCS Environmental Planning early.

Contaminated Soil

Auditorium project unearths contaminated soil at Greenwich High (2011)

"Construction of a new auditorium at Greenwich High School has hit another roadblock, with contaminated soil found during excavation work in the parking lot behind the school just a couple of weeks after the district broke ground on the \$29 million project." -- GreenwichTime.com



At long last, MISA construction resumes (2013)

"Almost two years since the brakes were applied, construction for the music instructional space and auditorium (MISA) project is back underway at Greenwich High School.

The renewal of actual work on the project has been a long time coming for MISA, which has been in a period of flux since work on the parking lot two years ago led to the discovery of contaminated soil at the school." -- GreenwichTime.com



Typically this environmental issue is outside of a civil engineer's scope of work; however as part of the design team, push to test for contamination and coordinate the geotech work with soil/ground water testing.

Site Selection / Site Approval

Site Approval Process for School Building Projects (DCS Website)

The screenshot shows the website for the Department of Administrative Services, Division of Construction Services (DCS). The page is titled "OSF Technical Plan Review" and "Site Approval Process for School Building Projects: Site Analysis and Environmental Planning". It contains the following text:

The district is highly encourage to coordinate and possibly arrange for a planning meeting **prior** to submitting a State grant-in-aid application for a School Building Project when site selection is involved, environmental resources may be impacted, and/or if the project may need State/Federal environmental permits or approvals. Should the project require construction within new areas of an existing school property or on a new site(s); then the district must obtain Site Approval from DAS. In cases where the district will seek an acquisition grant for a School Building Project, the district must fill out and complete the ED053 Form.

Prior to submitting an ED053 Form or seeking DAS Site Approval, the district's representative or the district's municipal planning department will need to assess whether the project would directly or indirectly impact environmental resources. In order for the district to complete the ED053 Form, the following environmental mapping websites and the noted resources must be consulted and the findings documented on the ED053 Form:

Federal Emergency Management Agency (FEMA) issued Flood Maps

Data to be reviewed:

- 100-YR Floodplain
- 500-YR Floodplain
- Floodway Zones
- Coastal Hazard Zones

Connecticut Environmental Conditions Online (UConn-CLEAR)

Data to be reviewed:

- Inland Wetland Soils
- Natural Diversity Data Base Area
- Critical Habitats

- DCS has “Site Approval” authority over Local School Construction Grant Projects.
- Site Approvals are required when a District is seeking a site acquisition grant and when a new school building or major expansion are being proposed within a new area of an existing school parcel.

"The district is highly encourage to coordinate and possibly arrange for a planning meeting prior to submitting a State grant-in-aid application for a School Building Project when site selection is involved, environmental resources may be impacted, and/or if the project may need State/Federal environmental permits or approvals. Should the project require construction within new areas of an existing school property or on a new site(s); then the district must obtain Site Approval from DAS. In cases where the district will seek an acquisition grant for a School Building Project, the district must fill out and complete the ED053 Form."

Site Selection / Site Approval - EDO53 Form

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FEMA Issued Flood Maps



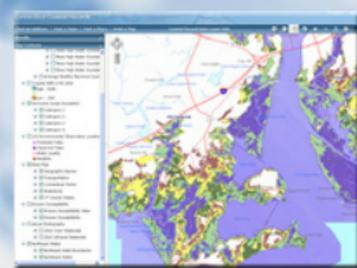
- 100-YR Floodplain
- 500-YR Floodplain
- Floodway Zones
- Coastal Hazard Zones

Connecticut Environmental Conditions Online (UConn-CLEAR)



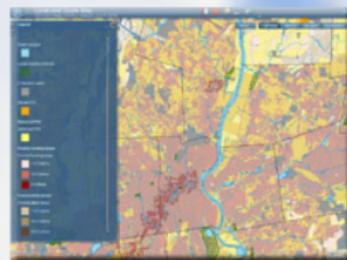
- Inland Wetlands Soils
- Natural Diversity Data Base Areas
- Critical Habitats

Connecticut Coastal Hazards Viewer (UConn-CLEAR)



- Hurricane Surge Inundation
- Erosion Susceptibility Sites
- MHW Inundation
- MHW Inundation + 6 in
- MHW Inundation + 12 in
- MHW Inundation + 18 in
- MHW Inundation + 24 in
- MHW Inundation + 36 in
- MHW Inundation + 60 in
- MHW Inundation + 79 in

State Plan of Conservation and Development Locational Guide Map (OPM)



- Protected Lands
- Local Historic Districts
- Undesignated Lands
- Priority Funding Areas
- Conservation Areas



ED053
SITE ANALYSIS FOR
SCHOOL BUILDING PROJECTS
C.T.S. 10-10-13 (REV. 10-10-13)

INSTRUCTIONS

The district is highly encourage to coordinate and possibly arrange for a planning meeting prior to submitting a state grant-in-aid application for a School Building Project when site selection is involved, environmental resources may be impacted, and/or if the project may need State/Federal environmental permits or approvals. Should the project require construction within new areas of an existing school property or on a new site(s); then the district must obtain Site Approval from DAS. In cases where the district will seek an acquisition grant for a School Building Project, the district must fill out and complete the ED053 Form.

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- FEMA: <http://www.fema.gov>
- Environmental Conditions Online <http://ctecoop1.uconn.edu/advancedviewer>
- Coastal Hazards Viewer <http://ctecoop1.uconn.edu/coastal hazards>
- State Plan of Conservation and Development Locational Guide Map <http://www.dcr.ct.gov/opm/gsm/gsm/index.html>

Additional information listed at the end of this form must also be submitted along with the completed ED053 form.

* Site approval is required even if there is no acquisition grant involved and construction/disturbance is planned within other areas of the existing (school) property. The exception to this is if the project is a renovation or minor addition involving no acquisition.

PROJECT INFORMATION

DISTRICT NAME: []	FACILITY NAME AND ADDRESS: []	STATE OF PROJECT NUMBER: []
CONTACT PERSON & TELEPHONE NUMBER: []	PROJECT DESCRIPTION (new construction, extension, or renovation, site acquisition grant(s)): []	
IS THIS A REVISED SITE ANALYSIS? <input type="checkbox"/> YES <input type="checkbox"/> NO	HAS THE SUBJECT SITE ALREADY BEEN APPROVED BY THE STATE UNDER A SEPARATE SCHOOL BUILDING PROJECT? <input type="checkbox"/> YES <input type="checkbox"/> NO	
ARE MULTIPLE SITES BEING CONSIDERED? <input type="checkbox"/> YES <input type="checkbox"/> NO	IF YES, DATE OF APPROVAL: []	
IF YES, PROVIDE THE NUMBER OF SITES: []	HAS ANY STATE BONDING BEEN APPROVED? <input type="checkbox"/> YES <input type="checkbox"/> NO	
EXISTING STUDENT ENROLLMENT: []	EXISTING PARKING SPACES: []	
PROJECTED STUDENT ENROLLMENT: []	PROPOSED NEW PARKING SPACES: []	
EXISTING GROSS SQUARE FOOTAGE: []	TOTAL PARCEL/SITE SIZE (AC.): []	
PROPOSED DEMOLITION: []	PROPOSED AREA FOR PROJECT (AC.): []	
PROPOSED NEW GROSS SQUARE FOOTAGE: []	DEVELOPABLE AREA (AC.): []	

SITE INFORMATION (check all that apply)

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) ISSUED FLOOD MAPS (<https://www.fema.gov>)

100-YR Floodplain:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact
500-YR Floodplain:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact
Floodway:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact
Coastal Hazard Zones:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact

CONNECTICUT ENVIRONMENTAL CONDITIONS ONLINE (UCONN-CLEAR) (<http://ctecoop1.uconn.edu/advancedviewer>)

Inland Wetland Soils:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact
Natural Diversity Data Base Area:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact
Critical Habitats:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact

CONNECTICUT COASTAL HAZARDS VIEWER (UCONN-CLEAR) (<http://ctecoop1.uconn.edu/coastal hazards>)

Hurricane Surge Inundation:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	List the Highest Zone: []
Erosion Susceptibility Sites:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	
Mean High Water (MHW) Inundation:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	
MHW Inundation + 6 in:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	
MHW Inundation + 12 in:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	
MHW Inundation + 18 in:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	
MHW Inundation + 24 in:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	
MHW Inundation + 36 in:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	
MHW Inundation + 48 in:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	
MHW Inundation + 79 in:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact	

STATE PLAN OF CONSERVATION AND DEVELOPMENT LOCATIONAL GUIDE MAP (OPM) (<http://www.dcr.ct.gov/opm/gsm/gsm/index.html>)

Protected Lands:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact
Local Historic Districts:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact
Undesignated Lands:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact
Priority Funding Areas:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact
Conservation Areas:	<input type="checkbox"/> Direct Impact	<input type="checkbox"/> Indirect Impact	<input type="checkbox"/> No Impact

<input type="checkbox"/> MUNICIPAL OWNED PROPERTY	<input type="checkbox"/> DEVELOPED	<input type="checkbox"/> OTHER RESOURCES: []
<input type="checkbox"/> PRIVATE PROPERTY	<input type="checkbox"/> VACANT	<input type="checkbox"/> OTHER RESOURCES: []
<input type="checkbox"/> NEW SITE	<input type="checkbox"/> COASTAL BOUNDARY	<input type="checkbox"/> OTHER RESOURCES: []

EXISTING LAND USE: [] SURROUNDING LAND USES: []

CURRENT LOCAL ZONING CLASSIFICATION: [] IS A ZONE CHANGE REQUIRED FOR THE PROJECT? YES NO

IS THE PROXIMITY TO OTHER EXISTING SCHOOL FACILITIES ADEQUATE? YES NO UNDETERMINED

IS THE SIZE AND SHARE ADEQUATE TO SUPPORT THE PROPOSED SCHOOL FACILITIES? YES NO UNDETERMINED

IS THE ACCESSIBILITY TO THE SITE ADEQUATE? YES NO UNDETERMINED

HAS THE PROJECT CONSIDERED DEMOGRAPHIC AND POPULATION TRENDS? YES NO UNDETERMINED

UTILITY SERVICES AVAILABLE? ADEQUATE? COMMENTS

UTILITY SERVICES	AVAILABLE?	ADEQUATE?	COMMENTS
Water	<input type="checkbox"/>	<input type="checkbox"/>	[]
Sanitary Sewers	<input type="checkbox"/>	<input type="checkbox"/>	[]
Electricity	<input type="checkbox"/>	<input type="checkbox"/>	[]
FIRE SERVICES	<input type="checkbox"/>	<input type="checkbox"/>	[]

Consultant Selection for OSF Projects

Questions and Discussion:

1. How are District's selecting and awarding design contracts?
2. Low Bid Based or Qualifications Based Section (QBS)?
3. Grading and Drainage Design Responsibility?
4. What are some of the issues your firm has encountered?
5. Base Services?

Consultant Selection for OSF Projects

Ideas Going Forward?

- Prior to submitting a bid for consultant services, determine if there is a potential for any project activity* within a FEMA designated floodplain. The civil engineer for the Design Team must determine floodplain impact based upon horizontal (mapped) and vertical (FIS elevation tables).
- If there are potential impacts and the District is selecting consultants through a low-bid process, then they should carve out significant regulatory tasks from the scope and fee (e.g. FMC, NDDDB, FEMA, etc.). In these cases **contact DCS Environmental Planning**, hopefully before the RFP is issued.
- In addition, if the District has NOT identified in the RFP a floodplain impact, but there would be, then **contact DCS Environmental Planning**.

New General Permit for Stormwater for Construction

Major Highlights

State
Capital
Projects

- **Locally Exempt construction projects disturbing over 1 acre** must submit a registration form and **Stormwater Pollution Control Plan (SWPCP)** to the DEEP.

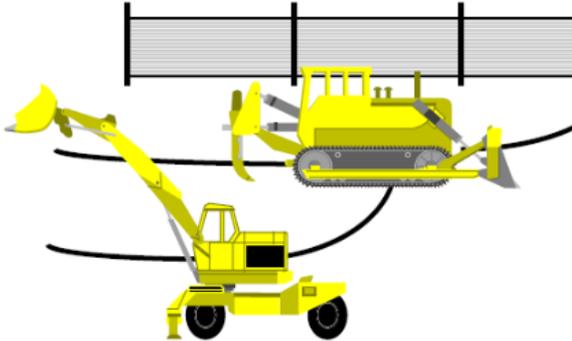
OSF
Projects

- **Locally Approvable construction projects with a total disturbed area of one to five acres** are not required to register with DEEP provided the development plan has been approved by a municipal land use agency and adheres to local erosion and sediment control land use regulations and the CT Guidelines for Soil Erosion and Sediment Control.
- Fee Increases (**No State Project waiver**, except that DEEP waives the fee for it's own bond-funded projects...)
- Sites 1 to <20 acres must be submitted to DEEP **sixty (60) days** prior to initiation of the construction activity.
- Sites greater than 20 acres or discharging to **tidal wetlands** and within **500 feet of tidal wetlands** or discharging to an **"impaired water"** resource must be submitted to DEEP ninety (90) days prior to initiation of the construction activity.

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

79 Elm Street • Hartford, CT 06106-5127 www.ct.gov/deep Affirmative Action/Equal Opportunity

General Permit for the Discharge of Stormwater and Dewatering Wastewaters Construction Activities



Issuance Date: August 21, 2013
Effective Date: October 1, 2013

Stormwater Pollution Control Plan

- Site Plan
- Site Description
- Construction Sequencing
- Control Measures
- Runoff Reduction and Low Impact Development (LID) Information
- Inspections
- Monitoring
- Contractors
- Impaired Waters

the Plan shall include a description of the provisions for controlling the construction and post-construction stormwater discharges to these waters pursuant to subsection 5(b)(3) below.



Inspections

Plan Implementation Inspections

Within the first 30 days following commencement of the construction activity on the site, the permittee shall contact: (1) the appropriate District; or (2) a qualified soil erosion and sediment control professional or a **qualified professional engineer to inspect the site**. The site shall be inspected at least once and no more than three times during the first 90 days to confirm compliance with the general permit and proper initial implementation of all controls measures designated in the Plan for the site for the initial phase of construction.



DCS State Capital Projects - the Project's CE is being tasked the Implementation Inspections.

The Permittee (GC or CMR) will be responsible for all subsequent (routine) inspections

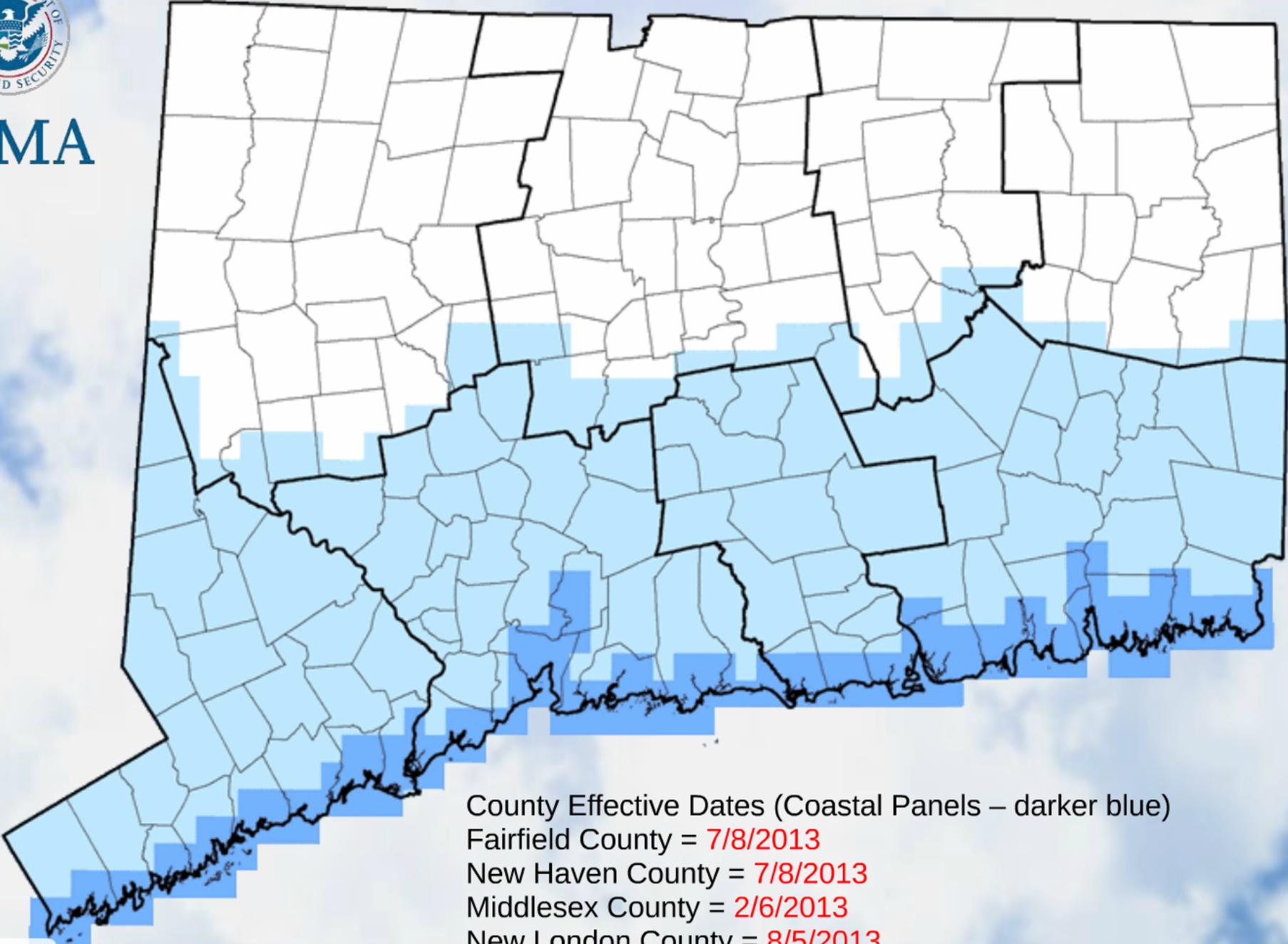
DCS Division 1 Specs:

The Contractor shall serve as the **Developer, Permittee, Registrant, and Applicant.**

New FEMA Coastal Flood Maps and 500-Year Elevations

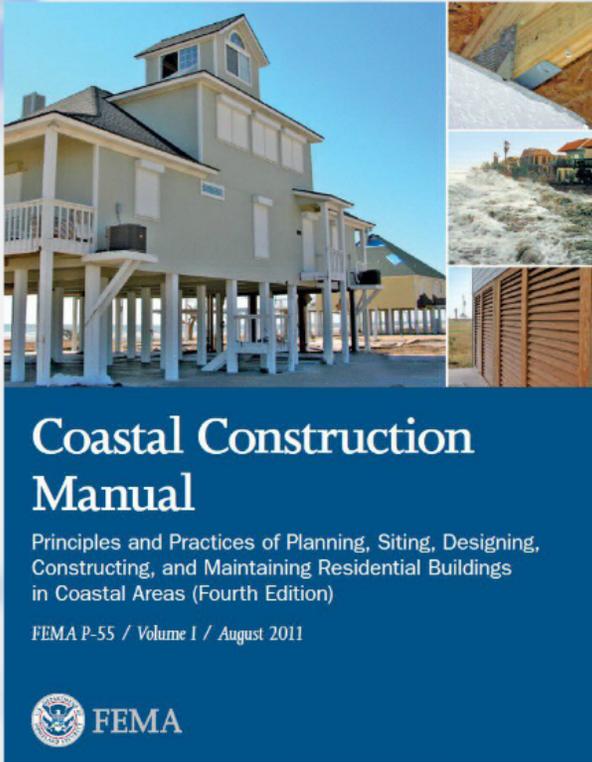


FEMA



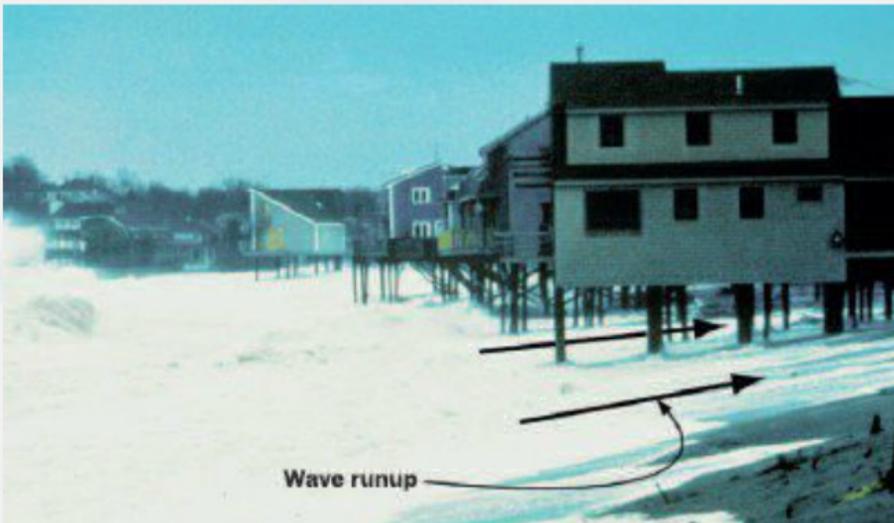
County Effective Dates (Coastal Panels – darker blue)
Fairfield County = 7/8/2013
New Haven County = 7/8/2013
Middlesex County = 2/6/2013
New London County = 8/5/2013

New FEMA Coastal Flood Maps and 500-Year Elevations



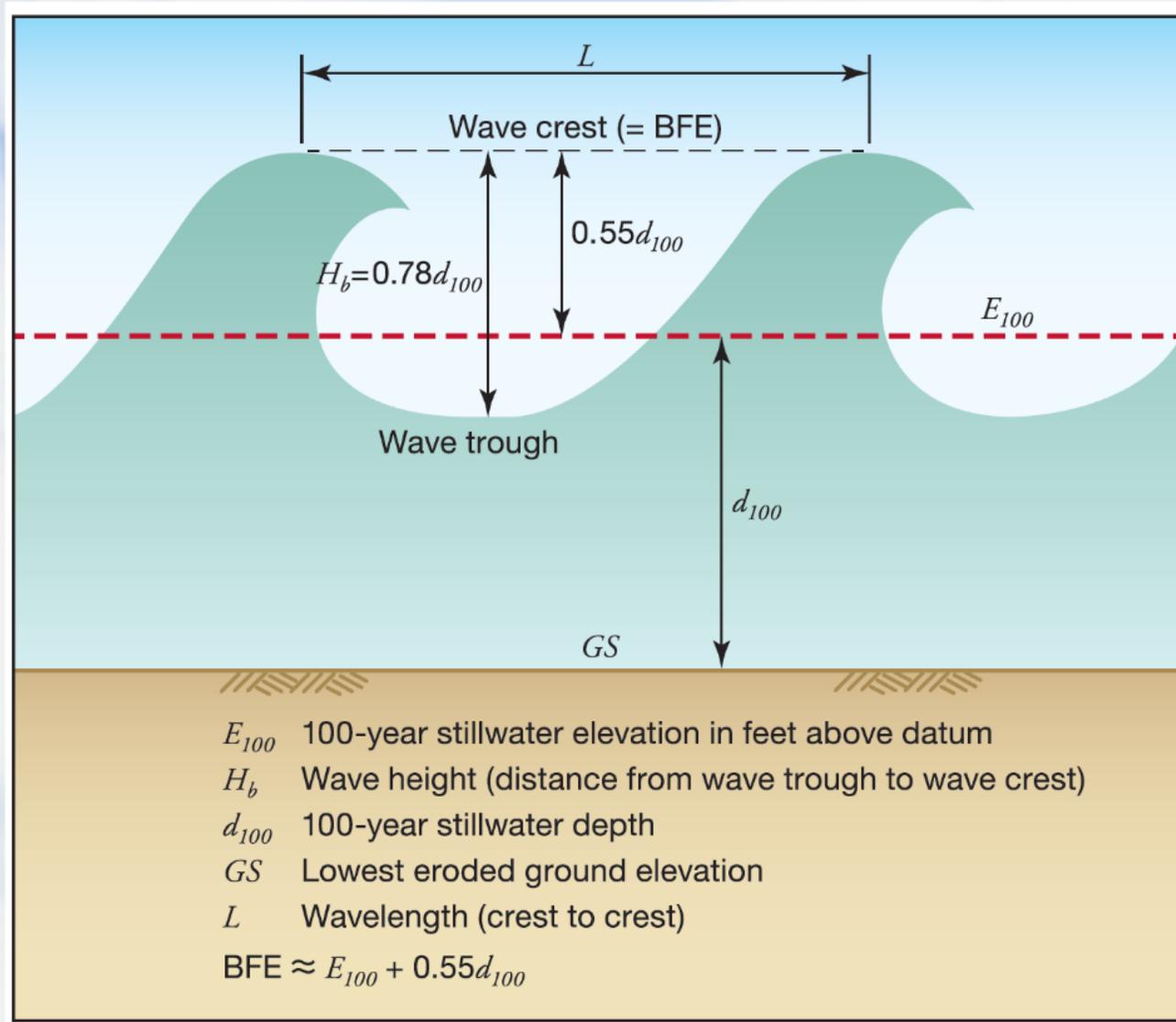
Waves

Waves can affect coastal buildings in a number of ways, including breaking waves, wave runup, wave reflection and deflection, and wave uplift. The most severe damage is caused by breaking waves (see Figure). The force created by waves breaking against a vertical surface is often 10 or more times higher than the force created by high winds during a storm event.

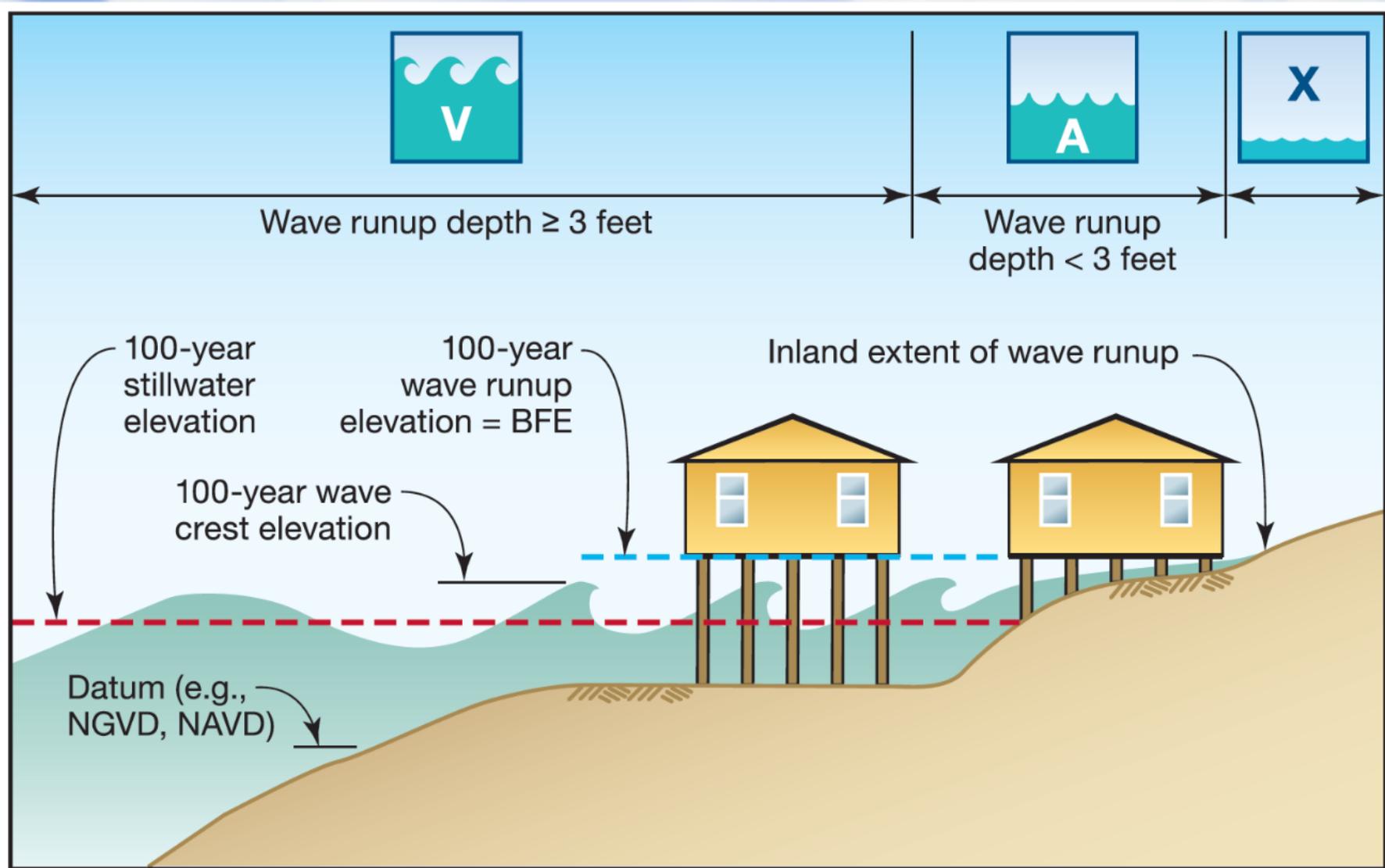


Wave runup occurs as waves break and run up beaches, sloping surfaces, and vertical surfaces. Wave runup (see Figure 3-24) can drive large volumes of water against or around coastal buildings, inducing fluid impact forces (albeit smaller than breaking wave forces), current drag forces, and localized erosion and scour (see Figure).

Wave Heights and Wave Crest Elevations



BFE determination for coastal flood hazard areas where wave crest elevations exceed wave runup elevations (Zones A and V)



WAVE RUNUP is the rush of water up a slope or structure.

WAVE RUNUP DEPTH at any point is equal to the maximum wave runup elevation minus the lowest eroded ground elevation at that point.

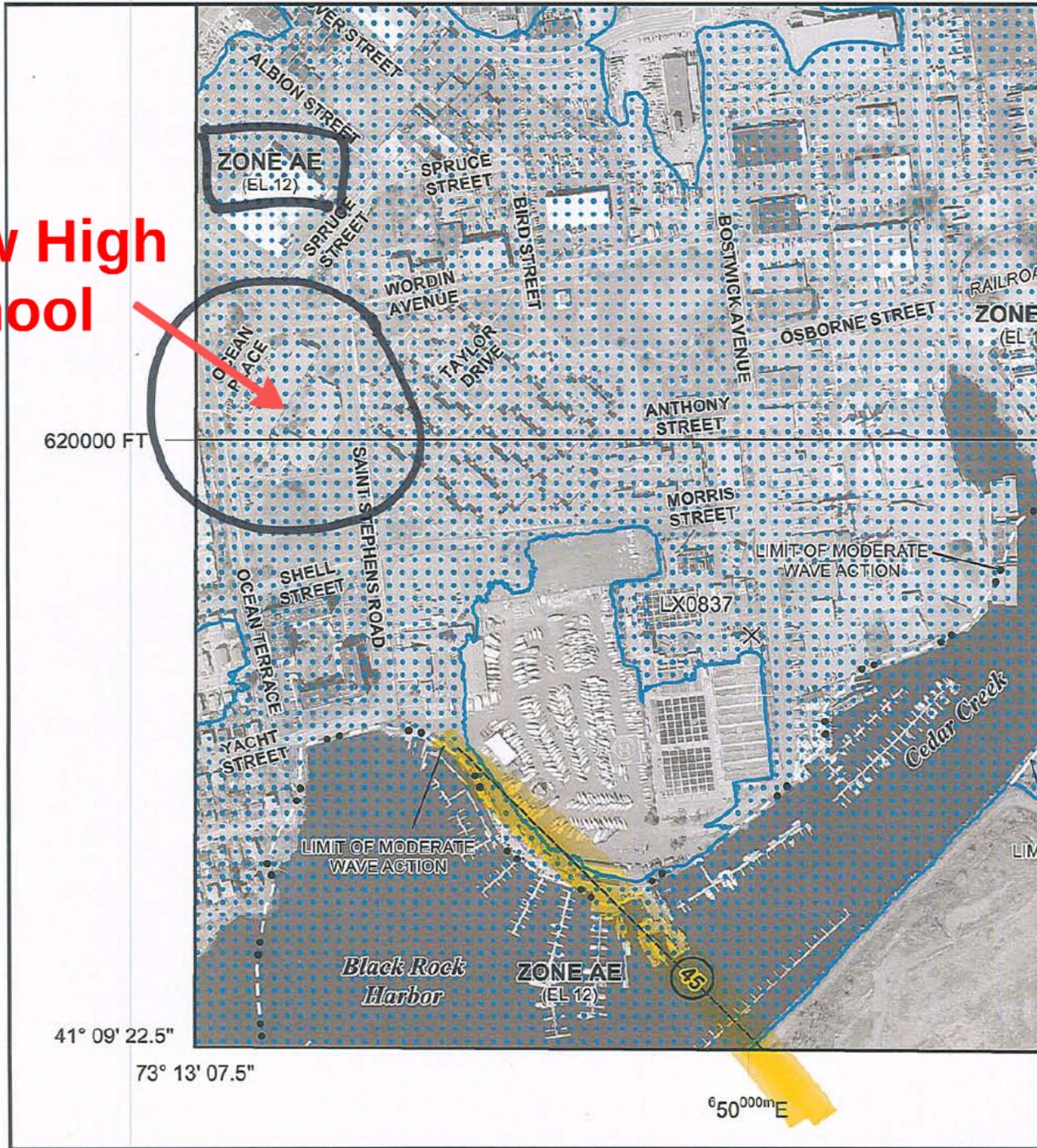
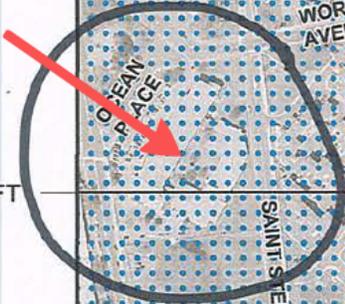
WAVE RUNUP ELEVATION is the elevation reached by wave runup, referenced to NGVD or other datum.

WAVE SETUP is an increase in the stillwater surface elevation near the shoreline, due to the presence of breaking waves. Wave setup typically adds 1.5 to 2.5 feet to the 100-year stillwater flood elevation.

MEAN WATER ELEVATION is the sum of the stillwater elevation and wave setup.

Design for Critical Activities

New High School



620000 FT

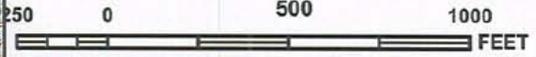
41° 09' 22.5"

73° 13' 07.5"

650000mE



MAP SCALE 1" = 500'



PANEL 0437G

FIRM
FLOOD INSURANCE RATE MAP
FAIRFIELD COUNTY,
CONNECTICUT
(ALL JURISDICTIONS)

PANEL 437 OF 626
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

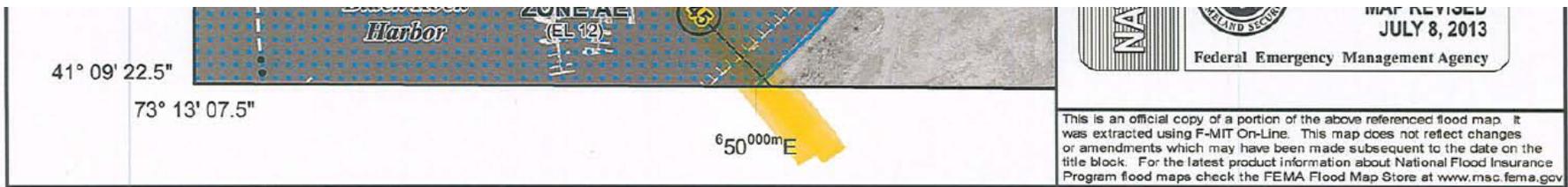
COMMUNITY	NUMBER	PANEL	SUFFIX
BRIDGEPORT, CITY OF	000002	0437	G
FAIRFIELD, TOWN OF	090037	0437	G

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
 09001C0437G
MAP REVISED
 JULY 8, 2013

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



Coastal Hydrologic Analyses

The stillwater elevation is the elevation of the water due to the effects of the astronomic tides and storm surge on the water surface. Hydrologic analyses carried out to establish the peak discharge-frequency relationships for Long Island Sound flooding sources

TABLE 8 - SUMMARY OF COASTAL STILLWATER ELEVATIONS

<u>FLOODING SOURCE AND LOCATION</u>	<u>ELEVATION (feet NAVD*)</u>			
	<u>10- PERCENT ANNUAL CHANCE</u>	<u>2- PERCENT ANNUAL CHANCE</u>	<u>1-PERCENT ANNUAL CHANCE</u>	<u>0.2- PERCENT ANNUAL CHANCE</u>
LONG ISLAND SOUND Willetts Point, Tide Station ID: 8516990	8.9	10.7	11.4	13.0
Stamford Hurricane Barrier (41°2.2'N, 73° 32.1' W)	8.5	10.2	10.9	12.3
Bridgeport, Tide Station ID: 8467150	7.8	9.3	10.0	11.3

TABLE 10 - TRANSECT DATA – continued

Flooding Source and Transect Number	Stillwater Elevation				Total Water Level ¹	Zone	Base Flood Elevation (Feet NAVD 88) ²
	10- percent- annual- chance	2- percent- annual- chance	1- percent- annual- chance	0.2- percent- annual- chance	1- percent- annual- chance		
LONG ISLAND SOUND - continued							
Transect 45	7.8	9.3	10.0	11.3	11.6	AE	12-14
						VE	14-17
Transect 46	7.7	9.3	9.9	11.2	12.8	AE	14-15
						VE	15-19
Transect 47	7.7	9.2	9.8	11.1	12.2	AE	12-14

Where's the 0.2 % Total Water Level?

How to Calculate the 500 year Flood Elevation in a FEMA Designated Coastal Flood Hazard Area For the Purposes of Obtaining a Flood Management Certificate from DEEP

In the State of Connecticut activities, such as the construction of schools, hospitals, residential structures and the storage of hazardous or contaminated material in a floodplain are considered to be a critical activity. Critical activities are regulated to the 500 year Base Flood Event (BFE) when applying to the Department of Energy & Environmental Protection (DEEP) for a Flood Management Certification (FMC).

The Federal Emergency Management Agency (FEMA) has recently updated the Flood Insurance Studies (FIS) and Flood Insurance Rate Maps (FIRMS) for the state of Connecticut. The new FIS, that were published for Connecticut's coastal communities calculate only the still water elevation for the 500 year storm event in coastal flood hazard areas. The still water elevation does not include the wave crest elevation and therefore is not considered to be the 500 year BFE in a coastal flood hazard area.

DEEP, Inland Water Resources Division (IWRD) is recommending to applicants that they calculate the 500 year BFE in a coastal flood hazard area by following FEMA's Technical Fact Sheet 1.6 *Designing for Flood Levels Above BFE* dated December 2010. FEMA Technical Fact Sheet 1.6 suggests that the elevation for the 500 year flood event in a coastal flood hazard area can be approximated by multiplying the elevation of the 100 year BFE by 1.25. In the event an applicant may feel that using this method is inaccurate or too conservative, the applicant is at liberty to contact FEMA for a copy of the most recent coastal flood model and revise this model accordingly in order to obtain a more accurate 500 year BFE. Model revisions and analysis must be prepared by a Licensed Professional Engineer familiar with coastal storm surge and flood modeling, and using the most recent and best available data and science. The IWRD reserve the right to review and either approve or contest revised model results.

Designing for Flood Levels Above the BFE



PURPOSE: This document helps water resources professionals determine the flood level of buildings in a coastal flood hazard area.

Key Points:

- 1. The elevation of the 500 year flood event in a coastal flood hazard area can be approximated by multiplying the elevation of the 100 year BFE by 1.25.
- 2. The elevation of the 500 year flood event in a coastal flood hazard area can be approximated by multiplying the elevation of the 100 year BFE by 1.25.
- 3. The elevation of the 500 year flood event in a coastal flood hazard area can be approximated by multiplying the elevation of the 100 year BFE by 1.25.

PHOTO: A photograph showing a building partially submerged in floodwater, illustrating the impact of coastal flooding.

be a critical activity. Critical activities are regulated to the 500 year Base Flood Event (BFE) when applying to the Department of Energy & Environmental Protection (DEEP) for a Flood Management Certification (FMC).

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If the 500-year stillwater elevation (feet North American Vertical Datum of 1988 [NAVD] or feet National Geodetic Vertical Datum of 1929 [NGVD]) is not available, a rule of thumb can be used to approximate it as 1.25 times the 100-year stillwater elevation (feet NAVD or feet NGVD).

The 500-year wave crest elevation **can** be approximated as 1.25 times the BFE.

Designing for Flood Levels Above the BFE

TECHNICAL FACT SHEET 1.6

PROBLEM: An incremental design and construction practices that reduce the likelihood of flood damage while ensuring that flows never exceed the Base Flood Elevation (BFE).

Key Points

- Flood damage reduction practices that reduce the likelihood of flood damage while ensuring that flows never exceed the Base Flood Elevation (BFE) are encouraged. These practices include, but are not limited to, incremental design and construction practices that reduce the likelihood of flood damage while ensuring that flows never exceed the BFE.
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TABLE 10 - TRANSECT DATA – continued

Flooding Source and Transect Number	Stillwater Elevation				Total Water Level ¹	Zone	Base Flood Elevation (Feet NAVD 88) ²
	10- percent- annual- chance	2- percent- annual- chance	1- percent- annual- chance	0.2- percent- annual- chance	1- percent- annual- chance		
LONG ISLAND SOUND - continued							
Transect 45	7.8	9.3	10.0	11.3	11.6	AE	12-14
						VE	14-17
Transect 46	7.7	9.3	9.9	11.2	12.8	AE	14-15
						VE	15-19
Transect 47	7.7	9.2	9.8	11.1	12.2	AE	12-14

10.00 (Stillwater Elevation 1-percent)

X 1.25

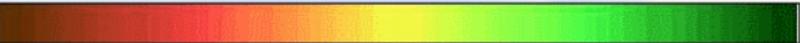
12.50 (Total Water Level 0.2-percent)



Extreme Precipitation Discussion & Adaptation Measures

Northeast Regional Climate Center (NRCC) Extreme Precipitation for Connecticut 24 hr 100-year

(inches)



8.0 8.2 8.4 8.6 8.8 9.0

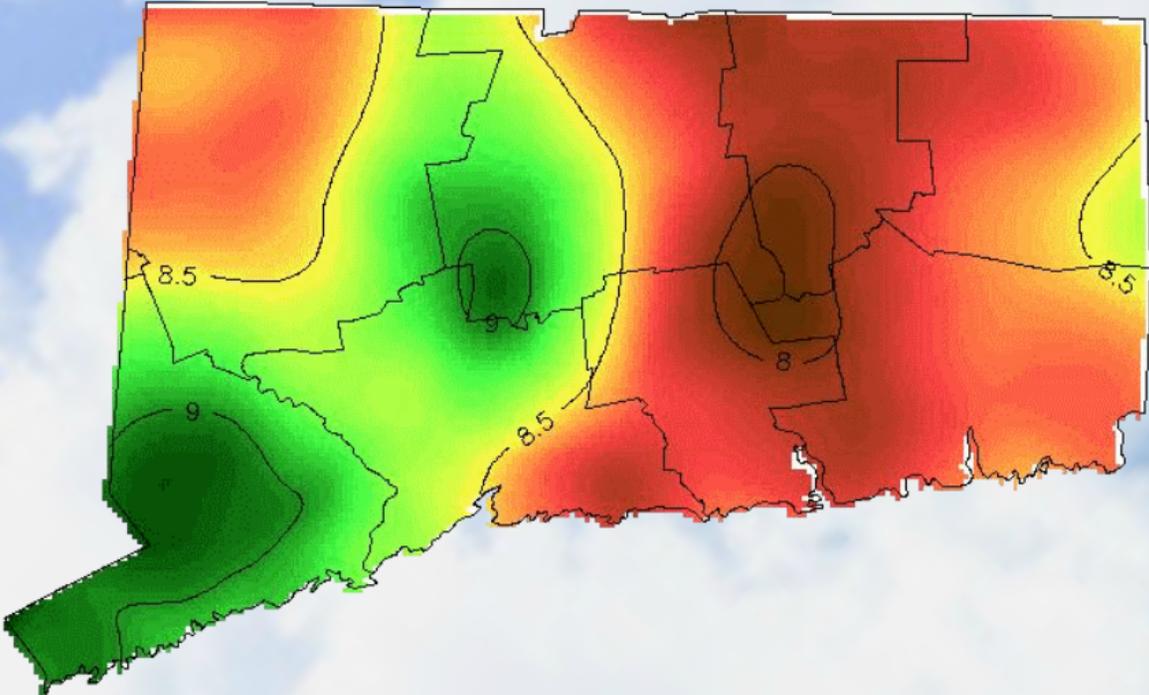
Contour Line Interval: 0.50 inches

Powered by
ACIS
Northeast Regional
Climate Center

On a national level, a comprehensive climatology of rainfall events has not been updated since the early 1960s...

In New York and New England this is a concern as the current climatology excludes almost 50 additional years of data...

Recent analyses show, particularly in New York and New England where the frequency of 2 inch rainfall events has increased since the 1950s and storms once considered a 1 in 100 year event have become more frequent...



Extreme Precipitation Discussion

DCS used two projects to compare NRCC data with CT DOT Drainage Manual (TP-40) historic data:

- 1. Eastern Connecticut State University Stormwater Master Plan*
- 2. The Morgan School, Clinton, CT*

ECSU Stormwater Master Plan Analysis and Results

Engineer: Milone & MacBroom, Inc.

**TABLE 2-2
Rainfall Data**



Hydrograph Return Period Recap

Hydraflow Hydrographs Extension for AutoC

on for AutoCAD® Civil 3D® 2

Hyd. No.	Hydrograph type (origin)	Inflow hyd(s)	Peak Outflow (cfs)								100-yr	Hyc Des
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr		
1	SCS Runoff	-----	-----	5.293	-----	-----	8.088	10.18	12.10	14.36	12.14	WS 70
2	SCS Runoff	-----	-----	3.574	-----	-----	5.745	7.380	8.875	10.63	8.903	WS 80
3	SCS Runoff	-----	-----	3.711	-----	-----	6.136	7.974	9.656	11.63	9.689	WS 90
4	SCS Runoff	-----	-----	5.351	-----	-----	8.087	10.14	12.02	14.24	12.06	WS 100
5	SCS Runoff	-----	-----	0.603	-----	-----	1.094	1.478	1.833	2.254	1.840	WS 200
7	SCS Runoff	-----	-----	5.148	-----	-----	7.960	10.07	12.00	14.27	12.03	2017 WS 70
8	SCS Runoff	-----	-----	3.574	-----	-----	5.745	7.380	8.875	10.63	8.903	2017 WS 80
9	SCS Runoff	-----	-----	3.711	-----	-----	6.136	7.974	9.656	11.63	9.689	2017 WS 90
10	SCS Runoff	-----	-----	5.351	-----	-----	8.087	10.14	12.02	14.24	12.06	2017 WS 100
11	SCS Runoff	-----	-----	0.603	-----	-----	1.094	1.478	1.833	2.254	1.840	2017 WS 200

NRCC DATA

TP-40 DATA

The Morgan School

Engineer: Langan Engineering

Peak Runoff Comparison

	100-YEAR					
	Existing		Proposed w/Detention		Proposed w/o Detention	
	CTDOT Values	Extreme Values	CTDOT Values	Extreme Values	CTDOT Values	Extreme Values
Total Flow to Indian River upstream of Culvert	62.90 cfs	75.98 cfs	42.12 cfs		60.93 cfs	74.31 cfs
Total Flow to Indian River downstream of Culvert	34.63 cfs	41.99 cfs	38.34 cfs		38.34 cfs	47.48 cfs
Total Flow to Indian River	92.75 cfs	112.24 cfs	80.35 cfs		99.18 cfs	121.62 cfs
Overland Flow Offsite to the south	16.61 cfs	19.80 cfs	1.16 cfs		1.16 cfs	1.4816 cfs



A review of the comparison indicates the following:

- No effect on the 2-year storm
- Reductions in proposed flow for the 10-year extreme precipitation event.
- Increases in proposed flow for the 25-year and 50-year extreme storms of approximately 9% and 16%, respectively, for total detained flows to the Indian River. However, as compared to existing conditions utilizing extreme precipitation, flows are actually reduced by 17% and 15%, respectively.
- Currently proposed detention facilities are overtopped for the 100-year extreme precipitation event. Increases in proposed flow for the 100-year extreme storm of approximately 23% for total undetained flows to the Indian River. However, as compared to existing conditions utilizing extreme precipitation, the increase in flow is lowered to 8%.

Thoughts?

Other Experiences?

Adaptation Measures

- ***Get out of hazard zones AND stay out!***
- ***Consider CT DEEP's estimates on Sea Level Rise (SLR)***
- ***Assess the proximity of the project site to SLR, hurricane zones, and floodplains***
- ***Assess age of the facility in comparison to future risk and mitigation costs***