



The Hartford Water Pollution Control Facility

Construction Program Overview

**October 19, 2009
Hartford, Connecticut**



The Metropolitan District Clean Water Project

- ◆ Developed to implement projects designed to achieve the Federal Clean Water Act goals by 2020.
- ◆ Three basic elements:
 - Reduction of combined sewer overflows (CSOs) with the Hartford central sewer system
 - Elimination of sanitary sewer overflows (SSOs) in the sanitary sewers of Wethersfield, West Hartford, Windsor, Rocky Hill and Newington
 - Nitrogen reductions at the District's four water pollution control facilities
- ◆ Projects range from new sewer and drainage system construction to increased wastewater treatment capacity to new storage tunnels. These projects will:
 - Improve localized areas of basement backups and sewage backflow onto streets
 - Reduce and/or eliminate any sewage overflows to area waterways during an average year.
 - Improved community infrastructure, including utilities and street upgrades.



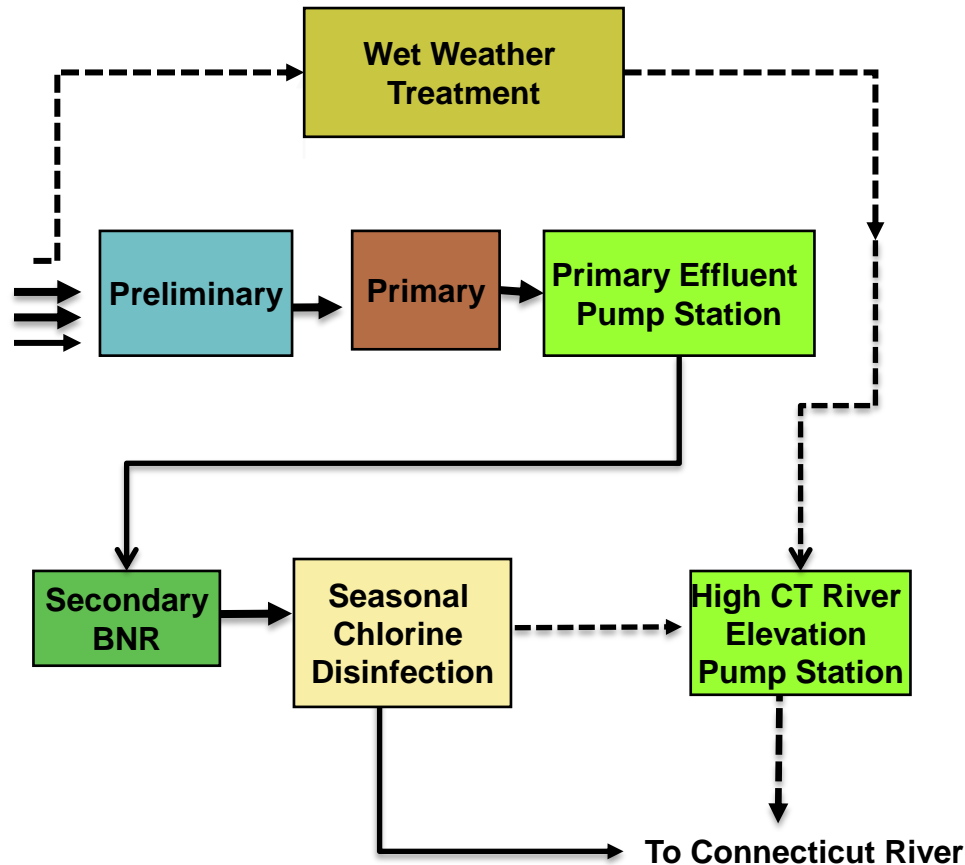
Water Pollution Control Overview

- 4 water pollution control plants with a combined permitted capacity of 115 MGD
 - Hartford - 80 MGD
 - 90 MGD secondary
 - 40 MGD wet weather
 - East Hartford – 12.5 MGD
 - Rocky Hill – 7.5 MGD
 - Poquonock – 5.0 MGD
- HWPCF operates under NPDES permit # CT0100251
- Largest wastewater treatment plant in Connecticut, site is approximately 85 acres
- 24/7 continuous operation – a key consideration during construction
- Our focus today is on the projects at the HWPCF

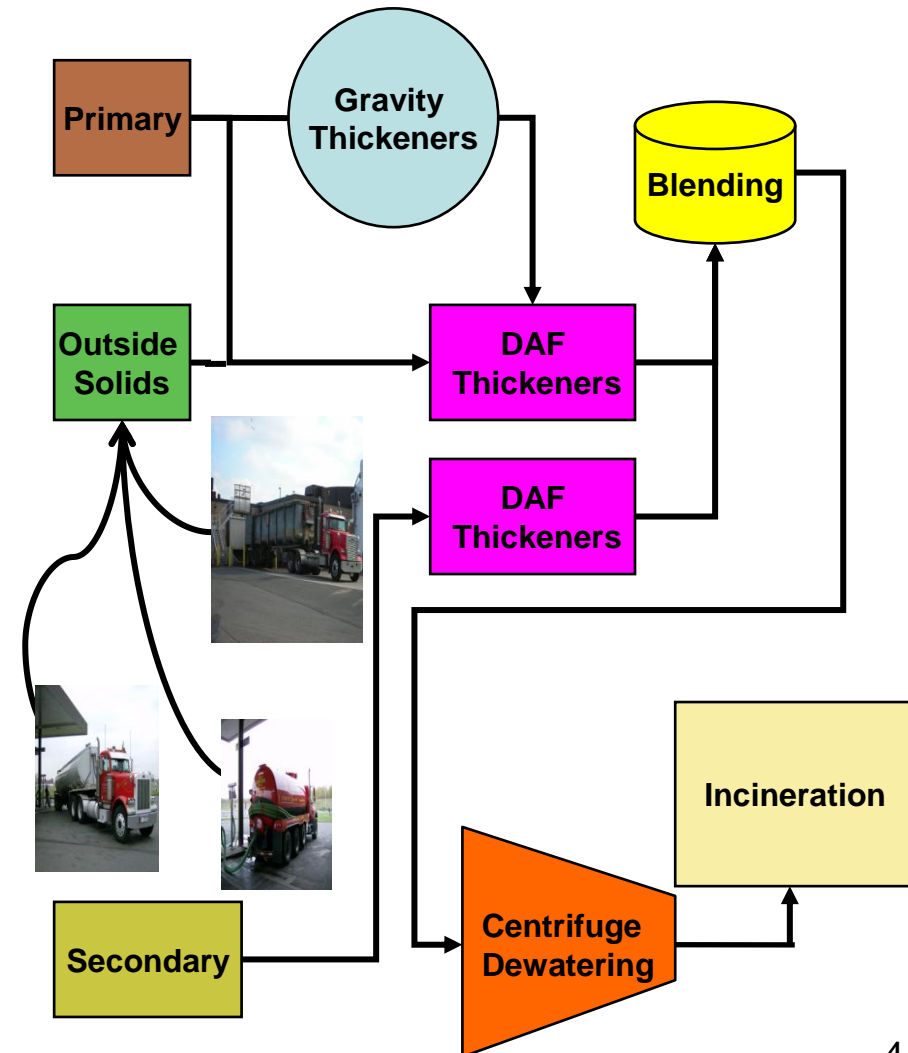


Existing Treatment Processes

Liquid Treatment



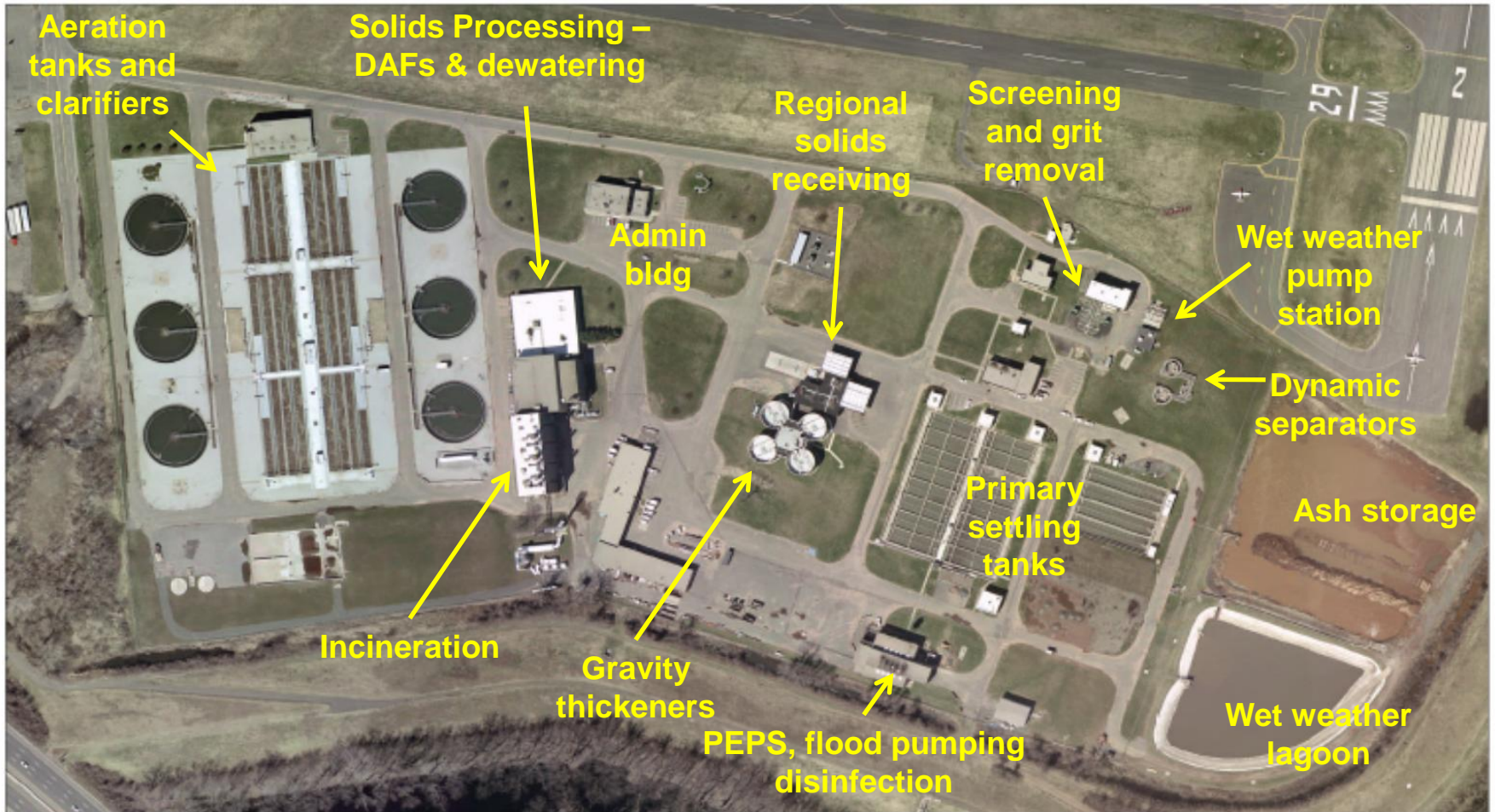
Solids Treatment





Hartford Water Pollution Control Facility

240 Brainard Road, Hartford, CT



0 100 200 400 Feet

Hartford WPCF



HWPCF Planned Projects

- MDC to Complete HWPCF Master Plan by end of 2009
 - Estimate \$400M - \$600M total investment in plant by 2020. Does not include collection system work.
- Numerous anticipated projects to be completed
 - Early phase is design, bid and award in 2009, early 2010.
 - Middle phase is design, bid and award in 2010 and 2011.
 - Later phase is design in 2011, awards in 2011 and 2012.



Project 1: Compost Foundation Demo

- ◆ Demolition of compost foundation to facilitate new aeration tanks and final settling tanks.
- ◆ Contract award is pending final recommendation.
- ◆ Expected completion by July 1, 2010.
- ◆ Savin/Woodard & Curran are design engineers.





Project 1: Compost Foundation Demo

- ◆ Demolish existing concrete foundation to pile caps.
 - No long-term dewatering
- ◆ Remove odor control equipment from compost operation.
- ◆ Remove small submersible pump station.
- ◆ Existing 84” double box conduit is in middle of demolition area – attention required to avoid damage.
- ◆ No plant shutdowns or tie-ins anticipated.



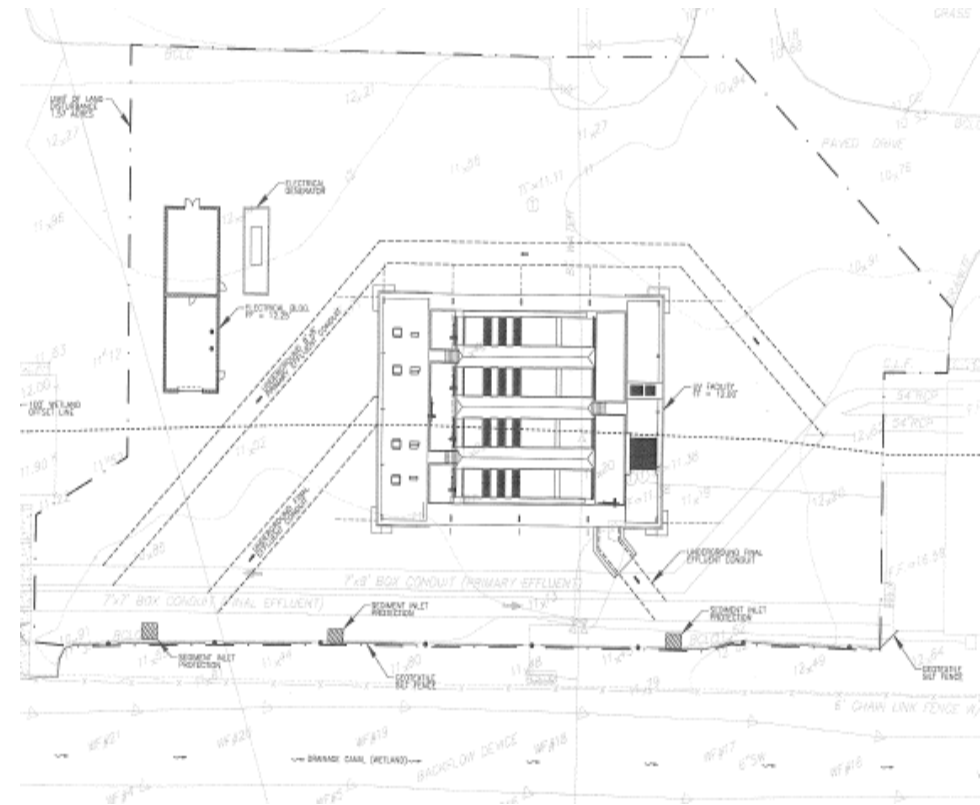
Project 2: UV Disinfection

- ◆ Provide ultraviolet disinfection for secondary effluent (90 MGD, peak of 120 MGD). Does not impact wet weather chlorination. Currently in redesign due to change in equipment supplier.
- ◆ Bid advertisement is TBD.
- ◆ Bid opening is TBD.
- ◆ Contract award is TBD.
- ◆ CH2M Hill/Woodard & Curran are design engineers.



Project 2: UV Disinfection

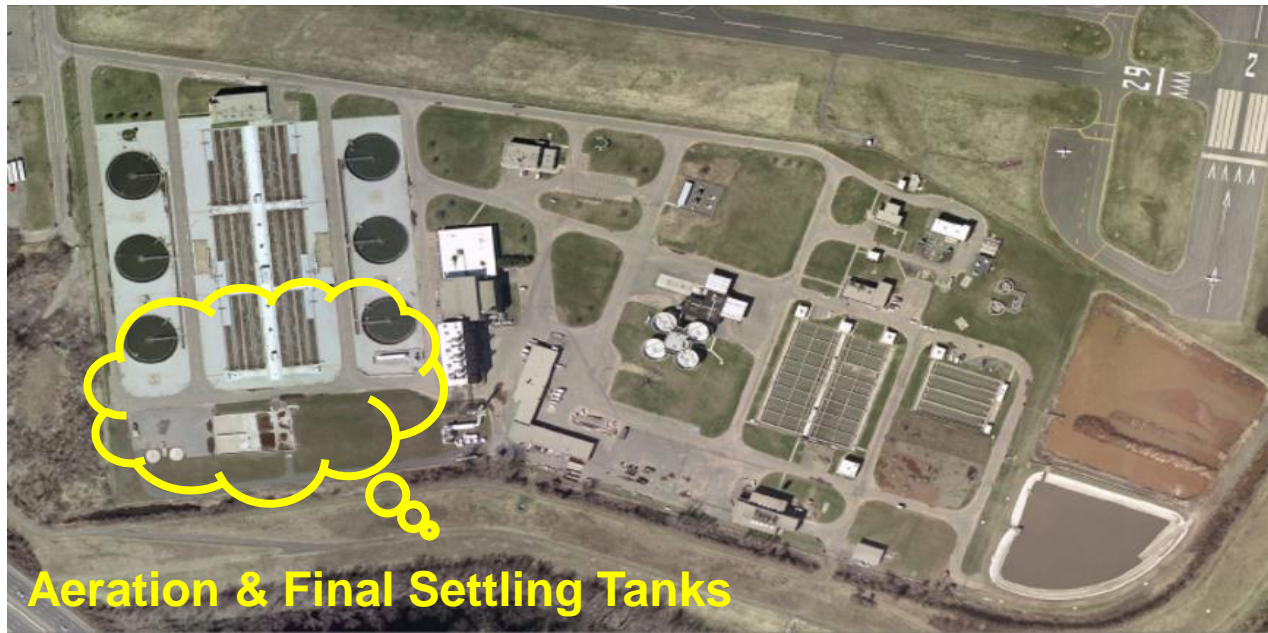
- ◆ 3 cast-in-place concrete channels with surrounding (canopy) enclosure, not a building.
- ◆ Electrical/storage building.
- ◆ New primary effluent channel around UV.
- ◆ New secondary effluent channel into and out of UV
- ◆ Two complex pump-arounds will be needed for connections to existing conduits.
 - Primary effluent to secondary.
 - Secondary effluent to pump station.
- ◆ Preselected Ozonia vertical bulb system.





Project 3: Aeration & Final Settling Tanks

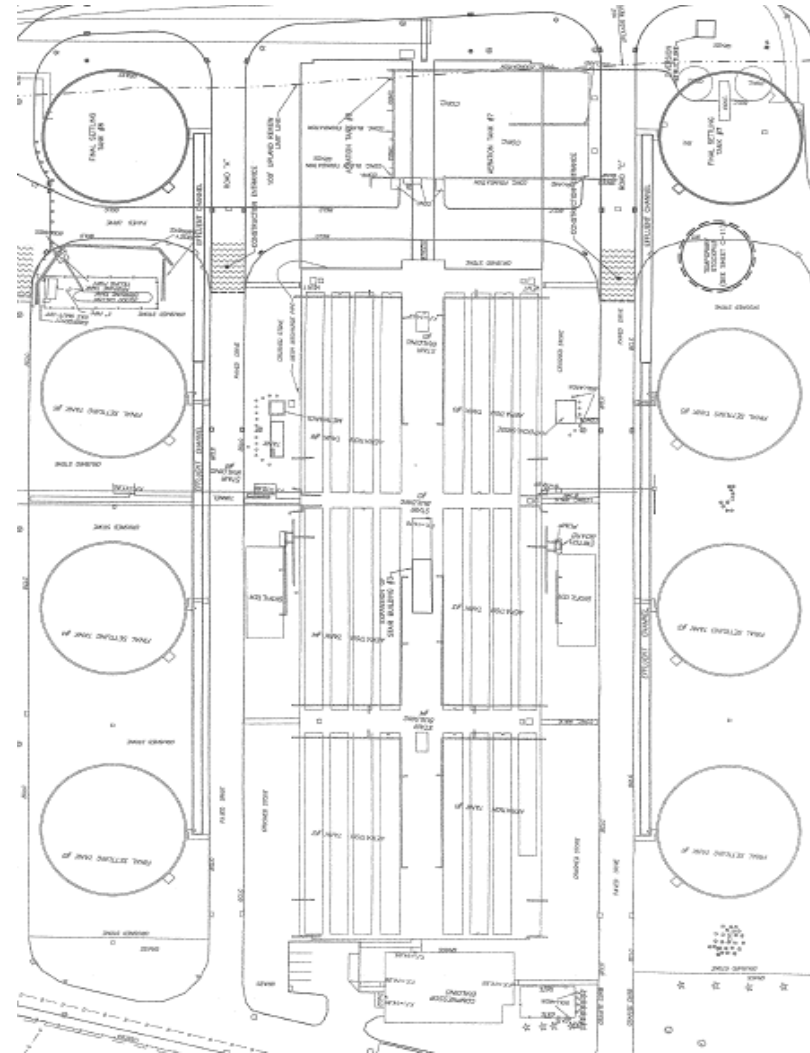
- Provide two aeration tanks and two final settling tanks to match existing tanks. Also other minor items in existing tanks.
- Bid advertisement is anticipated for early/mid November 2009.
- Pre bid meeting is anticipated mid November 2009 .
- Bid opening is anticipated early December 2009.
- Contract award is anticipated prior to December 31, 2009.
- Malcolm Pirnie is design engineer.





Project 3: Aeration & Final Settling Tanks

- Provide two aeration tanks to match existing six, approx 190' X 20'
 - 8 anoxic zones with Invent mixers
 - Internal mixed liquor recycle
- Provide two final settling tanks to match existing six, 125' diameter
 - Sludge collector mechanisms are different from existing tanks
- Install two 30" plant water line from effluent conduit to incineration bldg. and existing plant water pump station.
- Complex tie-ins and pump around required
- SCADA/instrumentation
- Work on existing tanks includes:
 - Leveling all clarifiers weirs





Secondary Treatment

- Six aeration tanks, 4 passes per tank
 - Step-feed BNR for nitrogen removal
 - Three 3,000 hp compressors
 - Four 20 MGD RAS pumps
 - Fine bubble diffusers
 - Methanol facility
 - Invent style mixers in anoxic and swing zones
- Six 125' diameter circular clarifiers
- Plant water pump station



Project 4 : Incineration Upgrades & Energy Production

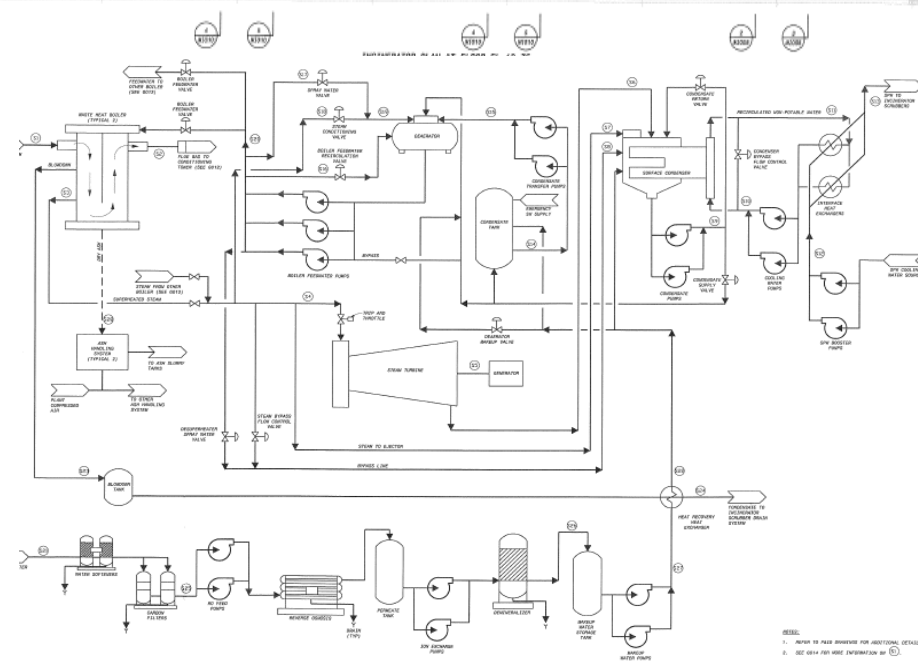
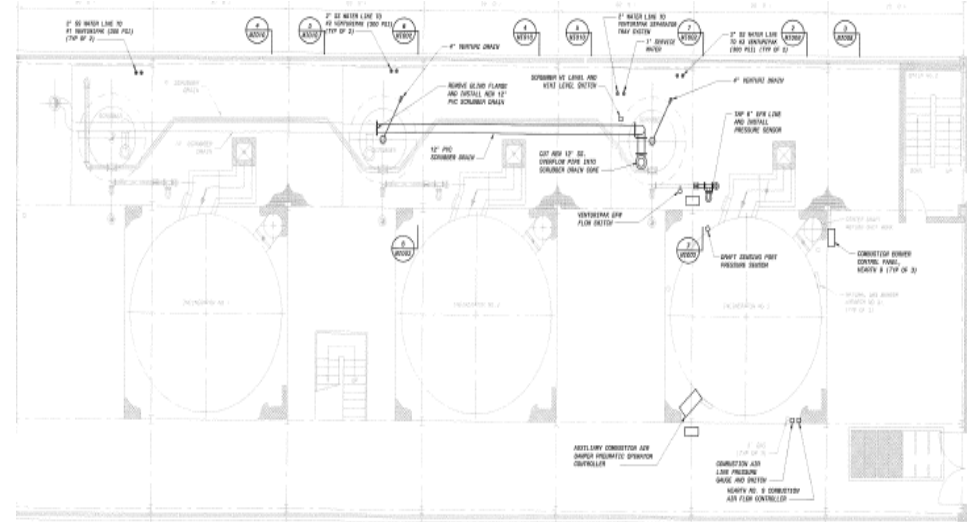
- ◆ Upgrade existing incineration complex and install waste heat recovery/electrical production.
- ◆ Bid advertisement is anticipated early December 2009.
- ◆ Pre bid meeting is anticipated early/mid December 2009.
- ◆ Bid opening is anticipated early January 2010.
- ◆ Contract award is anticipated prior to February 17, 2010.
 - ‘Green Funds’ – must be awarded by this date
- ◆ Black & Veatch is design engineer.





Project 4 : Incineration Upgrades & Energy Production

- Upgrades to all three incinerators
 - Connections for heat recovery, ducts, diversion dampers
 - Induced draft fans with VFDs
 - Instrumentation/SCADA controls
- Incinerator #3 upgrades
 - Venturi scrubber - air pollution controls
 - Flue gas recirculation system
 - Incinerator brick rebuild currently underway
- 1.5 MW electricity production system.
 - Boiler
 - Steam turbine/generator
 - Water treatment system



REVISIONS:
1. REVISED TO ADD INFORMATION FOR ADDITIONAL DETAILS.
2. SEE 0114 FOR MORE INFORMATION BY 01/10/2010

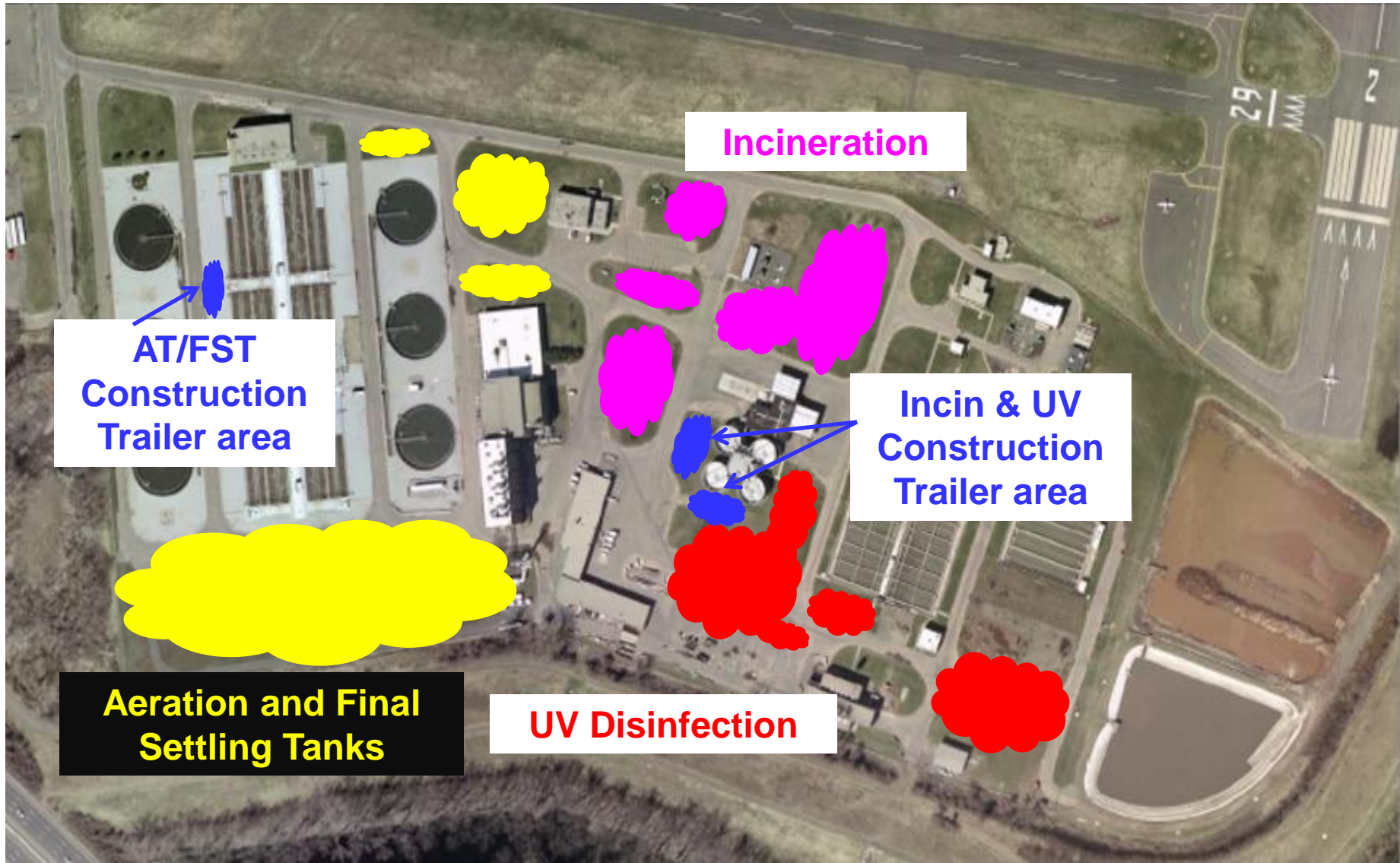


Project 5: Temporary Ash Storage Pad

- ◆ Ash from incineration is stored in a lagoon and annually excavated for disposal.
- ◆ The current areas for storing ash will be used for the UV and AT/FST projects.
- ◆ A temporary area for storage is needed until a dry ash system is build.
- ◆ Bid advertisement is anticipated late November 2009.
- ◆ Pre bid meeting is anticipated early December 2009.
- ◆ Bid opening is anticipated mid/late December 2009.
- ◆ Contract award is anticipated in early 2010.
- ◆ Wright-Pierce is design engineer



Potential Construction Lay Down Area





Upcoming Projects

- BNR Upgrades – may be one or two bid packages
 - Aeration/secondary upgrades
 - Numerous improvements to existing system
 - Design, bid and award in 2010
 - Solids handling upgrades
 - Numerous improvements to existing system
 - Design, bid and award in 2010
- Outfall / Effluent Pump Station
- Dry Ash & Mercury Control for Incineration



Later Projects

- Influent pump station / Headworks / Primary settling tanks
 - Influent pump station – may be up to 250 MGD
 - Screening and grit removal facility
 - Primary settling tanks
- Wet Weather
 - Rehabilitate existing primary settling tanks for wet weather treatment
 - Chemical addition facility



Other Capital Projects

- WPC conducts a separate capital improvement program that addresses non Clean Water Projects at the four WPC facilities.
- Current WPC projects include:
 - Odor control at HWPCF solids processing building
 - Bid advertisement in late 2009
 - Change in disinfection process at East Hartford and Poquonock WPCFs
 - Design underway, bid in early 2010.
 - General renewal & replacements (all 4 WPCFs)
 - Design underway, bid in early 2010.



General Bidding Information

- Aeration/Final Settling Tank and UV projects to be funded by the State of Connecticut DEP – Clean Water Fund
- Incinerator/Heat Recovery Project to be funded under federal ARRA stimulus program
 - Both State and Federal (Davis-Bacon) Wage Rates & Certified Payroll reporting requirements will apply
 - “Buy American” provisions apply; current materials being investigated by design consultant for compliance and need for waiver.
- All general contractors must be pre-qualified by CT Department of Administrative Services (DAS), which must be submitted as part of your bid; as of October 6th contractors must be certified as “Water Treatment Plants” contractors.
- Proof of pre-qualification involves submitting a CT DAS Update (Bid) Statement (Section 00490) with your bid.
- All subs having \$500K or greater in work must also be pre-qualified by CT DAS; certification is required at the time of performing the work.



General Bidding Information

continued

- ◆ Please include all forms and requested information listed in Article 9.4 of Instruction to Bidders, including MDC Safety Program (00470) and list of all subcontractors.
- ◆ Contract Documents will be issued by MDC Purchasing Department either by picking them up at our Main Office at 555 Main Street or mailed (mailing fee applies) after bid advertisement. A non-refundable deposit is required.
- ◆ WBE/MBE requirements are listed in Article 20 of the Instruction to Bidders; CT DEP requirements are 2% MBE and 3% WBE. MDC requires additional 4% MBE for a total 6% MBE for the project. Bidders must fill out the DEP Subcontractor Verification Form
- ◆ As a policy the MDC will not provide a cost estimate for the projects.
- ◆ Administrative questions during bidding should be direct to the MDC Purchasing Department; Technical questions during bidding should be directed to Project Manager as indicated in the bid advertisement.
- ◆ Commission on Human Rights and Opportunities(CHRO) contract provisions may apply.