STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@ct.gov
www.ct.gov/csc

September 18, 2015

Franca L. DeRosa, Esq.
Philip M. Small, Esq.
Brown Rudnick LLP
185 Asylum Street
Hartford, CT 06103

RE: **DOCKET 192B-** CPV Towantic, LLC Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a 785 MW dual-fuel combined cycle electric generating facility located north of the Prokop Road and Towantic Hill Road intersection in the Town of Oxford, Connecticut. Development & Management Plan – Section (e) Erosion and Sedimentation Control Plan.

Dear Attorneys DeRosa and Small:

At a public meeting of the Connecticut Siting Council (Council) held on September 17, 2015, the Council considered and approved Section (e) - Erosion and Sedimentation Control Plan of the Development and Management Plan (D&M Plan) submitted for this project on July 17, 2015. The partial approval of the D&M Plan includes the condition noted in the staff report.

This approval applies only to the D&M Plan submitted on July 17, 2015, and other supplemental information dated August 12, 2015 and September 10, 2015. Requests for any changes to the approved portion of the D&M Plan shall be approved by Council staff in accordance RCSA §16-50j-62(b). Furthermore, the Certificate Holder is responsible for reporting requirements pursuant to Regulations of Connecticut State Agencies Section 16-50j-62.

Please be advised that changes and deviations from the approved portions of this plan are enforceable under the provisions of the Connecticut General Statutes § 16-50u. Enclosed is a copy of the staff report on this D&M Plan, dated September 17, 2015.

Thank you for your attention and cooperation.

Very truly yours,

Robert Stein NHB

Robert Stein
Chairman

RS/MP/cm

Enclosure: Staff Report, dated September 17, 2015

c: Parties and Intervenors

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Docket No. 192B
CPV Towantic, LLC
Development and Management Plan – Section (e)
Staff Report
September 17, 2015

On July 17, 2015, CPV Towantic, LLC (CPV) submitted a Development and Management (D&M Plan) to the Connecticut Siting Council (Council) for the construction of a 785 MW (net) natural gas fired combined-cycle electric generating facility located north of the intersection of Prokop Road and Towantic Hill Road in Oxford, Connecticut. CPV submitted additional information on August 12, 2015 in response to Council interrogatories. On September 3, 2015, the Council approved the D&M Plan except for Section (e) – Erosion and Sedimentation Control Plans (ESCP). Section (e) of the D&M Plan was tabled due to concerns expressed by the Council on September 3, 2015. On September 4, 2015, Council staff issued a second set of interrogatories to investigate these concerns. On September 10, 2015, CPV filed responses to the second set of interrogatories. CPV's responses to the interrogatories are noted below.

a. Replace DMH G2 and DMH F2 or DMHG1 and DMH F1 with a storm water hydrodynamic separator.

DMHF2 and F1 were part of the schematic plan set, but have been eliminated from the D&M Plan set. (Therefore, only DMHG1 and G2 are noted here.) While a hydrodynamic separator can be added at either DMHG1 and G2, this would be unnecessary and unwarranted according to CPV. Stormwater Wetland A is a primary treatment measure with a sediment forebay, emergent marsh area and micro-pool designed to treat 169 percent of the required water quality volume (WQV). This WQV is expected to provide sufficient time for particles to settle out.

CPV notes that hydrodynamic separators are a permanent installation measure typically only effective at removing medium to coarse grade sediments and are not meant to be used for temporary sediment removal during the construction process, when these coarse grained sediments would most likely be present. Pages 11-10-1 and 11-10-2 of the 2004 Connecticut Stormwater Quality Manual (2004 Manual) state that the reasons for limited use include: only moderate pollutant removal; cannot effectively remove soluble pollutants or fine particles; and can be a source of pollutants due to re-suspension of sediment unless maintained regularly.

CPV asserts that a much more effective "primary" treatment measure is the proposed Stormwater Wetlands, which the 2004 Manual indicates provides significant benefit for reduction of sediment, phosphorus, nitrogen, and metals.

b. Replace rip rap pad on eastern side of property discharging into "drainage easement in favor of Lot 9A" with a storm water hydrodynamic separator.

CPV asserts that the riprap pad at the discharge point is designed to minimize stormwater velocity and should remain in place. While a hydrodynamic separator could be added further up the line at DMHB10, CPV believes that this addition would be unnecessary and unwarranted. Stormwater Wetland B is a primary treatment measure with a sediment

forebay, emergent marsh area and micro-pool designed to treat 151 percent of the required WQV. According to CPV, the WQV provides sufficient time for particles to settle out, and the Stormwater Wetlands provide for a much more effective "primary" treatment measure.

c. **Replace CB B12, CB A7 and CB A21 with catch basins containing a 4-foot sump with hooded outlet or some form of "trash excluders" to minimize floatables and hydrocarbons from getting into stormwater renovation areas. Would it be easier to clean a manhole than trying to clean up these materials from the forebay or other parts of the stormwater renovation area? Are the proposed catch basin details designed to restrict flow of floatables or hydrocarbons based on the proposed design?**

Hooded outlets and 4-foot sumps will be added to the catch basin locations referenced above. While the anticipated post-development pollutant load of floatables and hydrocarbons is minimal, CPV notes that this proposed catch basin modification would provide for pre-treatment of stormwater prior to final treatment and retention in the proposed Stormwater Wetlands.

d. **Were the following soil results, i.e. laboratory testing from Geodesign Inc., considered in CPV's ESCP design?**
   i. **Gradations which indicate a fines content (finer than the #200 sieve) of approximately 31 to 53% are consistent with estimated permeability of the tested soils (Pg.5);**
   ii. **Bottom of basins will be below groundwater levels (Pg. 5);**
   iii. **Stormwater basins will be below seasonal high groundwater and will intercept water from the excavated geometry and will contribute some flow to the basins (Pg. 5);**
   iv. **The North Slope will be cut at 3H:1V slope partially below groundwater levels (Pg. 5);**
   v. **An approximated vegetated 3H:1V cut slope is anticipated to be stable, however it must be monitored during construction to allow evaluation of the need for underdrains and/or filter blanket below the vegetated surface (Pg. 6 – disclaimer for company); and**
   vi. **The stabilized groundwater levels vary between depths of 2.4 and 14.8 feet below ground surface corresponding to elevations 856 and 818 (Pg. 4).**

The soil testing and laboratory results were considered in the design of the ESCP. CPV notes that the D&M Plan is consistent with the findings of the GeoDesign report. The majority of the site excavation will be treated in Temporary Sediment Traps 2A, 2B and 3B, as shown in Phases 2 and 3 of the ESCP. These have been oversized and provide for 467 percent, 162 percent and 755 percent of the required sediment trap volume respectively. This will provide additional residence time for more efficient removal of the fine content in the existing soil.

Due to the very nature of the soils, CPV notes that the rate of groundwater flow and therefore the volume of groundwater flow into the temporary sediment traps will be minimal and will not have any measurable impact to the effectiveness of the traps. In addition, the Dewatering Plan & Details (sheet C318) calls for additional erosion and sediment control measures that may be employed during the construction process. Specifically, it states, "At the discretion of the certified professional in charge of erosion control inspections, additional measures shall be implemented to reduced turbidity if necessary. These measures

may include: flocculants; portable filtration systems; portable sediment tanks; additional E&S measures such as straw wattle logs; and jet-spray hydraulic erosion control products.

e. **Construction General Permit and 2002 Guidelines require reverse slope benches on slopes greater than 15' high and steeper than 3H:1V. If reverse slope bench is not provided, the General Permit requires engineered slope stabilization structures or a detailed soil mechanics analysis by a soils or geotechnical engineer:**
   i. **Slope on northern side of development has top slope elevation of 860' and toe of slope elevation of 821' – horizontal distance is 117' which exceeds 45' horizontal distance required in 2002 Guidelines.**
   ii. **Slope on western side of development has top slope elevation of 830' and toe of slope elevation of 800' (around location of cul-de- sac) – horizontal distance of 90' which exceeds 45' horizontal distance. Original site boring results for B-101, B-102, B-103 and B-104 show groundwater elevation between 817.5' and 809.8' (no water at B-102 witnessed).**
   iii. **Slope on southwest corner of development has top of slope elevation of 824' at berm and toe of slope elevation of 790' at CB E1 – horizontal distance of 102' which exceeds 45' horizontal distance.**
   iv. **Slope on southeast side of proposed road has top of slope elevation at approximately 818' and toe of slope elevation of 778' – horizontal distance of 120' which exceeds 45' horizontal distance.**
   v. **None of these slopes have reversed slope benches incorporated into their design.**
   vi. **These slopes appear to be in non-compliance with the Preserve and Conserve Soils Land Grading requirements of the Erosion and Sedimentation Control Manual (5-2-5).**

CPV notes that the *2002 Connecticut Guidelines for Erosion and Sediment Control* (2002 Guidelines) referenced above state on page 5-2-5 that "For slopes steeper than 2:1, or when slopes are steeper than 3:1 and the change in elevation exceeds 15 feet without a cross bench, engineered structural design features shall be incorporated."

The 2002 Guidelines call for both conditions (i.e. steeper than 3:1 slope and change in elevation exceeding 15 feet) to be met. All of the slopes referenced above are proposed at 3:1; therefore, CPV notes that reverse benches or engineered structural design features are not required. Additionally, page 5 of the geotechnical report prepared by GeoDesign Inc. concluded that the 3:1 slopes will be stable. The finished grade slopes will be staked in the field by a licensed surveyor during the construction process to ensure adherence to the proposed 3:1 slope construction.

f. **Geotechnical report shows high ground water table in the northern portion of the site. References indicate subsurface drainage into the slope above the 821' elevation. No underdrains have been proposed for the northern slope. Could this lead to destabilization of the toe of slope thereby creating potential for slope subsidence?**
   i. **2001 report from Burns and Roe Enterprises, Inc. stated "For surficial stability of the detention pond slopes, it is recommended that the face of the slope consist of a layer of riprap, placed over nonwoven geotextile fabric. The section should include crushed stone filter layer, to be placed between riprap and geotextile fabric; No. 357 stone...."**
   ii. **Current erosion and control measures based on phasing plans (I, II and III) call for: "Install erosion control blankets on any slopes steeper than 3:1 and**

hydro-seed all disturbed areas with slopes of 3:1 or less that are not subject to future construction disturbance.

iii. **This means northern slope towards Stormwater Renovation Area B, as currently designed, will have no reverse slope benches, no underdrainage for addressing a high ground water table, no erosion control blankets anywhere on the slope and no protection of the slope with a layer of riprap and geotextile fabric.**

iv. **Seepage and water are big factors in many slope failures. If seepage or overland flow is causing or worsening the slope condition, use engineered measures whose strategy is to convey runoff, direct runoff and intercept groundwater – E&S Guidelines (4-5)**

CPV notes that page 5 of the geotechnical report prepared by GeoDesign, Inc. specifically states that, "A slope stability analysis was carried out to determine the stability of the north slope with the proposed cuts. We have determined that the slope will have an acceptable factor of safety assuming natural seeded slope. In the event of seepage breakout on the slope face, measures can be taken during construction to intercept seepage below the seeded surface and direct flow to the basin." In addition, CPV notes that the report's conclusion states that, "The 3:1 slope will be stable and will be monitored during excavation for the need of subdrains below the seeded surface."

As an additional protective measure to minimize the groundwater exfiltration into the slope area, CPV will add an underdrain along the top of the northern slope which will intercept groundwater and convey it to the east and the west, away from the cut slope.

g. **The plans indicate heavy reliance upon the use of filter fabric fence, including the following:**

i. **Geotechnical review of the site indicates between 31% and 53% of soils on site would pass through a #200 sieve.**

ii. **Silt particles between 0.05 and 0.002 mm in size and clay particles being less than 0.002 mm in size may not be effectively removed by the use of filter fabric fence. According to Michael Klein's report to the Council, the erosion and control silt fence specified in the erosion control plan has an apparent size of 0.6 mm, more than 10 times larger than the silt particles and 300 times larger than clay particles.**

iii. **No details are provided on size of fabric opening in "Silt Sack Detail" for insertion into catch basins. If mesh opening is too large, significant portion of solids could pass through material and possibly exit the site.**

iv. **Based on Mr. Klein's calculations, using the proposed silt fence at the perimeter of the site may not be very effective in controlling erosion within the applicant's property boundaries.**

CPV notes that the plans do not indicate heavy reliance on filter fabric fence. The only areas that will use filter fabric fence as a primary sediment removal measure are the eastern and western slopes of the site, which encompass approximately 3.25 acres. The ESCP also includes staked haybales behind the silt fence at the bottom of the eastern and western slopes for added sediment removal efficiency.

The remainder of the proposed construction area (19.25 acres or 85.5 percent of the total 22.5 acre construction area) will be routed to oversized temporary sediment traps for

sediment removal. Additional erosion and sediment control measures that may also be employed during the construction process are noted in the response to item 1.d.

Page 5-11-36 of the 2002 Guidelines indicates that the apparent opening size of silt fence shall be between 0.6 mm and 0.9 mm. The plans specify a Mirafi 100x fabric with the smallest allowable apparent opening of 0.6 mm. The opening size for silt sack material is 0.425 mm. CPV also notes that after travelling through the silt sack, stormwater will be routed through temporary sediment traps for additional sediment removal.

2. **Confirm that the "Wildlife Mitigation Notes" (WMN) on Sheet C331 are fully consistent with the Wildlife Survey Results report dated July 14, 2015, or update the WMN accordingly.**

CPV notes that the Wildlife Mitigation Notes on Sheet C331 will be updated to be consistent with the Wildlife Survey Results report dated July 14, 2015.

Recommendations

Council staff suggests including a condition that one complete full size set of stamped drawings updated with all of the changes that CPV has committed to be provided to the Council prior to construction.