COMMONWEALTH OF MASSACHUSETTS

SUPREME JUDICIAL COURT

No. SJC-11405

BROCKTON POWER COMPANY, LLC,

Appellant,

v.

ENERGY FACILITIES SITING BOARD, et al.,

Appellees.

ON APPEAL FROM A FINAL DECISION OF THE ENERGY FACILITIES SITING BOARD

BRIEF OF *AMICI CURIAE* MASSACHUSETTS RIVERS ALLIANCE, CHARLES RIVER WATERSHED ASSOCIATION, JONES RIVER WATERSHED ASSOCIATION, NORTH AND SOUTH RIVERS WATERSHED ASSOCIATION, AND TAUNTON RIVER WATERSHED

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CORPORATE DISCLOSURE STATEMENT

Pursuant to Supreme Judicial Court Rule 1:21, the Massachusetts Rivers Alliance, the Charles River Watershed Association, the Jones River Watershed Association, the North and South Rivers Watershed Association and the Taunton River Watershed Alliance, state that they are nonprofit Massachusetts corporations. The corporations have no parent companies and have not issued any stock, so there is no publicly held corporation that owns 10% of any of their stock.

STATEMENT OF INTEREST OF THE AMICI CURIAE

This case raises issues of great importance to Massachusetts rivers and watersheds. The Brockton Power Company LLC's ("Brockton Power") proposed use of municipal drinking water to cool its power plant (the "Project") would significantly impact three distinct watersheds that cover much of Southeastern Massachusetts. Each affected watershed is of considerable importance to the numerous human and natural communities it supports, and each is already under considerable strain. Importantly, this case implicates water management concerns that go far beyond the individual project at issue. The *amici curiae* are non-profit conservation and stewardship groups that are intimately familiar with the water management issues involved here and can lend their unique expertise to the Court's consideration of these issues.

Founded in 2007, amicus Massachusetts Rivers Alliance (the "Alliance") is the leading statewide advocacy group for rivers, with a membership including fifty-one organizations and 380 individual and family supporters. Several of the Alliance's organizational members focus specifically on rivers within the

watersheds that would be directly impacted by the Project, including the amici Jones River Watershed Association ("JRWA"), Taunton River Watershed Alliance ("TRWA") and North and South Rivers Watershed Association ("NSRWA").[1]

The Alliance organizes educational events and works with state agencies, municipalities, its members, and other organizations to improve water flow and create a sustainable water future for Massachusetts that ensures clean water to support human communities and vital natural resources. Alliance staff members have served on several state-sponsored committees convened to provide advice about water management, including the Executive Office of Energy and Environmental Affairs' Sustainable Water Management Initiative ("SWMI") Advisory Committee and Technical Subcommittee and the Massachusetts Department of Environmental Protection's ("DEP") Water Resources Management Advisory Committee, providing advice and consultation to the agency pursuant to the Water Management Act (G.L. c. 21G, the "WMA").

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[1] A complete list of the Alliance's organizational members is included in Appendix A.

The amici JRWA, TRWA and NSRWA have each worked for decades to preserve, restore and enhance their respective watersheds. The JRWA, founded in 1985, conserves land, engages in scientific and educational work and advocates for the protection of the Jones River watershed. The TRWA was founded in 1988 and works both to protect and restore the watershed as well as to bring residents of the Taunton River watershed in close contact with the natural resources of the river through outdoor events. The NSRWA was founded in 1970 to protect the North and South River watersheds on the South Shore and has grown to over 1,150 household members today.

Formed in 1965, the 5,000-member amicus Charles River Watershed Association ("CRWA") is one of the country's oldest watershed organizations and is dedicated to protecting and enhancing the water quality and quantity, fish and wildlife habitat, recreational opportunities and scenic values of the Charles River. CRWA is a leading expert on issues relating to water management, including water quantity, quality and streamflow, within the Charles River Watershed and statewide. CRWA uses its scientific knowledge, and partners with state

agencies, to develop innovative and workable solutions for watershed problems experienced across the Commonwealth and well beyond the boundaries of the Charles River Watershed.

CRWA staff members have participated in state advisory groups focused on water management issues, including the Water Policy Task Force that produced the *Massachusetts Water Policy* (2004) and the SWMI Advisory Committee and Technical Subcommittees. CRWA's Executive Director is a longstanding member of the Massachusetts Water Resources Commission, which is responsible for developing, coordinating and overseeing the Commonwealth's water policy and planning activities. CRWA's General Counsel serves as the watershed association appointee to DEP's Water Resources Management Advisory Committee.

ARGUMENT

Directly at issue in this case are three distinct watersheds, artificially linked together to serve the City of Brockton's existing water demands. The City withdraws nearly all of its water from a complex, man-made system that moves water from the Taunton and North River Watersheds into the Jones River Watershed – forming the Silver Lake system - in order to enable

Brockton to withdraw more water than the Jones River Watershed could supply on its own.[2] (A diagram of the waterbodies and watersheds impacted by Brockton's water use is included as Appendix C.)

These three watersheds serve a number of communities in Southeastern Massachusetts and, in their natural condition, support a variety of important natural resource functions and human activities. However, increasing human demands, including unsustainable water withdrawals and Brockton's transfers of water across watersheds, have stressed these watersheds. (Pgs. 13-30). Droughts, climate change impacts and future population growth and development in Southeastern Massachusetts promise further challenges. (Pgs. 30-37).[3]

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[2] Brockton also withdraws some water (less than 1 million gallons per day ("MGD")) from the Brockton Reservoir in Avon and may purchase water from the Aquaria desalination facility in Dighton. Joint Appendix ("JA") 332. Brockton's water withdrawals include water that it is required to supply to Whitman and other communities.

[3] The population in Southeastern Massachusetts continues to grow at almost twice the rate of the state average according to the 2010 census and all indications are that that will continue. "Housing and Economic Development - Southeast," Commonwealth of Massachusetts, http://www.mass.gov/hed/economic/profiles/southeast.html (last visited Feb. 12, 2014).

A single municipality's withdrawal of ground or surface water for consumptive use can affect the ability of the watershed(s) from which the water is withdrawn to support human and natural resource functions in dozens of other cities and towns. The environmental consequences of large water withdrawals include changes in streamflow and impacts on fish, aquatic habitat, water quality and recreational and commercial uses. These impacts can ripple through a watershed and cannot be adequately evaluated from the perspective of only a single user or water body. Interactions between water uses and the resulting impacts underlie the need for watershed-level management, as espoused by the Commonwealth's water laws and policies. (Pgs. 10-13). Large water consumption proposals, such as the Project, must be evaluated to determine their impact on individual water bodies and the watersheds in which those waters are located.

As organizations with extensive scientific and practical water management expertise, the *amici* are committed to the use of science-based consideration of the impacts of water management decisions at the localized and watershed levels in matters such as the

instant case.[4]

1. Three Separate Watersheds Supporting Multiple Human and Environmental Functions are Artificially Linked to Supply the City of Brockton with Water.

A watershed is the area of land that drains to a specific river, basin or ocean. Its boundaries are

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[4] While *amici* have extensive knowledge about the watersheds and water management issues relevant to this case, they seek to ensure that the Court is aware that a number of highly regarded consulting firms have prepared reports, some of which are in the record, that also bear on these issues. For instance, this brief cites reports by GZA GeoEnvironmental, Inc. (JA 1755-1848) and Teal, Ltd. (JA 1849-1917). This brief also cites to several reports that were not in the record before the EFSB, in some instances because their publication post-dated the proceedings. These reports, links to which are provided in Appendix B, were prepared by: (i) Princeton Hydro, LLC, *Sustainable Water Management Initiative Report: Monponsett Pond and Silver Lake Water Use Operations and Improvement*, SWMI Project No. 2012-06 (July 2013) (hereinafter "PH"); (ii) Manomet Center for Conservation Sciences, *Taunton River Watershed Climate Change Adaptation Plan* (May 2013) (hereinafter "Manomet"); (iii) Horsley Witten Group, Inc., *Taunton River Watershed Management Plan: Phase I* (2008) (hereinafter "TRWMP"); (iv) Frumhoff, P.C., *Confronting Climate Change in the U.S. Northeast*, Synthesis report of the Northeast Climate Impacts Assessment; Union of Concerned Scientists (2007) (hereinafter "Frumhoff"); (v) Watershed Action Alliance of Southeastern Massachusetts, *South Coastal Watershed Action Plan* (2006) (hereinafter "SCWAP"); and (vi) Taunton Wild & Scenic River Study Committee, National Park Service, Northeast Region, *Taunton River Stewardship Plan: Taunton River Wild & Scenic River Study* (2005) (hereinafter "Wild and Scenic Study").

delineated by hills and landscape contours, not political demarcations: when rainwater hits the ground, it is hill and landscape slopes that channel runoff into the individual water bodies, like streams and ponds, which ultimately drain to the watershed's outlet.

Moving large quantities of water from one watershed to another is strongly discouraged under the Massachusetts Interbasin Transfer Act (G.L. c. 21 §§ 8B-D) because "[t]he artificial movement of water across natural watersheds results in a suite of negative consequences for ecological and human communities that inhabit the setting." PH at 53. When water is taken out of its own watershed and, after treatment, returned as wastewater to a different watershed, the water does not replenish the system from which it was taken.[5] To the extent that inter-watershed transfers involve transferring degraded

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[5] Regardless of its source, most of the water used to cool a power plant with an open-cooling system is lost to evaporation. Whereas many inter-watershed transfers eventually return some water to *some* watershed, at which point some of it may infiltrate into and recharge an aquifer, this is not the case with water lost to evaporation. In the case of the proposed Project, close to two (2) million gallons a day of drinking water would be lost to evaporation during high-use periods.

water from one watershed into another, additional water quality concerns arise. This is the case here: by moving water out of both the Taunton River Watershed(in which Brockton is located) and the North River Watershed (the donor watersheds), and putting this water into the Jones River Watershed (the recipient watershed), Brockton is transferring pollutants, decreasing water quality and dramatically reducing flows with attendant adverse consequences on human and natural resource functions in each of these watersheds. Problems such as these buttress the EFSB's findings regarding the "long and significant history of water supply and environmental resource stresses" of the Silver Lake system. JA 108.[6] There is significantly more evidence than was discussed in the EFSB's Final Decision, both in and beyond the record in this case, that supports the EFSB's conclusion. *See* note 5, *supra*.

The scientific community has long understood that water withdrawals and discharges can have myriad adverse impacts across waterbodies and watersheds. Policy-makers and regulators throughout the country

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[6] References to the Record Joint Appendix will be cited as JA_, according to page. References to the Addendum hereto will be cited as Add_, according to page.

are accordingly adapting their water programs to integrate watershed-level evaluation and management of resources to ensure sustainability of water resources for all their uses. The U.S. Environmental Protection Agency, for example, has been promoting a watershed approach to identifying problems and solutions since 1991. Massachusetts has also taken steps to adopt this approach, which is reflected in its 1996 Water Supply Policy (the "Water Supply Policy") and its 2004 Water Policy - examples of "environmental protection policies of the Commonwealth" with which proposed power plants must be consistent in order to be approved by the EFSB. G.L. c. 164, § 69J$^{1}/_{4}$, ¶ 5(iii).

The EFSB acted correctly in finding that it could not make a determination regarding the environmental impacts of the Project without an analysis specific to the water *system* that would be impacted by the Project. JA 108.

a. Massachusetts Law and Policy Incorporates Evaluation and Management of Water Use Impacts at the Watershed-Level.

The water supply "philosophy" outlined in the Water Supply Policy establishes "[t]he watershed [as] the planning unit for all aspects of water resource assessment, planning and management . . .." Add 5. The

human and natural resource functions of the watersheds that are already stressed by Brockton's water use, as discussed below, and that would be impacted by the Project, are the very types of functions for which the Water Supply Policy advocates a watershed-level approach. Add 3 ("The watershed is the primary focus for coordinating and resolving resource management issues such as local or seasonal water supply shortages, streamflow levels, fisheries and wildlife habitat protection, wastewater assimilation, etc.").

This approach is consistent with the Watershed Management Act, G.L. c. 21G, under which DEP reviews proposed permitted withdrawals for consistency with the "safe yield" of a water source, which includes evaluation at the watershed level.[7]

The "environmental principles" of the 2004 Water Policy similarly adopt a watershed management approach, including to "[k]eep water local and seek to have municipalities live within their water budgets by addressing issues from a watershed perspective." Add

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[7] *See* G.L. c. 21G, §§ 11, 2 (defining a "water source" as including "any natural or artificial aquifer or body of surface water, *including its watershed,* where ground and surface water resources are interconnected in a single hydrological system.") (emphasis added).

21. This principle grew out of the recognition that "[o]ne of the state's biggest challenges is maintaining sufficient quantities of streamflow so as to sustain ecological and anthropogenic demands." Add 20. The Water Policy's emphasis on watershed-level management to keep water local echoes the concern about inter-basin (or inter-watershed) transfers expressed in the Interbasin Transfer Act, which evinces a recognition that moving water from one watershed to another can have harmful consequences and should be a measure of last resort.

The approach to managing water resources espoused in the Water Supply and Water Policies informs ongoing water management efforts in Massachusetts. For example, key components of the Sustainable Water Management Initiative Framework, issued in 2012, include establishing maximum water withdrawal volumes at a large scale (i.e., at the basin, or watershed, level) that incorporate environmental protection and hydrologic factors, including streamflow criteria to maintain the magnitude and timing of natural flow regimes within watersheds.

The realization that "current utilization patterns of the Commonwealth's water resources are

frequently not sustainable" underpins the need for the watershed-level evaluation and management of water resources called for in the Water Supply and Water Policies. Add 21. The importance of this approach is particularly apparent in situations such as this, where the Project would impact not just one watershed, but waterbodies and dependent ecosystems in three separate watersheds. The EFSB acted in accordance with the philosophy of the Water Supply and Water Policies in finding it necessary to have information about the Project's impacts on the entirety of the Silver Lake *system*, as opposed to Silver Lake alone, before making a decision about the Project's environmental impacts. JA 108.

b. The Jones River Watershed and Silver Lake

The Jones River Watershed, which includes part or all of six communities, is home to Silver Lake, one of the largest natural lakes in Massachusetts. Silver Lake serves as the headwaters of the Jones River; in its natural state, water flows out of the lake to form the start of the Jones River. JA 1758. Because the Jones River "is not a mighty river," but instead "a small, twisting watercourse fed by its tributaries, wetlands, and groundwater along its path to Kingston

Bay," outflow from Silver Lake into the upper reaches of the Jones River is vital to the river's health. JA 1858.

i. Human significance

From the earliest days of European settlement, the Jones River Watershed (which takes its name from the Mayflower's Captain Jones) has served a variety of human uses. *Id.* This included ship building and providing power for early industries such as sawmills, gristmills, anchor works, tool making, tack and woolen factories and agriculture. JA 1859-60. Mills on the Jones River provided innovative tools and technologies still in use today.

Nearby communities continue to rely on the Jones River Watershed, especially for potable water, to this day - including several, such as Brockton, that are not physically located in the watershed. Water users within the watershed include the municipalities of Kingston, Duxbury, Plympton and Pembroke, which all withdraw water from the Jones River Watershed, PH at 10, and cranberry producers, who account for additional significant demand. JA 1783, JA 1864.

Silver Lake, long known for its high quality water, once supported a thriving ice business and was

mined for ore during the Revolutionary War, allowing Kingston forges to provide cannon balls to Washington's army. The lake has also long been used as a drinking water source for surrounding towns; potable water was piped from Silver Lake as early as 1807, and became a destination for sports, theater and entertainment outings in the late 1880s. JA 1862. Today, Silver Lake is the primary source of water for Brockton, which withdraws approximately ten million gallons per day ("MGD") from the lake. Brockton, in turn, provides approximately 10% of the water it withdraws to the communities of Whitman and Hanson and responds to emergency requests for water from Pembroke, Halifax, East Bridgewater and Stoughton, tying more communities to Silver Lake as a source of drinking water. JA 163, 333, 364.

ii. Environmental Significance

The Jones River Watershed serves important environmental functions, "provid[ing] habitat for a variety of flora and fauna and contain[ing] many important natural wildlife areas, including vernal pools and rare species habitat." JA 1762. Fish that have called the Jones River Watershed home include the spawning alewife, blue back herring, shad, American

eel, bluegill, sunfish, largemouth and small mouth bass, tessellated darter, yellow and white perch, redfin pickerel, chain pickerel and, most importantly, brook trout. JA 1763, 1810. The watershed also contains a variety of habitat types, including pine and oak forests, salt marshes and freshwater wetlands of maple, hemlock and swamp oak, along with nearly 4,000 acres of Massachusetts Priority Habitat for endangered and threatened species.[8] SCWAP at 5-2, 5-4. Silver Lake also supports important mussel communities, including one of the Commonwealth's largest Eastern Pond mussel populations and the now-rare Tidewater Mucket. JA 1855, 1763. Silver Lake hosts birds, such as bald eagles and Cooper's hawks, a variety of turtles, including yellow spotted and painted turtles, and snakes, such as the endangered timber rattle snake; larger fauna in the area include white-tail deer and red fox. SCWAP at 5-4.

iii. Current State

Of the three watersheds supporting Brockton's municipal water system, the Jones River Watershed –

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[8] Priority Habitat means the geographic extent of habitat for species listed as endangered, threatened or of special concern by the Massachusetts Division of Fish and Wildlife's Natural Heritage & Endangered Species Program. 321 CMR 10.02.

especially the areas encompassing Silver Lake and the upper reaches of the Jones River – is the most distressed. Brockton's water withdrawals from Silver Lake are the chief stressor.

Brockton's current municipal water system grew out of emergency responses to several severe water shortages over the last century. Until the end of the nineteenth century, Brockton – at one time the nation's shoemaking capital – supplied its growing population with water from the Brockton Reservoir in Avon, located in the area of the Taunton River Watershed in which the City sits. By 1899, however, Brockton had outgrown this water supply, and the state legislature authorized the City to meet its growing demand by withdrawing domestic water from Silver Lake – a water body in a different watershed. JA 596. By the time of droughts in the 1960s, Silver Lake also could no longer provide sufficient water to support Brockton's needs, and the City faced another water emergency. JA 1159. Once again, the legislature responded, this time authorizing the City, through legislative compromise, to supplement Silver Lake with water from Monponsett and Furnace Ponds, located in the Taunton and North River Watersheds, respectively.

JA 601-605. A "declaration of water supply emergency" in 1986 led to the execution of an Administrative Consent Order ("ACO") between DEP and Brockton that remains in effect today, governing the City's water withdrawals. JA 1108-1112, 1113-1126. As the EFSB correctly noted, Brockton's serious water supply problems are relevant in considering the environmental impacts of the Project. JA 106.

Today, Brockton withdraws considerably more water from Silver Lake than would naturally be available in the lake on an annual basis. PH at 27, 46 (calculating that Brockton "extracts more than 150% of the naturally available water in the watershed"). Even after accounting for transfers of water from Monponsett and Furnace Ponds into Silver Lake, which provide more than 76% of the water that Brockton withdraws from Silver Lake, the City withdraws more water from the lake than its ecology can support.[9] *Id.* at 22. If, for example, Silver Lake was managed to preserve recommended water flows into the Jones River, the firm yield of Silver Lake (the amount of water it could continuously supply without running dry,

[9] In addition to Brockton's withdrawals, water is naturally lost to evaporation.

regardless of environmental consequences) would be no more than 6.4 MGD, much less than the 9-10 MGD that Brockton currently withdraws.[10] JA 351.

While inter-watershed diversions from Monponsett and Furnace Ponds prevent Silver Lake from literally drying up, introducing this water into the lake comes at a significant ecological cost. Whereas Silver Lake is still a relatively clean water body, compared to the state of impairment of most water bodies in Massachusetts, Monponsett and Furnace Ponds are considerably more polluted. Both ponds, for example, are listed as "impaired or threatened waters" (pursuant to Section 303(d) of the Clean Water Act), and suffer from the impacts of dense development, failing septic systems, and poor storm water management along their shores. SCWAP at 5-6. As a result, 30% of the phosphorous pollution load in Silver Lake comes from the annual transfer of more than 2,600,000 gallons of water from Monponsett and

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[10] The referenced flow level recommendations are from GZA's 2003 Jones River Watershed Study, based on the *New England Aquatic-Base Flow Method* (U.S. Fish and Wildlife Service, 1981), which was used to establish default seasonal flow requirements for drainage areas of greater than fifty square miles. JA 351. Brockton's Comprehensive Water Management Plan, from which these calculations derive, is still in draft form and has not been approved by DEP.

Furnace Ponds into Silver Lake. PH at 30, 33. Phosphorous loading, in turn, promotes damaging algae blooms that could severely impact the Silver Lake ecosystem. As one expert explained in testimony before the EFSB, "Monponsett Pond . . . is already degraded to the point that the Department of Public Health frequently prohibits swimming due to toxic algae blooms . . . . Considering the volumes of Monponsett water that are added to Silver Lake, it is safe to assume that these conditions will be present in Silver Lake before long." JA 1178.

Water withdrawals that bring down the level of Silver Lake also adversely affect environmental communities. For instance, the mussels that inhabit the lake are vulnerable to being stranded, i.e. dying, when the lake is drawn down. JA 1163 (Mansfield testimony describing die-offs observed during studies in 1996, 1999 and 2000-2002). Because mussels improve water quality, negative impacts to Silver Lake mussels "have a cascading effect with negative feedback loops that ultimately disrupt the entire lake ecology." JA 1163.

Withdrawals from Silver Lake are also causing significant changes to the lake's shoreline. Taller

grass species are migrating onto the bed of the lake during summer draw-down periods, attracting significant numbers of geese whose droppings exacerbate nutrient pollution in the lake. JA 1167.

Even though "extra" water is artificially moved into Silver Lake from Monponsett and Furnace Ponds, water flows from Silver Lake into the Jones River are neither consistent nor sufficient. JA 1864. While under natural conditions flows from Silver Lake into the Jones River would range seasonally from 3.2 to 24.6 MGD, today "there is intermittent or no flow from Silver Lake to the upper reaches of the Jones River" for more than half of the year. PH at 28; *see also* JA 1801. This has led to severe damage to the Jones River, including a "complete loss of aquatic ecosystem services in the upper reaches of the river." PH at 46.

Flat, shallow rivers such as the Jones River depend on occasional high water flows to clear obstructions and create pathways for migrating fish. JA 1821. Given the withdrawal demands placed on Silver Lake, however, the Jones River is not receiving such flows, which means that anadromous fish, such as the spawning alewife and blueback herring, cannot reach

their ancestral spawning grounds.[11] PH at 48. The upper Jones River is now so deprived of water from Silver Lake that its ecosystems more closely resemble those of swamps than healthy streams. JA 1899.

The stress on the Jones River Watershed – especially Silver Lake and the upper Jones River – is particularly acute during warm summer months, when Brockton's water withdrawals combine with already low natural flows. JA 1180. Notably, the Brockton Power Project anticipates its highest water demand precisely when Silver Lake is least able to supply it.

c. The Taunton River Watershed and Monponsett Pond

The Taunton River Watershed includes all or parts of approximately forty cities and towns in Southeastern Massachusetts, including Brockton. Monponsett Pond is part of the Taunton River Watershed and flows into Stump Brook; as part of its municipal water system, the City of Brockton artificially moves water from Monponsett Pond to Silver Lake, impairing flow to Stump Brook.

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[11] Even though the Jones River is currently deprived of essential water flows, studies have concluded that, with favorable water management and installation of fish runs or dam deconstruction, the river "has the potential to support a large population of Alewives, with outstanding spawning habitat at Silver Lake." JA 1899; *see also* JA 1821.

i. Human Significance

The Taunton River Watershed has long served as a resource for its human users. The earliest European settlers, acting under the tutelage of Native American inhabitants, constructed fish weirs on the Taunton River that allowed them to harvest herring and shad. Manomet at 5. After the discovery of bog iron in the seventeenth century, the watershed supported a prosperous metal industry and, throughout the years, also supported successful textile and shipbuilding industries. *Id.* at 5-6.

Communities today continue to rely on the Taunton River Watershed, using its waters for swimming, boating, fishing, wildlife viewing, aquatic habitat, industrial cooling, shellfish harvesting, irrigation, agriculture, beachfront and potable water. Monponsett Pond and Stump Brook also play important roles in supporting human functions. Monponsett Pond, for instance, supplies a large amount of water to the City of Brockton. Adjacent towns also rely on the waters in this area, withdrawing groundwater that would otherwise flow into Monponsett Pond. JA 1864. Monponsett Pond has also long been used as a recreational resource. JA 1863.

ii. Environmental Significance

Home to gray fox, river otter and mink, the Taunton River Watershed supports as many as forty-five species of fish, 154 species of birds and many species of shellfish, including numerous species of particular concern, such as the endangered Atlantic sturgeon and twelve rare bird species. TRWMP at ES-2. The environmental significance of the Taunton River was recently recognized by its designation as a National Wild and Scenic River. In order to receive this federal designation, a river must "possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values." 16 U.S.C. § 1271. The Taunton River was found to have a number of these values, including:

- Hydrology (as the longest undammed river in New England, the river provides excellent habitat for all life stages of fish);
- Scenery and Recreation (activities along the shoreline and on the river include hiking, bird-watching and boating);
- History and Archaeology (the river and its environs include archaeological sites and relics

from over 10,000 years of human activity);

- Fish (the river includes critical fish habitats, including Essential Fish Habitat, as designated by the National Marine Fisheries Service, for fourteen species of fish and shellfish); and
- Ecology and Biological Diversity (many of the habitats and species in the river's ecosystems are ranked as global conservation targets or listed as rare species).

Wild and Scenic Study at 11-13.

Monponsett Pond and Stump Brook (the pond's outlet stream, i.e., where the pond discharges its water) are also important to the natural systems they support, including a wildlife sanctuary owned by Mass Audubon and a state-managed Wildlife Management Area – significant habitat areas that abut Stump Brook and whose wetlands, aquatic life and species are impacted by low flows in the brook. JA 1487. These locales are home to important habitat, such as a rare and protected stand of Inland Atlantic White Cedar, and are recognized birding sites for waterfowl, marsh birds and passerines.[12]

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[12] *See* http://www.mass.gov/eea/agencies/dfg/dfw/natural-

iii. Current State

Over 60% of the Taunton River Watershed is classified as medium- or highly-stressed, meaning that "the quantity of streamflow has been significantly reduced, or the quality of the streamflow is degraded, or the key habitat factors are impaired." Manomet at 6. The areas surrounding Monponsett Pond and Stump Brook have been subject to particular strain, as they are subject to water withdrawals by Brockton and other communities that considerably exceed their recharge rates. *See, e.g.*, TRWMP at ES-7.

During the diversion season, the City of Brockton transfers 2.3 *billion* gallons of water from Monponsett Pond into Silver Lake; this means that, from October to May, approximately "60% of the total annual inputs of the Monponsett Pond watershed" are transferred to Silver Lake. PH at 45. The water removed from Monponsett Pond and placed in Silver Lake is not replaced with other sources of water. *Id.* at 24. As a result of Brockton's withdrawal of water, flow from Monponsett Pond into Stump Brook is approximately one-third lower than it would be under natural conditions,

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heritage/land-protection-and-management/tools-for-protection-and-planning/burrage-pond-wildlife-management-area.html (last visited Feb. 14, 2014).

resulting in a significant loss in aquatic habitat functions in Stump Brook. *Id.* at 45. This reduced flow occurs even though the legislation authorizing the transfer of water from Monponsett Pond to Silver Lake requires Brockton to maintain minimum outflows to Stump Brook. JA 601-605.

The quality of Monponsett Pond's water has also deteriorated, and in recent years, the pond has often been closed to recreation and fishing due to unhealthy water conditions, including blue-green algae (cyanobacteria) blooms.[13] Although the causal link between Brockton's withdrawals and Monponsett Pond's current pollution problems has not yet been fully established, Monponsett Pond is at most times kept full, which maximizes water available for transfer to Silver Lake, but in turn floods yard areas and cesspools surrounding the pond, thereby contributing to pollution in Monponsett pond. *See, e.g.,* JA 1864.

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[13] *See, e.g.,* Christine Legere, *Pond Likely to be Closed all Summer,* Boston Globe (July 8, 2012) (describing the harmful health effects linked to the algae, including hives, blisters, infected sinuses and asthma-like symptoms, and the foul odor that results in calls to the Fire Department), *available at* http://www.boston.com/news/local/massachusetts/articles/2012/07/08/halifaxs west monponsett pond declared off limits due to blooming blue green algae/ (last visited Feb. 12, 2014).

c. The North River Watershed and Furnace Pond

The North River Watershed occupies parts or all of six communities and includes Furnace Pond, from which Brockton also transfers water to Silver Lake. Furnace Pond flows into Herring Brook, which joins the Indian Head River to form the North River and ultimately empties into Massachusetts Bay. SCWAP at 2-3.

i. Human Significance

The North River Watershed has long supported a variety of human uses. Residents have traditionally harvested the river herring for which Herring Brook, supported by Furnace and Oldham Ponds, provides important spawning habitat. SCWAP at 2-12. The North River Watershed also provides potable water to multiple communities; Herring Brook alone helps supply drinking water to Brockton, the Abington/Rockland Joint Waterworks and the town of Pembroke. *Id.* at 2-19.

ii. Environmental Significance

The North River Watershed is home to "approximately 3,300 acres of wetlands, 2,797 acres of NHESP [Natural Heritage and Endangered Species

Program] Biocore habitat[14] and 1,961 acres of NHESP Priority Habitat for Rare and Endangered Species." *Id.* at 2-3. The confluence of Herring Brook (into which Furnace Pond flows) and the Indian Head River forms a unique freshwater tidal system that harbors many endangered species of plants and animals. SCWAP at 2-9. The watershed is also home to an important alewife run: Herring Brook and Furnace Pond provide the primary spawning habitat for river herring, i.e., Alewives and blueback herring, in the North River drainage. *Id.* at 2-10.

iii. Current State

Brockton transfers approximately 245 million gallons of water per year from Furnace Pond to Silver Lake. PH at 45. This movement of water negatively impacts natural ecosystems. For instance, thousands of young herring are trapped in Silver Lake because Brockton's system of moving water from Furnace Pond to Silver Lake does not include adequate screening or flow controls to prevent herring from being sucked into Silver Lake. SCWAP at 2-10.

Furnace Pond is at times kept high, which

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[14] Biocore habitats are areas identified by NHESP as the most viable habitat for rare species and communities in Massachusetts.

facilitates diversions to Silver Lake, thereby flooding nearby yards and cesspools and leading to increased water pollution. JA 1864. Furnace Pond has been subject to closures in recent years due to water quality problems, and has been categorized as being in "critical condition." SCWAP at 2-10.

2. The Watersheds that Supply the City of Brockton with Water Will Face Additional Pressures in the Future.

Drought, climate change and continued population growth and development in Southeastern Massachusetts are all placing additional stresses on the three watersheds at issue in this case. Certain developments, such as proposed operation of the Aquaria desalination plant, have the potential to reduce impacts on the Silver Lake system, but their ability to do so would be diminished by any new large demand on Brockton's water supply, such as that posed by the Project.

a. Drought and Climate Change

Brockton has historically suffered a number of serious droughts, water shortages and water emergencies, including in:

- The early to mid-1960s, leading to the legislation, described as "an emergency law,"

that allowed Brockton to supplement Silver Lake with water obtained from Monponsett and Furnace Ponds (PH at 2);

- 1980 through spring 1983, causing a water shortage in Brockton that led to the enactment of an emergency law authorizing transfers of water into Silver Lake from Pine Brook between 1981-1983, in addition to the transfers from Monponsett and Furnace Ponds (*Id.* at 3);
- 1986, resulting in the declaration of a water supply emergency and permission to again transfer water from Pine Brook into Silver Lake for six months a year until 1991 (*Id.*);
- 2002, leading to significant water level drops in Silver Lake and motivating Brockton to enter a long-term commitment with the Aquaria desalination plant (Manomet at 24); and
- 2007, resulting in a six-month period that challenged Brockton's water supply and resulted in a 72 inch drop in the water level of Silver Lake (*Id.*).

The risk of drought continues and the Brockton's water demand is predicted to grow, even without the addition of the Project. JA 403.

The watersheds that supply water to Brockton are "particularly vulnerable to drought" due, in part, to the geological formation of the Silver Lake system. PH at 14-17. Large portions of the Jones, Taunton and North River watersheds, including the Silver Lake system, sit above groundwater (i.e., aquifers) that is not conducive to efficient water storage, meaning that the water quickly travels through, instead of being stored in, the aquifers underlying Silver Lake, Monponsett Pond and Furnace Pond. As a result, at certain times of year, there is less water available for human and natural uses, and a greater risk from drought.[15]

Increased drought conditions are one of the expected manifestations of the additional stress that climate change will place on the Jones, Taunton and North River Watersheds. Climate change is predicted to cause increased frequency of droughts and extremely

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[15] The Plymouth-Carver-Kingston-Duxbury aquifer system, beneath the Silver Lake system, is noted for its "relatively thin, yet highly permeable and transmissive sand and gravel deposits." PH at 14. This means that precipitation easily enters into and travels through the aquifer, quickly re-filling it after dry spells. This also means, however, that water retention within the aquifer is brief and the aquifer may be readily depleted in periods of drought or in areas where water withdrawals are high. *Id.*

hot days, i.e., days with increased water demand, and altered timing and amount of streamflows. These effects, when combined with rising temperatures, lead to decreases in water supplies during the summer and fall and yearly droughts. *See, e.g.*, Frumhoff at 62-63. A recent study of the Taunton River Watershed concluded that climate change, in addition to improperly sited future development, will "exacerbate the current hydrologic imbalances in the watershed and make several areas sensitive to moderate droughts." Manomet at 28.

b. Growth in Southeastern Massachusetts

The water impacts of this case extend far beyond Brockton. The Jones, Taunton and North River Watersheds serve many communities in Southeastern Massachusetts, a region that, as a whole, has experienced population growth at twice the rate of the state average;[16] increasing demand for water especially within the Taunton River Watershed. Manomet at 6. Population and development pressure in the region are expected to continue to grow, as evidenced by several

[16] "Housing and Economic Development - Southeast," Commonwealth of Massachusetts, http://www.mass.gov/hed/economic/profiles/southeast.html (last visited Feb. 12, 2014).

multi-million dollar transportation improvement projects that entail rail line extensions and the expansion of Routes 3, 24 and 44. *Id.* at 6; Southeastern Regional Planning and Economic Development District Factbook 2014 (population projections in the Taunton River Watershed area);[17] Metropolitan Area Planning Council (population projections in the Jones and North River watershed areas).[18] Even if, as the EFSB notes, forecasts for population growth in Brockton over the next decade "range from slight population decline to slight population increase," JA 99, the City's water demand, including what it is obligated to provide to other communities, is projected to grow between 0.3 to 1.61 million gallons a day by 2020 according to the Massachusetts Department of Conservation and Recreation ("DCR").[19] JA 403. The Project would further

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[17] Available at http://www.srpedd.org/manager/external/ckfinder/userfiles/resources/Factbook/CONTENTS-PAGE.pdf (last visited Feb. 12, 2014).

[18] MAPC data is available at http://www.mapc.org/data-services/available-data/projections (last visited Feb. 12, 2014).

[19] The 2020 water demands calculated as part of Brockton's Comprehensive Water Management Plan were slightly higher than DCR's projections based on a

increase Brockton's water demand by an additional ten percent (on an annual basis). JA 98. This will significantly impact watersheds that are already expected to face additional demands and stresses in the future.

c. Allocating Water from the Aquaria Plant to New Demands Would Impact the Taunton River Without Alleviating Stress on the Silver Lake System.

The Aquaria desalinization plant (the "Aquaria Plant"), located on the Taunton River in Dighton, was built, in large part, to offset Brockton's reliance on the Silver Lake system. PH at 42. This was in accordance with Brockton's obligation, under its ACO with DEP, to optimize its use of water supplies in a manner that minimizes environmental impacts. JA 1113-1118. The Aquaria Plant operates by drawing fresh and/or salty water from the Taunton River estuary and processing it into potable water.[20] The plant's ability to do this may be most limited during part of the year

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higher assumption of per capita water consumption. JA 403.

[20] The Aquaria Plant is currently permitted to withdraw up to 10 MGD from the Taunton River (the amount necessary to produce 5 MGD of potable water). JA 1217. Any increase in water withdrawal, and thus capacity, would require a demonstration that the plant adequately protects fisheries. JA 1231.

when both (i) the Project is predicted to have the greatest demand and (ii) water in the Silver Lake system is at its lowest level. This is because the plant's production efficiency decreases as it withdraws more saltwater versus freshwater from the Taunton River, which, under "normal climate patterns," is most likely to occur between the months of August through October. PH at 6.

At the outset, there was an expectation that the Aquaria Plant would benefit the Silver Lake System, by replacing a portion of Brockton's withdrawal from the system. *See, e.g.*, JA 1128 (Letter from Kingston Town Administrator to EFSB explaining the town's "expectation that this new supply [Aquaria] will be used to relieve the environmental stress and undo damage to Silver Lake and surrounding natural resources"). This expectation also led groups concerned about the environmental impacts of the plant, including two of the *amici*, to settle their appeal of the plant's Water Management Act permit. JA 1197 (noting the presence of other natural resources hydraulically and/or hydrologically connected to the Taunton River watershed that were expected to be benefited by the availability of the additional source

of drinking water produced by the Aquaria Project.) "Trade-offs" such as these illustrate the importance of evaluating water uses from a watershed-level perspective.

Allocating water from the Aquaria Plant to new demands, as opposed to offsetting Brockton's current withdrawal of water from the Silver Lake system, would result in adverse impacts to the Taunton River from the Aquaria Plant without any tradeoff in benefits to the Silver Lake system. Water processed by the Aquaria Plant comes with its own environmental price-tag, including potential impacts on fish through the risk of entrainment (fish being sucked into the plant's intake pumps) and impingement (fish being trapped against the screens protecting the plant's pumps). *See, e.g.*, JA 1208.

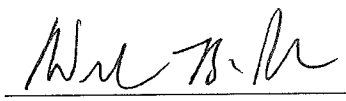
CONCLUSION

For the reasons set forth above, the *amici* urge the Court to affirm the Environmental Facility Siting Board's September 28, 2011 decision to deny Brockton Power's request to use water from the Brockton Municipal Water Supply for cooling purposes.

Respectfully Submitted,

MASSACHUSETTS RIVER ALLIANCE,
CHALRES RIVER WATERSHED ASSOCIATION,
JONES RIVER WATERSHED ASSOCIATION,
NORTH AND SOUTH RIVERS WATERSHED
ASSOCIATION AND
TAUNTON RIVER WATERSHED ALLIANCE

By their attorneys:



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[21] We would like to acknowledge the contributions to this brief by Zachary Kearns, a third-year student in the Emmett Environmental Law & Policy Clinic at Harvard Law School.

Appendix A

The organizational members of the amicus Massachusetts Rivers Alliance include the: Belmont Citizens Forum; Berkshire Environmental Action Team; Berkshire Natural Resources Council; Blackstone River Coalition; Charles River Conservancy; Charles River Watershed Association; Charlestown Waterfront Coalition; Clean Water Action; Connecticut River Watershed Council; Conservation Law Foundation; Eel River Watershed Association; Environmental League of Massachusetts; Essex County Greenbelt Association; Friends of the Blue Hills; National Wildlife Refuge; Greater Northfield Watershed Association; Groundwork Lawrence; Hoosic River Revival; Hoosic River Watershed Association; Hop Brook Protection Association; Housatonic Valley Association; Ipswich River Watershed Association; Jones River Watershed Association; Lowell Parks & Conservation Trust; Mass Audubon; Massachusetts Association of Conservation Commissions; Massachusetts Land Trust Coalition; Massachusetts Watershed Coalition; Merrimack River Watershed Council; Millers River Watershed Council; Mystic River Watershed Association; Nashua River Watershed Association; Neponset River Watershed Association; North and South Rivers Watershed Association; OARS, for the Assabet, Sudbury, & Concord Rivers; Parker River Clean Water Association; Shawsheen River Watershed Association; Sudbury Valley Trustees; Sudbury, Assabet and Concord Wild & Scenic River Stewardship Council; Taunton River Watershed Alliance; Taunton River Wild & Scenic Stewardship Council; The Nature Conservancy (Massachusetts Chapter); Trout Unlimited, Greater Boston Chapter; Trout Unlimited, Pioneer Valley Chapter; Walden Woods Project; Water Supply Citizens Advisory Committee; Watershed Action Alliance of Southeastern MA; Weir River Watershed Association; Westfield River Watershed Association; Westfield River Wild & Scenic Advisory Committee; and Westport River Watershed Alliance.

Appendix B

Princeton Hydro, LLC, *Sustainable Water Management Initiative Report: Monponsett Pond and Silver Lake Water Use Operations and Improvement*, SWMI Project No. 2012-06, (July 2013), *available at* http://www.princetonhydro.com/blog/wp-content/uploads/2013/07/Halifax Sustainable Water Management Initiative Report.pdf (last visited Feb. 12, 2014).

Manomet Center for Conservation Sciences, *Taunton River Watershed Climate Change Adaptation Plan*, (May 2013), *available at* https://www.manomet.org/sites/default/files/publications and tools/Taunton Watershed%205-13.pdf (last visited Feb. 12, 2014).

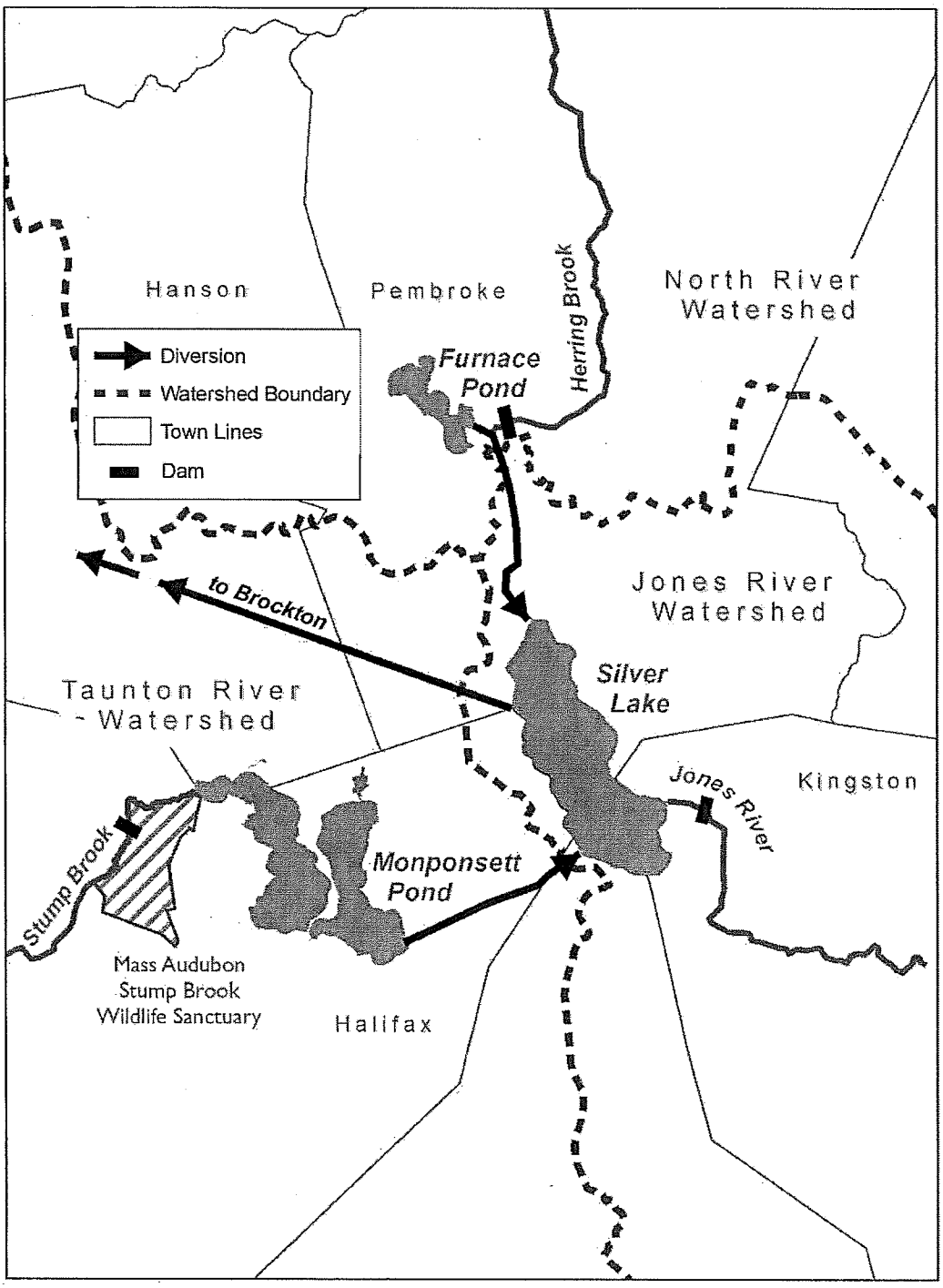
Horsley Witten Group, Inc., *Taunton River Watershed Management Plan: Phase I*, (2008), *available at* http://www.horsleywitten.com/tauntonwatershed/Documents/Final%20Report/Taunton%20River%20Watershed%20Management%20Plan.pdf (last visited Feb. 12, 2014).

Frumhoff, P.C., *Confronting Climate Change in the U.S. Northeast*, Synthesis report of the Northeast Climate Impacts Assessment; Union of Concerned Scientists (2007), *available at* http://www.climatechoices.org/assets/documents/climatechoices/confronting-climate-change-in-the-u-s-northeast.pdf (last visited Feb. 12, 2014).

Watershed Action Alliance of Southeastern Massachusetts, *South Coastal Watershed Action Plan* (2006), *available at* http://www.watershedaction.org/ (access through Resources - Watershed Action Plans - South Coastal Action Plan) (last visited Feb. 12, 2014).

Taunton Wild & Scenic River Study Committee, National Park Service, Northeast Region, *Taunton River Stewardship Plan: Taunton River Wild & Scenic River Study*, (2005), *available at* http://vc.bridgew.edu/cgi/viewcontent.cgi?article=1005&context=taunton riv ref (last visited Feb. 12, 2014).

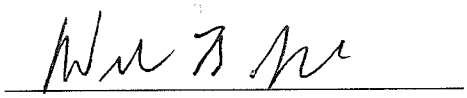
Appendix C



Available at, http://web.massaudubon.org/site/DocServer/BrocktonWaterfactsheetfinal.pdf?docID=2863 (last visited Feb. 12, 2013).

CERTFICATE OF COMPLIANCE

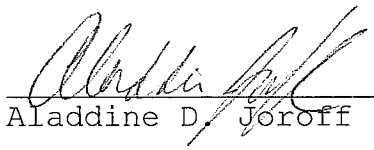
Pursuant to Rule 16(k), Massachusetts Rules of Appellate Procedure, I hereby certify that the foregoing brief complies with the rules of the Court that pertain to the filing of briefs, including without limitation Rules 16(a)(6), 16(e), 16(f), 16(h), 18 and 20, Mass. R. App. P.



Wendy B. Jacobs

CERTIFICATE OF SERVICE

I hereby certify that on February 14, 2014, I served two copies of the foregoing Brief of Amici Curiae the Massachusetts River Alliance, et al. to all counsel of record as set forth below.



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