Water Quality Certification
(33 U.S.C. §1341)

In the matter of: Vermont Fish and Wildlife Department
Roxbury Fish Culture Station
3696 Roxbury Road
Roxbury VT, 05669

APPLICATION FOR THE FLINT BROOK WATER WITHDRAWAL

Section 401 of the federal Clean Water Act requires that any applicant for a Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters, shall provide the licensing or permitting agency a certification from the State in which the discharge originates that any such discharge will comply with other substantive provisions of the Clean Water Act. 33 U.S.C. § 1341(a)(1). The certifying State may set forth any effluent limitations and other limitations, and monitoring requirements necessary to assure that any applicant for a Federal license or permit will comply with the Clean Water Act and with any other appropriate requirement of State law. 33 U.S.C. § 1341(d). The Secretary of Agency of Natural Resources has delegated the authority to make certification determinations to the Department of Environmental Conservation (Department).

The Department has reviewed a water quality certification application dated October 30, 2019 filed by the Vermont Fish and Wildlife Department for a water withdrawal on Flint Brook to provide water to the Roxbury Fish Culture Station. Supporting documentation for the application includes the Applicant's Federal Clean Water Act Section 404 request for a General Authorization filed with the U.S. Army Corps of Engineers (NAE-2016-00788), information on the intake box, Flint Brook hydrology study, and operation proposals were received October 2018. Collectively, these materials are referred to as the "application."

The current application is subject to review under the Vermont Water Quality Standards promulgated by the Agency of Natural Resources and effective beginning January 15, 2017 (Environmental Protection Rule, Chapter 29A) (Standards). (Standards, § 29A1-01(a) Applicability).

The Department, based on the application and record before it, makes the following findings and conclusions.

I. Applicable Statues and Regulations

A. Applicable provisions of the Vermont Water Quality Standards

1. The applicable 2017 Vermont Water Quality Standards (Environmental Protection Rule, Chapter 29A) (Standards) were adopted by the Secretary of the Agency of Natural Resources pursuant to 10 V.S.A., Chapter 47, Water Pollution Control. Section 1252 of the chapter provides for the classification of high quality waters as either Class A(1), A(2), B(1) or B(2) and authorizes the adoption of standards of water quality to achieve the purpose of classification.

2. The Anti-Degradation Policy in the Standards requires that "[a]ll waters shall be managed in accordance with [Standards] to protect, maintain, and improve water quality." (Standards, § 29A-105).

3. All waters of the State shall be managed to support their designated and existing uses. A body of water may be assigned different classifications for different uses. (Standards, § 29A-104(a)-(b)).

4. The designated uses in the Water Quality Standards are: aquatic biota and wildlife that may utilize or are present in the waters; aquatic habitat to support aquatic biota, wildlife, or plant life; the use of waters for swimming and other primary contact recreation; the use of waters for boating and related recreational uses; the use of waters for fishing and related recreational uses; the use of waters for the enjoyment of aesthetic conditions; the use of the water for public water source; and the use of water for irrigation of crops and other agricultural uses. (Standards, § 29A-104(d)).

5. The affected reaches of Flint Brook have been classified as Class B(2) for all uses.

6. The Flint Brook is designated as cold-water fish habitat. (Standards, § 29A-308).

7. In waters designated as cold-water fish habitat, the dissolved oxygen (D.O.) standard is not less than 7mg/L and 75 percent saturation at all times, nor less than 95 percent saturation during late egg maturation and larval development of salmonids in waters that the Secretary determines are salmonid spawning or nursery areas important to the establishment or maintenance of the fishery resource. In all other waters designated as a cold-water fish habitat, the standard is not less than 6 mg/L and 70 percent saturation at all times. (Standards, § 29A-302(5)(A)).

8. The general temperature standard for waters is "[c]hange or rate of change in temperature, either upward or downward, shall be controlled to ensure full support of aquatic biota, wildlife, and aquatic habitat uses." (Standards, § 29A-302(1)(A)).

9. In waters designated as cold-water fish habitat and classified as Class B(2) for the fishing use, the total increase from ambient temperature due to all discharges and activities shall not exceed 1.0° F. (Standards, § 29A-302(1)(B)(iii)).

10. The turbidity standard as an annual average under dry weather base-flow conditions is 10 NTU for cold-water fish habitat. (Standards, § 29A-302(4)(A)).

11. The management objectives for waters classified as Class B(2) for aquatic biota and wildlife are: "Waters shall be managed to achieve and maintain good biological integrity." (Standards, § 29A-306(a)(3)(A)). The Class B(2) criteria for aquatic biota and wildlife and aquatic habitat use require "Change from the natural condition for aquatic macroinvertebrate and fish assemblages not exceeding moderate changes in the relative proportions of taxonomic, functional, tolerant, and intolerant aquatic organisms." (Standards, § 29A-306(a)(3)(B)).

12. The management objectives for waters classified as Class B(2) for aquatic habitat are: "Waters shall be managed to achieve and maintain high quality aquatic habitat. The physical habitat structure, stream processes, and flow characteristics of rivers and streams and physical character and water level of lakes and ponds necessary to fully support all life-cycle functions of aquatic biota and wildlife, including overwintering and reproductive requirements, are maintained and protected." (Standards, § 29A-306(b)(A)). The Class B(2) criteria for aquatic habitat use in rivers and streams are: "Changes to flow characteristics, physical habitat structure, and stream processes limited to moderate differences from the natural condition and consistent with the full support of high quality aquatic habitat. (Standards, § 29A-306(b)(3)(B)(i). Additionally, "waters shall comply with the Hydrology Criteria in § 29A-304" of the Standards. (Standards, § 29A-306(b)(3)(B)(iii)).

13. The Hydrology Policy in the Standards requires that "[t]he proper management of water resources now and for the future requires careful consideration of the interruption of the natural flow regime and the fluctuation of water levels resulting from the construction of new, and the operation of existing, dams, diversions, and other control structures." (Standards, § 29A-103(f)(1)).

14. To effectively implement the hydrology policy, hydrology criteria shall be achieved and maintained, where applicable. The hydrology criteria require that for waters classified as Class B(2) for aquatic habitat "any change from the natural flow regime shall provide for maintenance of flow characteristics that ensure the full support of uses and comply with the applicable water quality criteria." The preferred method for ensuring compliance with this subsection is a site- specific flow study or studies. In the absence of a site-specific study, the use of general hydrologic standards is also accepted. (Standards, § 29A-304(b)(3)).

15. The management objectives for waters classified as Class B(2) for aesthetics are: " Waters shall be managed to achieve and maintain good aesthetic quality." (Standards, § 29A-306(c)(3)(A)). The Class B(2) criteria for aesthetics use in rivers and streams are: "Water character, flows, water level, bed and channel characteristics, and flowing and falling water of good aesthetic value." (Standards, § 29A-306(c)(3)(B)(i)).

16. The management objectives for waters classified as Class B(2) for fishing are: "Waters shall be managed to achieve and maintain level of water quality compatible with good quality fishing. (Standards, § 29A-306(e)(3)(A)). The Class B(2) criteria for fishing are "measures of wild salmonid densities, biomass, and age composition indicative of good population levels" and compliance with the temperature criteria in Section 29A-302(B) of the Standards. ((Standards, § 29A-306(e)(3)(B)(i)) and (§ 29A-306(e)(3)(B)(ii)).

B. Agency Procedure for Determining Acceptable Minimum Stream Flows

17. The applicant's proposal is subject to review under the *Agency Procedure for Determining Acceptable Minimum Stream flows* (July 14, 1993). Conservation flows below the diversion on Flint Brook are subject to review under this procedure.

18. The Agency Procedure for Determining Minimum Stream Flows sets forth four methods to determine acceptable conservation flows: regional or site-specific seasonal median flows,

stream hydrologic analysis, the Instream Flow Incremental Methods, or other methods acceptable to the Agency.

II. Factual Findings

A. Background and General Setting

19. The Roxbury Fish Culture Station (Station) has been operated by the Vermont Fish and Wildlife Department (Applicant) since 1891. The Station is located in the valley of the Third Branch of the White River in Roxbury, Vermont. The Station was originally built to produce brook trout using water from a spring and from Flint Brook as the primary source. At the time the Station began operations Flint Brook was known as Burnham Brook.

20. The Flint Brook diversion is located 0.25 miles upstream from the brook's confluence with the Third Branch of the White River. Upstream of the diversion, the watershed area of Flint Brook is 4.4 mi^2 watershed draining primarily forested, mountainous, and relatively undeveloped.

B. Project and Civil Works

Existing Development

21. The Station was heavily damaged during a flood caused by Tropical Storm Irene in August 2011 and is in the process of being rebuilt and modernized.

22. At the end of construction the Station will include a detention pond, chemical effluent pond and effluent treatment building, sludge storage container, two tank pavilions each containing 6, 20-foot diameter tanks, the hatchery building, visitor facilities (bathroom, fish observation pond), emergency generator and concrete pad, freezer house, and garage in addition to other structures.

23. The updated Station will also include a water recirculation system to reduce the amount of water needed for fish culture production.

24. The dam where the intakes from Flint Brook is located is made of laid stone, and concrete. The Spillway is approximately 30 feet wide by 8 feet high from the plunge pool area. The concrete cap on river left is approximately 20 feet. Two concrete curbs approximately 4 inches high were added to direct flow and maintain head pressure for the intake.

25. The dam has a historic intake located on the right side of the dam when facing downstream. This is a flat intake and had been used for water withdrawals from Flint Brook and will be maintained for emergency purposes.

26. The dam has a spillway notch approximately 44 inches wide, and 6-8 inches deep on the right side of the dam. On the downstream facing side below the spillway notch a mounted intake box (hydra screen box) is installed with condia-style screening. As water flows through the spillway notch it passes over a condia-style intake screen with a portion of the water entering the intake box. The screen is self-cleaning and will prevent any debris or organisms larger than 0.5 millimeters from entering the hatchery intake and water supply.

27. The prevention of organisms entering the water supply is part of the Applicant's development and implementation of their disease spread and prevention system. The addition of the intake screen and treatment of the surface water supply will remove pathogens and reduce the potential for wild organisms to enter the facility, and subsequently enter other watersheds where reared fish are stocked.

28. After the water passes through the screen it enters the 10-inch diameter pipe which leads to the Station to maintain fish culture operations.

29. The maximum capacity of the intake is 650 gallons per minute (gpm) or 1.44 cubic feet per second (cfs).

Applicant Proposed Developments

30. The Applicant is not proposing any further development beyond the development planned for the Station. The hydra box, wing walls/curbing, and associated piping are complete at the time of the Water Quality Certification Application.

Applicant Proposed operations

31. The Applicant is proposing to maintain seasonal conservation flows downstream of the diversion. From June 1 – September 30, the Applicant proposes, a conservation flow of 1.3 cfs, or inflow if less (0.3 csm; cubic feet per second per square mile) and from October 1 – May 31 a conservation flow of 4.4 cfs, or inflow if less (1.0 csm) will be maintained downstream of the diversion.

C. River Hydrology and Streamflow Regulation

32. The Flint Brook Diversion is located 0.25 miles upstream from the brook's confluence with the Third Branch of the White River. Upstream of the diversion, the watershed area of Flint Brook is 4.4 mi^2. The watershed is primarily forested, mountainous, and is relatively undeveloped.

33. There is no specific long-term flow record from Flint Brook. However, the Applicant conducted a study to characterize the relationship between flows recorded at Flint Brook and those measured at other long-term stream gages in accordance with the *Agency Procedure for Determining Acceptable Minimum Streamflows* (July 14, 1993)[1].

34. A pressure logger was deployed in Flint Brook above the intake site to measure water levels and an additional logger was deployed nearby to account for barometric changes. These instruments were deployed on July 5, 2017 and May 2, 2018, and were removed mid November 2017 and late November 2018. Flows were measured opportunistically through the two years using a SonTek Flow Trackers at 20-30 points along the cross section using 40-second flow period averaging to construct a rating curve for the site.

[1]McHugh, P.A. 2019. Development of conservation flow recommendations for Flint Brook at the Roxbury Fish Culture Station intake. Vermont Fish and Wildlife Department. Montpelier, Vermont. 11 pp.

35. Two years of data were collected in order to meet the Procedure requirement of achieving a correlation coefficient of 0.8 or greater after the highest 10% of flows are removed.

36. Separate rating curves were developed for each of the year's flows as measured. The two separate curves were developed due to concerns of debris artificially changing water depths in 2017. To alleviate this concern the logger in 2018 was deployed a short distance upstream.

37. The stage-discharge relationships fitted for each year were 2017: $Q = 45.3[\text{stage}]^{3.22}$, $P < 0.001$ for all parameters, $R^2 = 0.97$; 2018: $Q = 0.4[\text{stage}]^{5.33}$, $P < 0.001$ for all parameters, $R^2 = 0.98$. These relationships were pooled and used to develop a time series for the season relative to the water-level dataset to estimate average daily flows.

38. The pooled time series was then compared to four long-term USGS streamflow gage datasets. (1) Dog River USGS 04287000, (2) the East Orange Branch USGS 01139800, (3) Ayers Brook USGS 01142500, and (4) the Mad River USGS 04288000.

39. The relationships between average daily flows at Flint Brook and the four surrogate sites were evaluated on both an untransformed and log-log basis using simple linear regression.

40. Relationships were stronger and above the minimum correlation threshold when both *x* and *y* flows were log transformed (i.e., log-log regressions), with the highest correlation occurring for the Mad River gage (R^2 and predictive $R^2 = 0.83$). Therefore, this dataset was used to estimate the August median flow for Flint Brook.

D. Current Status

41. The Flint Brook has been classified as Class B(2) for all designated uses. Class B(2) waters are of a quality which consistently exhibits good aesthetic value, and provides high quality habitat for aquatic biota, fish and wildlife. Current designated uses of Flint Brook also include public water supply with filtration and disinfection; irrigation and other agricultural uses; swimming; and recreation.

42. In 2018, the U.S. Environmental Protection Agency approved a list of waters considered to be impaired based on water quality monitoring efforts and in need of total maximum daily load (TMDL) development to address the impairment. The Department submitted the list under Section 303(d) of the federal Clean Water Act. According to the State of Vermont 2018 303(d) List of Impaired Surface Waters in need of a TDML, there are no listed waters within or near the project area (State of Vermont 2018 303(d) List of Waters, Part A – Impaired Surface Waters in Need of TMDL, September 2018)

43. The Department concurrently issued as a four-part List of Priority Surface Waters Outside the Scope of the Clean Water Act Section 303(d) in 2018. Part F lists those surface waters where aquatic habitat and/or other designated uses are not fully supported because designated uses have been altered by flow regulation. The lower portion of Flint Brook

below the Station withdrawal is listed in the 2018 List of Priority Surface Waters Part F based on the potential for lack of minimum flow below the fish hatchery withdrawal.

E. Water Chemistry

44. There is no water quality data specifically collected from Flint Brook, however, the Vermont Department of Environmental Conservation has collected water quality data on the Third Branch of the White River downstream of the confluence with Flint Brook and another unnamed Tributary. A summary of the data collected in 2009 and 2010 is provided in Table 1 below:

Table 1: Water quality data from the confluence of Flint Brook and the Third Branch of the White River for 2009 and 2010.

Parameter	Description	2009 Record	2010 Record
Phosphorus (ug/L)	Nutrient that fuels algae blooms	5.66	5.81
Chloride (mg/L)	At elevated values mostly from deicing	2.0	< 2
Conductivity (umho/cm)		56.4	60.1
Nitrogen (mg/L)	Nutrient that may fuel algae blooms	0.19	0.1
Turbidity (NTU)	Measure of suspended sediment	0.31	0.22
pH	Acidity	7.33	7.2

F. Aquatic Habitat

45. Flint Brook is classified by the State of Vermont as Class B(2) for the aquatic habitat designated use.

46. Waters designated as Class B(2) for aquatic habitat use shall be managed to achieve and maintain high quality aquatic habitat, characterized by the physical habitat structure, stream processes, and flow characteristic of rivers and streams and the physical character and water level of lakes and ponds necessary to protect and support all life-cycle functions of

aquatic biota and wildlife, including overwintering and reproductive requirements. (Standards, Section 29A-306(b)(3)(A)).

47. The intake is located at a geomorphic transition. Flint Brook upstream of the intake is an incised, and bed- rock controlled gorge. At the transition point the brook becomes fan-like into an alluvial valley.

48. The roughly 0.25 miles between the intake and the Third Branch of the White River is dominated by coarse bed material with some bedrock exposure. There are both step-pool and pool-riffle sections within this portion of the channel.

49. This area has been modified relative to its natural channel through realignment (to accommodate historic railway development) and berming.

G. Aquatic Biota

50. Flint Brook is classified by the State of Vermont as Class B(2) for the aquatic biota designated uses and is designated as a cold water fish habitat.

51. "Aquatic Biota" means all organisms that, as part of their natural life cycles, live in or on waters. (Standards, Section 29A-102(5)). Aquatic biota includes, for example, fish, aquatic insects, amphibians, and some reptiles such as turtles.

52. There is no macroinvertebrate data specifically collected from Flint Brook, however, the Vermont Department of Environmental conservation has collected various water quality data on the Third Branch White River downstream of the confluence of Flint Brook and another unnamed Tributary. The data collected in 2009 and 2010 indicate that the Macroinvertebrate community assessment was good to very good.

53. The majority of the fish community in lower Flint Brook is made up of Brook Trout (*Salvelinus fontinalis*). A summer survey in 2017[2] yielded estimates of density >1,500 individuals per mile on average.

54. In previous surveys Rainbow Trout (*Oncorhynchus mykiss*) have been collected in Flint Brook and nearby stations. Since the 1990's there has been a decline of Rainbow Trout in tributaries to the upper Third Branch of the White River, including Flint Brook. No Rainbow Trout were collected in the 2017 fish survey.

H. Rare and Endangered Species and Outstanding Natural Resources

55. There are no known occurrences of rare or endangered species in the project area.

I. Erosion

[2] Two approx. 250 ft. sections of Flint Brook, below the diversion dam, were sampled using two-pass electrofishing depletion methods on August 16, 2017.

56. It is not anticipated that there will be increased erosion as a result of the withdrawal activities. The location of withdrawal is in a gorge-like area with coarse bed material.

J. Recreation

57. The Flint Brook is accessible by multiple road crossings and it is suspected that Flint Brook supports light recreational fishing.

58. The headwaters of Flint Brook and its tributaries are located in Roxbury State Forest, which allows additional recreational access to the brook.

59. The continued maintenance and use of the Culture intake will not prevent access to Flint Brook or surrounding state forest parcels.

K. Aesthetics

60. The water flow through the Flint Brook is largely unaltered and supports aesthetics. Continued use of Flint Brook as a source of water for the Station has the potential to affect aesthetics downstream of the intake. However, the Applicant's operations proposal will ensure aesthetics are supported.

III. Analysis

61. A state's 401 certification determination shall include a statement from the state that "there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards." 40 C.F.R. § 121.2(a)(3); Environmental Protection Rules, Chapter § 13.11(g). Accordingly, the Department may set forth limitations and other requirements necessary for it to find that there is reasonable assurance that the project will be operated in a manner which will not violate the Vermont Water Quality Standards. Lower Flint Brook downstream of the Station withdrawal is listed as a priority water on Vermont's List of Priority Surface Waters Outside the Scope of the Clean Water Act Section 303(d) Part F because it does not support all designated uses. Of particular concern is non-support of aquatic biota and wildlife, and aquatic habitat uses due to the current flow management practices (Finding 44). A goal of the Water Quality Standards and the Clean Water Act is to protect and maintain the biological integrity of waters such that aquatic biota and wildlife are sustained by high quality habitat.

A. Water Chemistry

62. The proposed changes to Flint Brook by the Applicant will provide greater flows below the intake and are not anticipated to change the current water quality measurements observed at the Third Branch of the White River.

63. In addition, conservation flows proposed by the Applicant will help to fully support all designated uses in Flint Brook.

B. River Hydrology and Streamflow Management

64. The Applicant conducted a Stream Hydrologic Analysis of Flint Brook to inform recommended conservation flows following the *Agency Procedure for determining acceptable minimum stream flows (July 14, 1993)*. The report of the analysis was filed with the Department for review and as a supporting document of the application.[3]

65. The highest correlation model was with the Mad River gage, which had an August median of 1.30 cfs (0.29 csm), or inflow if less, (Finding 39-40).

66. The proposed conservation flow of 4.4 cfs (1.0 csm), or inflow if less, for the fall and winter is the default hydrologic flow standard in the *Agency Procedure for determining acceptable minimum stream flows (July 14, 1993)*. The flow will be protective of brook trout spawning and incubation.

67. The results of the electrofishing conducted on Flint Brook below the diversion did not find Rainbow Trout and it was determined they are likely no longer spawning in Flint Brook (Finding 56). The flow needs of other spring spawning species that may be present such as blacknose dace (*Rhinichthys atratulus*) and slimy sculpin (*Cottus cognatus*) are typically less than those of rainbow trout. Therefore, the proposed 1.0 csm conservation flow for the spring period will meet the hydrology criteria.

C. Aquatic Habitat

68. With the proposed operational changes, it is anticipated that there will be little impact upstream of the dam and intake on Flint Brook.

69. Aquatic habitat conditions downstream of the intake are anticipated to improve and be protective of the aquatic habitat use under the Applicants proposal for conservation flows. Condition B of this certification requires the applicant to maintain conservation flows below the intake. The Applicant is currently in consultation to develop a method to ensure conservation flows are met below the intake. Condition C of this certification requires the Applicant to create a flow management plan within 180 days of this certification.

D. Aquatic Biota

70. It is anticipated that the seasonal conservation flow proposed by the Applicant will protect aquatic biota in Flint Brook.

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[3] McHugh, P.A. 2019. Development of conservation flow recommendations for Flint Brook at the Roxbury Fish Culture Station intake. Vermont Fish and Wildlife Department. Montpelier, Vermont. 11 pp.

E. Wildlife and Wetlands Habitat

71. It is not anticipated that there will be any change to wildlife and wetlands habitat as a result of the Applicant proposal or upgrades at the intake.

F. Debris Disposal

72. The Applicant has not provided information on the handling and disposal of project-related debris. It is anticipated there will be little debris at the intake site due to the self-cleaning intake screen located at the intake.

73. The depositing or emission of debris and other solids to state waters violates Vermont's solid waste laws and the Standards (Standards, § 29A-303(1) and § 29A-303(2)). Debris also impairs aesthetics and other recreational uses.

G. Antidegradation

74. Pursuant to the Antidegradation Policy set forth in the Water Quality Standards, Section 29A-105 and the Agency's 2010 Interim Anti-Degradation Implementation Procedure (Procedure), the Secretary must determine whether a proposed discharge or activities are consistent with the Policy by applying the Procedure during the review of applications for any permit for a new discharge if, during the application review process, compliance with the Standards is evaluated pursuant to applicable state or federal law. (Procedure III(A)). This includes review of applications for water quality certifications required by Section 401 of the federal Clean Water Act for a federal license or permit for flow modifying activities. (Procedure III(B)(3)).

75. In making the determination that proposed activities are consistent with the Policy, the Secretary is required to use all credible and relevant information and the best professional judgment of Agency staff. (Procedure III(D)). Section VIII of the Procedure governs the Agency's review of Section 401 applications for flow modifying activities. (Procedure VIII(A)(1)). The Secretary may have to review a single waterbody under multiple tiers of review depending on whether a waterbody is impaired or high quality for different parameters.

76. Tier 3 review is required if the project will discharge to an Outstanding Resource Water. (Procedure VIII(D)). This project does not affect any Outstanding Resource Waters and therefore does not trigger a Tier 3 review under Section VIII of the Procedure.

77. This project affects waters classified as B(2) for all designated uses, which are assumed to be high quality waters for certain parameters that trigger a Tier 2 review under Section VIII of the Procedure. (Procedure VIII(E)(1)(c)). Under Tier 2, the Secretary must determine whether the proposed water withdrawal will result in a limited reduction in water quality in a high quality water by utilizing all credible and relevant information and the best professional judgment of Agency staff. (Procedure VIII(E)(2)(b)).

78. When conducting a Tier 2 review, the Secretary may consider, when appropriate, one or more of the following factors when determining if a proposed water withdrawal will result

in a reduction in water quality: (i) the predicted change, if any, in ambient water quality criteria at the appropriate critical conditions; (ii) whether there is a change in total pollutant loadings; (iii) whether there is a reduction in available assimilative capacity; (iv) the nature, persistence and potential effects of the pollutant; (v) the ratio of stream flow to discharge flow (dilution ratio); (vi) the duration of discharge; (vii) whether there are impacts to aquatic biota or habitat that are capable of being detected in the applicable receiving water; (viii) the existing physical, chemical and biological data for the receiving water; (ix) degree of hydrologic or sediment regime modifications; and (x) any other flow modifications. (Procedure VIII(E)(2)(d)).

79. The Secretary considered the foregoing factors during the review of the project to determine if the project will result in a reduction of water quality in the reach of Flint Brook affected by the intake. The change in operations and intake modifications of the Station will not result in a discharge of additional pollutants or reduce other ambient water quality criteria. As a result, factors (i), (ii), (iii), (iv), (v), and (vi) are not at issue. The principal impact of the project is providing good quality habitat below the intake. With the increase in conservation flows the aquatic biota and habitat will be protected.

80. This Certification does not authorize any activities that would result in a lowering of water quality for those parameters that are exceeding water quality standards.

81. For those parameters for which the Flint Brook is not exceeding water quality standards, the Secretary must conduct a Tier 1 review to determine that the existing uses of the water and the level of water quality necessary to protect those uses shall be maintained and protected. (Procedure VIII(F)).

82. Under Tier 1 review, the Secretary may identify existing uses and determine the conditions necessary to protect and maintain these uses. (Procedure VIII(F)). In determining the existing uses to be protected and maintained, the Secretary must consider the following factors: (a) aquatic biota and wildlife that utilize or are present in the waters; (b) habitat that supports existing aquatic biota, wildlife, or plant life; (c) the use of the waters for recreation or fishing; (d) the use of the water for water supply, or commercial activity that depends directly on the preservation of an existing high level of water quality; and (e) evidence of the uses' ecological significance in the functioning of the ecosystem or evidence of the uses' rarity. (Procedure VIII(F)(2)).

83. The Secretary considered all of the factors listed above and, based on information supplied by the Applicant and Agency staff field investigations, identified the following existing uses: aquatic biota, wildlife and aquatic habitat; aesthetics; and recreation. The Secretary determined, after evaluating the proposed project, that the existing uses of the water will be maintained and protected, and the maintenance of the water as a Class B(2) water will provide the water quality necessary to protect all existing uses.

84. The Secretary finds that development and operation of the project as conditioned by this Certification will comply with the Vermont Water Quality Standards. Accordingly, the Secretary finds that the project, as conditioned, meets the requirements of the Policy and Procedure relating to the protection and maintenance of high quality waters.

Decision and Certification

The Department has examined the project application and bases its decision in this Certification upon an evaluation of the information contained therein that is relevant to the Department's responsibilities under Section 401 of the federal Clean Water Act and has examined other pertinent information deemed relevant by the Department, sufficient to enable the Department to certify that there is reasonable assurance that operation and maintenance of Roxbury Fish Culture Station Intake as proposed by the Applicant and in accordance with the following conditions will not cause a violation of Vermont Water Quality Standards and will be in compliance with sections 301, 302, 303, 306, and 307 of the Federal Clean Water Act, 33 U.S.C. § 1251 et seq., as amended, and other appropriate requirements of state law.

A. **Compliance with Conditions.** The Applicant shall provide notice to the Department of any proposed change to the Stations Intake or associated pumps that would have a significant or material effect on the findings, conclusions or conditions of this Certification, including any changes to operation of the project. The Applicant shall not make any such change without approval of the Department.

B. **Conservation Flows.** The Applicant shall maintain conservation flows of 1.3 cfs (0.3 csm), or inflow if less, from June 1 to September 30, and 4.4 cfs (1.0 csm), or inflow is less, from October 1 to May 31. No withdrawals shall occur during periods when Flint Brook is flowing at less than the conservation flows specified for each period.

C. **Flow Management Plan.** Within 180 days of the effective date of this Certification, the Applicant shall develop and file with the Department a flow management plan detailing how the intakes will be operated to achieve compliance with conservation flows. The plan shall include details on how inflow and water withdrawals will be measured. The plan shall be subject to Department review and approval. The Department reserves the right of review and approval of any material changes made to the plan.

D. **Monitoring Plan for Reservoir and Flow Management.** Within 180 days of the effective date of this Certification, the Applicant shall develop a plan for continuous monitoring and reporting of withdrawals from Flint Brook. The plan shall include procedures for reporting deviations from prescribed operating conditions to the Department, explaining the reasons for those deviations and indicating measures to be taken to avoid recurrences. The Applicant shall maintain records and provide such records upon request by the Department. The plan shall be subject to Department review and approval. The Department reserves the right to review and approve or deny any material changes made to the plan.

E. **Maintenance and Repair Work.** Any proposals for project maintenance or repair work that may alter conservation flows below the intake shall require written approval by the Department.

F. **Compliance Inspection by Department.** The Applicant shall allow the Department to inspect the intake at any time to monitor compliance with Certification conditions.

G. **Approval of Project Changes.** Any change to the project that would have a significant or material effect on the findings, conclusions, or conditions of this Certification, including project operation, must be submitted to the Department for prior review and written approval where appropriate and authorized by law and only as related to the change proposed.

H. Continuing Jurisdiction. The Department reserves the right to alter or amend this Certification over the life of the project when such action is necessary to assure compliance with the Standards and to respond to any changes in classification or management objectives

Effective Date and Expiration of Certification

This certification shall become effective on the date of issuance, and the condition of any certification shall become conditions of the federal permit (33 U.S.C. § 1341(d)). If the federal authority denies a permit, the certification becomes null and void. Otherwise, the certification runs for the terms of the federal license or permit.

Enforcement

Upon receipt of information that water quality standards are being violated as a consequence of the project's construction or operation or that one or more certification conditions has not been complied with, the Secretary, after consultation with the Applicant and notification of the appropriate federal permitting agency, may, after notice and opportunity for a public hearing, modify the Certification and provide a copy of such modification to the Applicant and the federal permitting agency.

Certification conditions are subject to enforcement mechanisms available to the federal agency issuing the license and to the state of Vermont. Other mechanisms under Vermont state law may also be used to correct or prevent adverse water quality impacts from construction or operation of activities for which certification has been issued.

Appeals

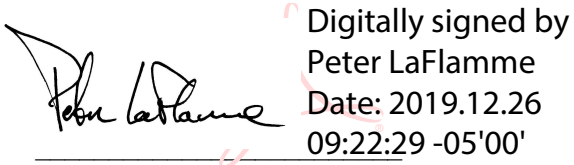
Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the Applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available online at www.vermontjudiciary.org. The address for the Environmental Division is 32 Cherry Street, 2nd Floor, Suite 303; Burlington, VT 05401 (Tel. 802.951.1740).

Pursuant to 10 V.S.A. Chapter 220, an aggrieved person shall not appeal this decision unless the person submitted to the Secretary a written comment during the applicable public comment

period or an oral comment at the public meeting conducted by the Secretary. Absent a determination of the Environmental judge to the contrary, an aggrieved person may only appeal issues related to the person's comments to the Secretary as prescribed by 10 V.S.A. § 8504(d)(2).

Dated at Montpelier, Vermont this
26th day of December 2019

Emily Boedecker, Commissioner
Department of Environmental Conservation

By 

Peter LaFlamme, Director
Watershed Management Division
Department of Environmental Conservation