1. ***Further clarification on what long term effects (if any) are being referenced in this sentence from page 12: "The EA concludes that project construction would result in a temporary disruption to recreation facilities, and the project may result in long-term effects to the recreation area during maintenance activities.***

   Response: .

   The term "long-term effects" in the Federal Energy Regulatory Commission (FERC) Environmental Assessment (EA) and FERC Certificate refers to occasional, localized work needed to operate and maintain the relocated G-24 and G-11 pipeline facilities on the parcel of land owned by the USACE, which is part of the larger Sagamore Recreation Area. Algonquin's proposed crossing of this property is adjacent to Route 6 and will not interfere with use of the Sagamore Recreation Area.

2. ***Any information on how discharges will be managed in the following areas, which may include reference to relevant requirements from FERC. Contaminants would be the primary concern, although recharge within the lens from withdrawal is also desirable.***
   - ***G-24 may have impacts to the Cape Cod Canal, Cape Cod Commission Potential Public Water Supply Area (PPWSA), DEP Approved Wellhead Protection Area, and wetlands;***
   - ***G-31 may have impacts to the Cape Cod Canal, PPWSA, and wetlands; and***
   - ***G-32 may have impacts to PPWSA.***

   Response:

   Algonquin does not propose to discharge construction water directly to wetlands, the Cape Cod Canal, or public water supply wells. Water for pipeline hydrostatic testing and HDD will come from local public water suppliers, and no water supply wells or long-term groundwater withdrawals are proposed. Discharges will be limited to trench dewatering and hydrostatic test water, released to vegetated upland areas so the water can infiltrate and recharge local groundwater. The controls below apply in all work areas, including where work overlaps Cape Cod Commission Potential Public Water Supply Areas (PPWSAs) or MassDEP-approved Wellhead Protection Areas (WHPAs).

   Dewatering. Groundwater will be removed only where it is encountered in the trench. Dewatering will be localized, temporary, and limited to active work areas, and will not be a long-term groundwater withdrawal. Water will be discharged through filter bags, filter socks, or a dewatering structure with energy dissipation under the Erosion and Sedimentation Control Plan (E&SCP) and the FERC Wetland and Waterbody Construction and Mitigation Procedures (FERC Procedures).

   Hydrostatic testing. Test water will come from municipal supplies and will contact only new pipe. No additives are anticipated, and no desiccants or chemical drying agents will be used. Water will be discharged through energy-dissipation devices to approved upland locations in accordance

with Section VII of the FERC Procedures, the E&SCP, and applicable permit approvals, including the EPA General Permit for Dewatering and Remediation Discharges. Final discharge locations will be set with the construction contractor and consistent with those approvals. Within a PPWSA, only clean municipal test water would be released, if necessary.

Horizontal directional drilling (HDD). Drilling fluid will consist of municipal water, bentonite, and non-toxic additives. It will not be intentionally discharged to the ground, wetlands, or surface waters. It will be recycled during drilling where practicable, and residual fluid will be hauled off site to an approved disposal facility. HDD will follow the Best Drilling Practices, Monitoring, and Clean-up of Horizontal Directional Drilling Inadvertent Returns Plan, which includes inadvertent-return monitoring and response procedures.

Fuels, lubricants, and wastes. These will be handled under the Spill Prevention, Control, and Countermeasure (SPCC) Plan and the Waste Management Plan.

G-24 Pipeline/G-11 Pipeline

Work within PPWSA BS-150 includes removing the existing G-24 and G-11 pipelines by excavating to approximately 7-10 feet and installing the relocated pipelines by conventional trenching, with an HDD beneath Route 6 approaching the Sagamore Bridge. Work near the Canal consists of removing the pipelines beneath the bridge. With the controls above, no impacts to PPWSA BS-150 or direct impacts to wetlands are anticipated, and there will be no in-water work in the Canal. Temporary work in the 100-foot wetland buffer and in the Coastal Bank and its buffer near the Sagamore Bridge will be protected with erosion and sediment controls and restored after construction. The work areas are not within a WHPA.

G-31 Pipeline

The G-31 pipeline crosses a Zone II WHPA north and south of Bournedale Road by conventional trenching and a bore crossing. The Canal will be crossed by HDD. The pipeline will temporarily disturb two isolated vegetated wetlands (W2 and W5, the latter also isolated land subject to flooding), and any trench dewatering in those wetlands will be conducted to prevent silt-laden water from entering a wetland or waterbody. The G-31 pipeline does not cross a PPWSA. With the controls above, no impacts to the WHPA, PPWSAs, or the Canal are anticipated.

G-32 Pipeline

The G-32 pipeline intersects a PPWSA at the Pave Paws Meter and Regulator (M&R) Station and at its connection with the Bourne Rotary M&R Station. Work includes conventional trenching and M&R station construction. With the controls above, no impacts to the PPWSA are anticipated.

3. ***Provide an updated nitrogen loading analysis form to document the changes made at the Bourne Rotary M&R Station as described in Item #2 of your previous October XX Supplemental Filing.***

   Response: .

   The updated nitrogen loading calculation form for the Bourne Rotary Meter & Regulator Station is provided as Attachment A. Algonquin modified the proposed layout to reduce the area of impervious surface. The revised nitrogen loading calculation demonstrates that the facility complies with the 1.0 ppm PPWSA criterion.

NITROGEN LOADING CALCULATION

Based on Cape Cod Commission Technical Bulletin 91-001 (April 1992)

SECTION 1 — INPUT DATA

Property Information

Parameter	Description	Value	Units		Source / Notes	
Property Name	Project ID	Bourne Rotary	—		Source: Project data	
Town / Municipality	Cape Cod Commission town	Bourne	—		TB 91-001 Table 1	
Target NO_3-N Conc.	Max allowable concentration	1	ppm		TB 91-001, Section B.1	

Site Areas (Editable Inputs — Blue)

Surface Type	Description	Area (ft²)	Area (acres)		Notes	
Gravel Area	Impervious — site runoff	36,257	0.832		Source: Site plan	
Paved Area	Impervious — road runoff	0	0.000		Source: Site plan	
Pervious Area	Natural — recharge only	34,677	0.796		Source: Site plan	
Roof Area	Impervious — roof runoff	2,434	0.056		Enter if applicable	
Lawn Area	Fertilized turf	0	0.000		Enter if applicable	
TOTAL SITE AREA		**73,368**	**1.684**		**ft²**	

CCC Standard Parameters (per Technical Bulletin 91-001)

Parameter	Value	Units			Source	
Recharge — Impervious surfaces	40	in/yr			TB 91-001, Section B.5	
Recharge — Natural (Bourne)	21	in/yr			TB 91-001, Table 1	
NO_3-N conc. — Road/Gravel runoff	1.5	ppm			TB 91-001, Section B.5	
NO_3-N conc. — Roof runoff	0.75	ppm			TB 91-001, Section B.5	
NO_3-N conc. — Wastewater	35	ppm			TB 91-001, Section B.2	
Fertilizer application rate	3	lbs N/1000 ft²/yr			TB 91-001, Section B.4	
Fertilizer leaching rate	0.25	%			TB 91-001, Section B.4	
Unit conversion — L per ft³	28.32	L/ft³			Standard conversion	
Unit conversion — days per year	365	d/yr			Standard	
Unit conversion — ft per inch	0.083333333	ft/in			Standard	
mg per lb	454000	mg/lb			Standard	

SECTION 2 — MASS BALANCE CALCULATIONS

Surface / Source	Area or Flow	Units	Flow (L/d)	Conc. (mg/L)	Load (mg/d)	Notes
A. Impervious Surfaces						
Gravel Area	36257	ft²	9,377.15	1.50	14,065.73	Road runoff @ 1.5 ppm
Paved Area	0	ft²	0.00	1.50	0.00	Road runoff @ 1.5 ppm
Roof Area	2434	ft²	629.51	0.75	472.13	Roof runoff @ 0.75 ppm
Subtotal — Impervious			**10,006.66**	**—**	**14,537.86**	
B. Natural / Pervious Area (contributes to denominator only — N load = 0)						
Natural Area	34677	ft²	4,708.47	0.00	0.00	N load ignored per TB 91-001 B.5
C. Lawn Areas						
Lawn Area	0	ft²	0.00	N/A	0.00	3 lbs/1000ft²/yr × 25% leaching
D. Wastewater						
Wastewater Flow	0	L/d	0.00	35.00	0.00	Enter Title 5 flow (L/d) in col B

SECTION 3 — SUMMARY & RESULT

Component		Flow (L/d)		Load (mg/d)		
Impervious Surfaces (Gravel + Paved + Roof)		10,006.66		14,537.86		
Natural / Pervious Areas		4,708.47		0.00		
Lawn Areas		0.00		0.00		
Wastewater		0.00		0.00		
TOTAL		**14,715.13**		**14,537.86**		

Calculated NO_3-N Concentration	**0.988 ppm**	**ppm NO_3-N**
Target Concentration	**1.0 ppm**	**ppm NO_3-N (max)**
COMPLIANCE STATUS	**✓ COMPLIES — Below Target**	

Note: Per TB 91-001, natural recharge nitrogen load is negligible and excluded from numerator. Gravel treated as road runoff (1.5 ppm). Lawn N load adds to numerator only (no dilution volume).