ATTACHMENT 10

Wetland Protection Act Resource Areas, Buffer Zones, and Isolated Vegetated Wetland Alterations

Table 1. Summary of WPA Resource Area, Buffer Zone, and IVW Alterations

Resource Area	Feature ID	Regulatory Citation	Facility / Activity	Plan Sheet	Existing Condition	Temporary Surface Alteration	Permanent Surface Alteration	Permanent Easement or Maintenance Area	Flood Storage Alteration	Vegetation Conversion	Construction Method	Avoidance / Minimization Measure	Restoration Method	Performance Standard Finding
COASTAL WETLAND RESOURCE AREAS														
Land Under the Ocean	Cape Cod Canal / Waterbody B2	310 CMR 10.25	G-31 Pipeline HDD beneath Cape Cod Canal	Attachment 1, Figure 5.3-4, Sheets 3 and 4; Attachment 4 HDD Plan and Profile	Tidal canal bottom; estuarine deepwater habitat; approximately 32 feet deep at mean sea level	0 square feet of surface alteration; resource crossed subsurface by HDD; approximately 732 linear feet / 1,650 square feet crossed	0 square feet	0 square feet	No volumetric change	None	HDD approximately 87 feet below canal bed	Trenchless crossing avoids canal bed and bank disturbance; Best Drilling Practices Plan for inadvertent returns	No surface restoration required within LUO; contingency response and cleanup if inadvertent return occurs.	Meets 310 CMR 10.25 because the Project will not alter bottom topography, circulation, sediment grain size, water quality, or marine fisheries habitat under normal HDD construction.
Land Containing Shellfish	Cape Cod Canal / Waterbody B2	310 CMR 10.34	G-31 Pipeline HDD beneath shellfish-suitable area	Attachment 1, Figure 5.3-4, Sheets 3 and 4; Attachment 4 HDD Plan and Profile	Land Under the Ocean mapped as suitable for blue mussel	0 square feet of surface alteration; resource crossed subsurface by HDD; approximately 182 linear feet / 410 square feet crossed	0 square feet	0 square feet	No volumetric change	None	HDD beneath canal bed and banks	No in-water work; no bottom disturbance; Best Drilling Practices Plan for inadvertent returns	No shellfish relocation or substrate restoration proposed because no bottom disturbance is anticipated.	Meets 310 CMR 10.34 because shellfish habitat and productivity will not be altered under normal HDD construction.
Coastal Bank	Cape Cod Canal Coastal Bank	310 CMR 10.30	TWS for G-24/G-11 pipeline work and removal of cathodic protection near Sagamore Bridge	Attachment 1, Figure 5.3-4, Sheet 1	Armored and maintained canal embankment, including riprap, mowed grass, shrubs, service road, and recreational path areas	55,232 square feet of potential construction surface alteration	0 square feet	0 square feet	No volumetric change identified	Temporary disturbance to maintained grass/shrub areas; no permanent conversion proposed	Excavation/removal of buried cathodic protection components and associated temporary workspace	Limit of work, erosion controls along canal side, no in-water work, restoration to preconstruction contours	Restore Coastal Bank to preconstruction contours and revegetate/stabilize disturbed surface areas.	Meets 310 CMR 10.30(6) through (8) because bank stability will be maintained and no adverse effect occurs to rare species habitat.
Coastal Bank crossed by HDD	Cape Cod Canal Coastal Bank at G-31 crossing	310 CMR 10.30	G-31 Pipeline HDD beneath Coastal Bank	Attachment 1, Figure 5.3-4, Sheets 3 and 4; Attachment 4 HDD Plan and Profile	Sloped canal embankments with top of Coastal Bank delineated above service roads	0 square feet of surface alteration	0 square feet	0 square feet	No volumetric change	None	HDD below bank and canal	Trenchless method avoids direct bank disturbance; monitoring and inadvertent-return response plan	No surface restoration required unless contingency disturbance occurs.	Meets 310 CMR 10.30 because no adverse effect on bank stability is anticipated.
Land Subject to Coastal Storm Flowage	FEMA Zone AE along Cape Cod Canal	310 CMR 10.04 definition; no specific performance standards	TWS for G-24/G-11 pipeline work near Sagamore Bridge	Attachment 1, Figure 5.3-4, Sheet 1	Zone AE with BFE 15 feet NAVD88; bike path, maintained grass embankments, and adjacent canal-side areas	21,119 square feet	0 square feet	0 square feet	No cut/fill or volumetric change identified	Temporary disturbance to maintained surface vegetation only	TWS for pipe/cathodic protection removal and related construction	Restore grades; avoid permanent fill; implement erosion and sediment controls	Return workspace to preconstruction contours and stabilize/revegetate disturbed areas.	No specific LSCSF performance standard applies, but the work is not expected to affect storm flowage, flood control, or storm damage prevention given no grade or volume change is proposed.
Land Subject to Coastal Storm Flowage	FEMA Zone AE along G-31 HDD crossing	310 CMR 10.04 definition; no specific performance standards	G-31 HDD workspace / canal crossing area	Attachment 1, Figure 5.3-4, Sheets 3 and 4; Attachment 4 HDD Plan and Profile	Zone AE with BFE 15 feet NAVD88 along both canal shorelines	0 square feet	0 square feet	0 square feet	No cut/fill or volumetric change identified	None identified	HDD with upland entry/exit workspaces and monitoring travel lanes	HDD avoids surface alteration of canal and coastal storm-flowage areas	Restore any upland disturbed workspace to preconstruction contours and stabilize.	No specific LSCSF performance standard applies.

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INLAND WETLAND RESOURCE AREAS														
Bordering Land Subject to Flooding	Nightingale Pond floodplain	310 CMR 10.57(4)(a)	TWS for G-8L/G-8C pipeline removal	Attachment 1, Figure 5.3-4, Sheet 7	FEMA Zone A associated with Nightingale Pond; pitch pine–oak woodland floodplain setting	52 square feet temporary construction disturbance	0 square feet	0 square feet; easement maintenance through BLSF to cease after removal	No permanent flood-storage loss; no permanent fill or topographic change proposed	Limited temporary vegetation disturbance; long-term maintenance of the pipeline ROW will cease	Pipe exposure/removal, backfill, and restoration	Minimize work area; maintain existing contours; use erosion controls and restore grades	Backfill trench, restore preconstruction contours, stabilize, and revegetate.	Meets 310 CMR 10.57(4)(a) because no compensatory storage is required given no flood storage will be lost and flows will not be restricted.
Isolated Land Subject to Flooding	W5	310 CMR 10.57(4)(b) and (c)	ATWS for Cape Cod Canal HDD / G-31 Pipeline	Attachment 1, Figure 5.3-4, Sheet 3	Approximately 76,832 square feet of ILSF located within an inactive gravel/sand quarry; a portion (36,154.8 square feet) of this ILSF has been delineated as an IVW	42,709 square feet temporary construction disturbance	0 square feet	0 square feet	No flood-storage alteration proposed; preconstruction contours to be restored	Temporary disturbance to PEM vegetation; no permanent conversion proposed	Temporary work area, construction matting as needed, HDD support/staging	Use mats, minimize grading, preserve hydrology, maintain erosion controls, avoid permanent fill	Remove mats, restore contours, stabilize soils, allow wetland vegetation to re-establish, monitor as required.	Meets 310 CMR 10.57(4)(b) and (c) because there will be no filling, groundwater impairment, or vernal-pool habitat impairment.
BVW Buffer Zone	W14 Buffer Zone	310 CMR 10.55 resource area; Buffer Zone review under 310 CMR 10.02 and 10.05	TWS for Sagamore M&R Station removal, G-24 pipeline work, and Sagamore M&R Station area	Attachment 1, Figure 5.3-4, Sheet 1	Buffer Zone of PFO BVW W14; includes Canal Street area, riprap slope vicinity, open land, and portions of station/workspace	Approximately 4,095 square feet of forest cover disturbance in Buffer Zone; a total of 34,034 square feet temporary construction disturbance	0 square feet of direct BVW alteration	2,501 square feet proposed new permanent easement in W14 Buffer Zone on previously disturbed land for the portions of the Sagamore M&R Station site for a total of 8,695 square feet.	No flood-storage alteration identified	Temporary forest/tree clearing in Buffer Zone; no direct BVW conversion	Station removal, pipeline relocation/removal, temporary access/workspace	Reduce workspace, maintain erosion controls, avoid direct BVW alteration, site work in previously disturbed/open areas where practicable	Restore TWS, stabilize soils, allow forest/shrub vegetation to revegetate where compatible with easement and safety requirements.	No direct BVW performance-standard trigger because no BVW alteration is proposed; Buffer Zone work will protect adjacent BVW interests through erosion control, stabilization, and restoration.
BVW Buffer Zone	W1 Buffer Zone	310 CMR 10.55 resource area; Buffer Zone review under 310 CMR 10.02 and 10.05	PAR-20	Attachment 1, Figure 5.3-4, Sheet 2, applicable PAR-20 sheet to confirm	Buffer Zone of BVW W1; existing access road / utility corridor setting	1,783 square feet temporary construction disturbance	0 square feet direct BVW alteration	1,782.6 square feet permanently maintained area (PAR-20), consisting of minor road improvements as required, site access.	No flood-storage alteration	Limited maintained-road/access condition; no direct BVW alteration	Access road use or improvement	Use existing access route; limit disturbance; install erosion controls; avoid direct wetland alteration	Stabilize and restore disturbed shoulder/edge areas as needed; maintain road surface for access.	No direct BVW performance-standard trigger because no BVW alteration is proposed; Buffer Zone activities will be conditioned to protect W1.
Inland Bank Buffer Zone	Nightingale Pond / Waterbody B3	310 CMR 10.54; Buffer Zone review under 310 CMR 10.02 and 10.05	TWS for G-8C/G-8L pipeline removal	Attachment 1, Figure 5.3-4, Sheet 7	100-foot Buffer Zone of Inland Bank associated with Nightingale Pond; includes existing maintained ROW and woodland	41,389 square feet Buffer Zone construction disturbance; approximately 5,197 square feet of temporary forest cover impact	0 square feet direct Inland Bank alteration identified	0 square feet permanent surface alteration identified	No flood-storage alteration proposed	Temporary forest cover disturbance; no permanent conversion identified	Existing pipeline removal, trench backfill, and restoration	Use existing ROW where possible; reduce workspace; erosion controls; no work below top of bank	Backfill trench, restore contours, stabilize soils, and allow vegetation to recover.	No direct Inland Bank performance-standard triggered given no work occurs below top of bank; no Inland Bank alteration.
ISOLATED VEGETATED WETLANDS														
Isolated Vegetated Wetland	W2 *	Not a WPA resource area	G-31 Pipeline installation	Attachment 1, Figure 5.3-4, Sheet 2	Approximately 0.11-acre PSS isolated vegetated wetland in existing maintained utility corridor; does not meet ILSF criteria	4,464 square feet temporary construction disturbance	0 square feet wetland loss stated	3,429 square feet permanently maintained easement area	No flood-storage alteration	PSS wetland within permanent easement maintained consistent with pipeline vegetation requirements	Open-trench pipeline installation through existing utility corridor	Workspace controls, topsoil segregation where appropriate, matting as needed, restoration to contours	Restore contours, replace topsoil, stabilize, and allow PSS wetland vegetation to re-establish subject to operational vegetation restrictions.	Not a WPA performance-standard resource area.
Isolated Vegetated Wetland	W12 *	Not a WPA resource area	TWS for G-8C/G-8L pipeline removal	Attachment 1, Figure 5.3-4, Sheet 7	Approximately 0.39-acre PSS/PFO isolated vegetated wetland between Deseret Drive and Route 28 northbound off-ramp	2,395 square feet temporary construction disturbance	0 square feet wetland loss stated	0 square feet	No flood-storage alteration	Temporary disturbance to PSS/PFO vegetation; no permanent conversion proposed	Pipe exposure/removal, temporary matting as needed, backfill and restoration	Reduce workspace, use mats as needed, restore contours, prevent sediment/pollutant release	Backfill trench, restore contours, stabilize soils, allow wetland vegetation to re-establish, monitor as required.	Not a WPA performance-standard resource area.

Notes: BFE = base flood elevation; BLSF = Bordering Land Subject to Flooding; BVW = Bordering Vegetated Wetland; FEMA = Federal Emergency Management Agency; HDD = horizontal directional drill; ILSF = Isolated Land Subject to Flooding; IVW = isolated vegetated wetland; LCS = Land Containing Shellfish; LSCSF = Land Subject to Coastal Storm Flowage; LUO = Land Under the Ocean; PEM = palustrine emergent; PFO = palustrine forested; PSS = palustrine scrub-shrub; TWS = temporary workspace.

* Only W5 meets the WPA criteria for ILSF. W2 and W12 are IVWs that do not meet the ILSF storage and depth criteria and are included for transparency.