



Chatham Municipal Airport

Final Environmental Assessment

July 2021
AIP No. 3-25-0015-026-2020



This Environmental Assessment becomes a Federal document when evaluate, signed and dated by the responsible FAA official.

Responsible FAA Official: _____ Date: _____

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1.0 Introduction

1.1 Airport Overview

The Chatham Municipal Airport (the Airport) located in the Town of Chatham, Barnstable County, MA, is a public use, general aviation airport servicing the communities of Cape Cod, MA. The Airport is located at 240 George Ryder Road and consists of approximately 100 acres.

The Airport is 63.7 feet above Mean Sea Level (MSL). The Airport Reference Point (ARP) is located at latitude N041°41'17.8957, and longitude W069°59'22.7484. The Airport is owned and maintained by the Town of Chatham and is subject to the charters and zoning laws of the Town. The Airport's infrastructure includes the following:

- A paved, 3,001' x 100' runway (Runway 06-24)
- A full-length parallel taxiway (Taxiway 'A') serving Runway 06-24 – Taxiway 'A' is 25' wide, and approximately 2,932' feet long
- A stub taxiway (Taxiway 'B') connecting the Main Apron with Taxiway 'A' and Runway 06-24 between midfield and the Runway 06 end – Taxiway 'B' is 35' wide and approximately 150' long
- A stub taxiway (Taxiway 'C') connecting Taxiway 'A' with Runway 06-24 midway between midfield and the Runway 24 end – Taxiway 'C' is approximately 35' wide and approximately 80' long
- Taxiway D is a paved taxiway located south of Taxiway 'C' and is approximately 25' wide and 275' long
- A paved taxiway (Taxiway 'E') running parallel to Taxiway 'A' approximately 25' wide and 1,040' long serving the hangar complex and Main Apron
- One paved Main Apron and one terminal apron capable of accommodating 42 aircraft
- An administration building
- Hangars serving general aviation aircraft
- A snow removal equipment storage building
- A 10,000- gallon above-ground 100-LL storage tank and fuel truck with capacity of 3,000 gallons

2.0 Proposed Action

The Proposed Action consists of three projects identified in the 2021 Airport Master Plan. These projects include: 1) Acquisition of Avigation Easements over 21 parcels, 2) Removal of Vegetative Obstructions and man-made obstructions (telephone poles in the Town Right-of-Way) on and on-off airport property, and 3) development of hangars. Each action is further described in Sections 2.1-2.3 below.

In addition, the 2021 Airport Master Plan identified other projects for development through the 20-year planning period as demand materializes. These projects are not analyzed in this document because they are actions that are not anticipated to be undertaken or constructed in the near future and are listed as categorically excluded actions (CatEx) in accordance with FAA Order 1050.1F. These projects include:

- Administration Building and Parking Lot Construction on previously developed land: CatEX 1050.1F, 5-6.4(h)
- Jet- A Fuel Facility: CatEx 1050.1F, 5-6.4(u)

2.1 Acquisition of Avigation Easements

Acquisition of Avigation Easements: This project seeks to secure avigation easements necessary to protect and enhance aircraft and public safety and to obtain eligibility for future vegetation clearing efforts. An analysis of obstruction data indicates that in addition to airport property and Town right-of-way, eight (8) properties in the Runway 06 approach surface and 13 properties in the Runway 24 approach surface contain individual trees (see Table 1) penetrating the Airport's approach surfaces as defined in Engineering Brief No. 99, Changes to Tables 3-2 and 3-4 of Advisory Circular 150/5300-13A, *Airport Design*¹.

It should be noted that the Town of Chatham has adopted an *Airport Approach Protection* Bylaw² that regulates and restricts the height of structures and objects of natural growth in the vicinity of the Chatham Airport. If vegetation obstruction removal had occurred in accordance with the *Airport Approach Protection* Bylaw, then the number of required easements would be reduced from eight to six on the Runway 06 end, and from 13 to five on the Runway 24 end (which remains an option for the Town). Through this project, the Airport will address the following:

- Secure documents, permissions, and rights necessary to obtain eligibility for future vegetation clearing efforts and address a known safety issue at the airport by preventing future development of obstructions that are deemed incompatible with the airport.
- Comply with *Airport Approach Protection* Bylaw by promoting the health, safety, and general welfare of the public by preventing the creation, establishment, and maintenance of airport hazards, thereby protecting the lives and property of users of the Chatham Airport and of the occupants of land in its vicinity and preventing destruction or impairment of the airport and the public investment therein.
- Maintain compliance with FAA Grant Assurances, specifically #19 *Operation and Maintenance* and #20 *Hazard Removal and Mitigation*³.
- Enable FAA Flight Procedures to develop a GPS approach as the Airport's non-directional beacon (NDB) is expected to be phased out of the National Airspace System by 2030.
- Reduce the noise footprint over the community with an enhanced GPS approach procedure as some aircraft will not need to follow a circling approach to land, thus flying over fewer homes than they do today.

The 21 off-airport parcels and Airport property have been identified as being sparsely to moderately forested with isolated areas of vegetative obstructions affecting the approach surfaces. A description of each parcel along with its vegetative characteristics is provided in Table 1.

¹ https://www.faa.gov/airports/engineering/engineering_briefs/media/EB-99A-Changes-to-Airport-Design-Tables-3-2-and-3-4.pdf

² <https://www.ecode360.com/10425989>

³ https://www.faa.gov/airports/aip/grant_assurances/media/airport-sponsor-assurances-aip-2020.pdf

Table 1

Engineering Brief #99 Table 3-2 Runway Type 4					
Runway 06 End Parcels		Parcel Description	Vegetation Characteristics	Size of Parcel	Approximate Area Containing Vegetation
Parcel 8E-51-26	52 George Ryder Road	Single Family residential	Deciduous Upland Forest	0.44 acres	20,261 square feet
Parcel 8E-52-27A	1674 Main Street	Commercial	Deciduous Upland Forest	3.35 acres	21,010 square feet
Parcel 8E-53-27	1652 Main Street	Small Retail	Deciduous Upland Forest	2.86 acres	55,756 square feet
Parcel 8E-37-15	1716 Main Street	Multi-Use Commercial	Developed Land	1.85 acres	Isolated trees
Parcel 8E-39-16	1698 Main Street	Service Station	Developed Land	0.80 acres	Isolated trees
Parcel 8E-41-15C	47 George Ryder Road	Multi-Use Commercial	Developed Land	0.35 acres	Isolated trees
Parcel 8E-40-15B	39 George Ryder Road	General Office Building	Developed Land	0.23 acres	Isolated trees
Parcel 8E-44A-20	51 George Ryder Road	Single Family residential	Deciduous Upland Forest	0.67 acres	2,856 square feet
Parcel 62-9F-0-2		Airport property	Deciduous Upland Forest, Pitch Pine, Mixed Pine and Oak, Scrub Shrub Upland, Vernal Pool		84,735 square feet
Runway 24 End Parcels		Parcel Description	Vegetation Characteristics	Size of Parcel	Approximate Area Containing Vegetation
Parcel 10G-18-K1	438 George Ryder Road	Residential	Deciduous Upland Forest	4.48 acres	101,605 square feet
Parcel 10G-9-G3	81 Agnes Lane	Residential	Mixed Pine and Oak	0.37 acres	Isolated trees
Parcel 10G-8-G4	75 Agnes Lane	Residential	Mixed Pine and Oak	0.43 acres	Isolated trees
Parcel 10G-7-G5	63 Agnes Lane	Residential	Mixed Pine and Oak	0.39 acres	Isolated trees
Parcel 10G-3-G22	76 Agnes Lane	Residential	Mixed Pine and Oak	0.29 acres	Isolated trees
Parcel 10G-5-G17	58 Agnes	Residential	Mixed Pine and Oak	0.28 acres	Isolated trees
Parcel 11G-45A-G15	26 Agnes	Residential	Mixed Pine and Oak	0.29 acres	Isolated trees
Parcel 11G-47-G14	395 Old Queen Ann	Residential	Mixed Pine and Oak	0.29 acres	Isolated trees
Parcel 11G-48-G18	403 Old Queen Ann	Vacant Residential	Mixed Pine and Oak	0.32 acres	Isolated trees
Parcel 10G-12-K1A	George Ryder Road	Cranberry Bog	Cranberry Bog	0.53 acres	Isolated trees
Parcel 10G-6-G6	57 Agnes	Residential	Mixed Pine and Oak	0.41 acres	Isolated trees
Parcel 10G-11-G1	455 Old Queen	Residential	Mixed Pine and Oak	0.81 acres	Isolated trees
Parcel 10G-10-G2	87 Agnes	Residential	Mixed Pine and Oak	0.45 acres	Isolated trees
Parcel 9F-0-2		Airport property	Deciduous Upland Forest, Pitch Pine, Mixed Pine and Oak, Scrub Shrub Upland		50424 square feet

2.2 Removal of Vegetative Obstructions

Removal of Vegetative Obstructions: This project removes isolated vegetation in accordance with the Massachusetts Wetland Protection Act 310 CMR 10.53(n)⁴ from 21 off-airport parcels, Town right-of-way, and Airport property from the Airport's airspace and protected surfaces. The 21 off-airport parcels in the Project Area are located at the Runway 06 end and Runway 24 end; and include Airport property (see Figure 1). Estimates of the area containing vegetative obstructions to be removed from each parcel is based on an obstruction analysis conducted as part of the 2019 Airport Master Plan project and subsequently confirmed as part of this project. Aerial mapping and the obstruction analysis show that a majority of the parcels contain isolated vegetative obstructions only, meaning select trees are proposed to be eliminated and parcels will not be clear-cut. Based on the density of vegetation on each parcel, an estimate of the area (in acres based on the canopy of trees) requiring tree clearing was calculated. Selective tree clearing is estimated to occur within an area approximately 4.2 acres in size off-airport property in the Runway 06 end, and within an area approximately 3.4 acres in size off-airport property in the Runway 24 end. Selective tree clearing on-Airport property will occur within an area approximately 5.8 acres in size within the approach and transitional surfaces. A breakdown of the estimated area requiring obstruction removal is identified in Table 1.

2.3 Development of Hangars

Construction of T-Hangar Buildings: This project includes the construction of two (2) T-hangar buildings (approximately 22 units) with vehicle parking to the north of the existing H-3 T-hangar row, including access taxilanes, and a small vehicle parking area adjacent to the SRE building (see Figure 2).

3.0 Purpose and Need

The purpose of the Proposed Action is to comply with FAA airport safety design standards and to provide for the aeronautical needs of the Airport and Airport users by 1) removing trees and other objects that obstruct the Airport's protected surfaces as defined in FAA Engineering Brief No. 99, Changes to Tables 3-2 and 3-4 of Advisory Circular 150/5300-13A; and 2) constructing T-hangars (approximately 22 units) and associated infrastructure needed to access the hangars in an effort to meet hangar demands at the Airport.

4.0 Project Alternatives

4.1 Acquisition of Avigation Easements and Vegetative Obstruction Removal

4.1.1 Alternative 1- No Action Alternative

Assumptions

- The Airport does not secure documents, permissions, and/or rights necessary to obtain eligibility for future vegetation clearing efforts
- The Airport does not conduct tree clearing activities within the Airport's protected surfaces

Airport Impacts

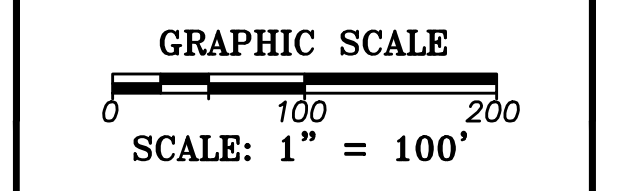
- The Airport and Town fail to comply with FAA design and safety standards

⁴ <https://www.mass.gov/regulations/310-CMR-1000-wetlands-protection-act-regulations#current-regulations>

PREPARED FOR:

PROJECT: ENVIRONMENTAL ASSESSMENT AND VEGETATION MANAGEMENT PLAN AIP NO. 3-25-0015-26-2020
 OWNER: CHATHAM MUNICIPAL AIRPORT TOWN OF CHATHAM, MASSACHUSETTS

NO.	DATE	DESCRIPTION	BY
PROJECT NO.	777095		
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DATE	MARCH, 2021		

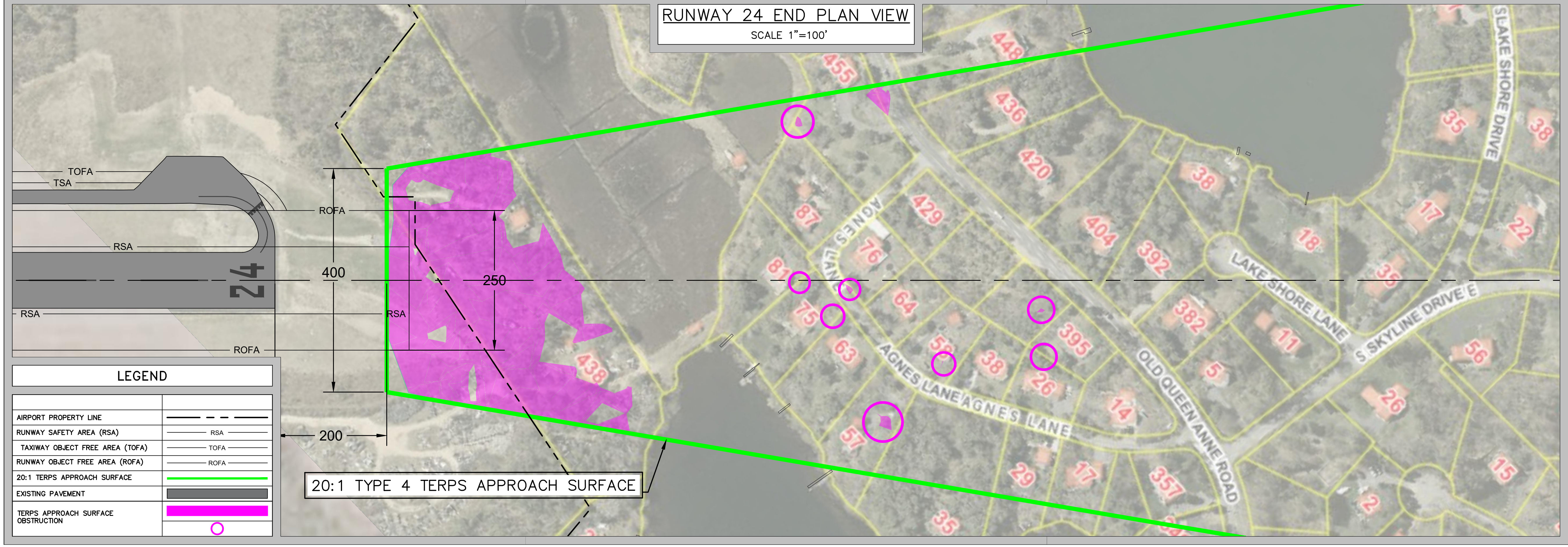
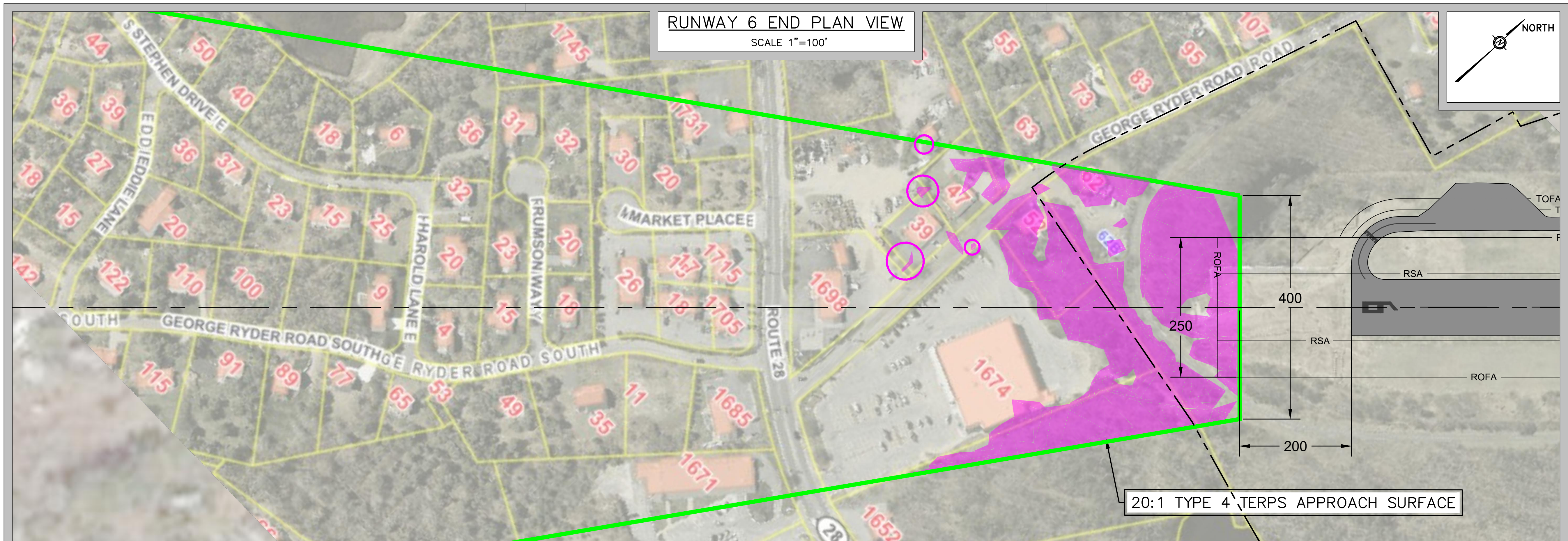


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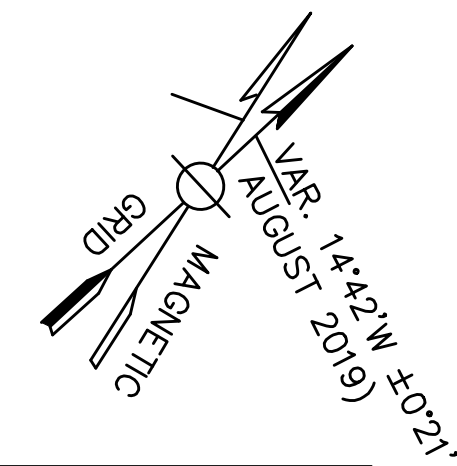
RUNWAY 06-24
 OBSTRUCTION PLAN

DRAWING NO.

FIG. 1

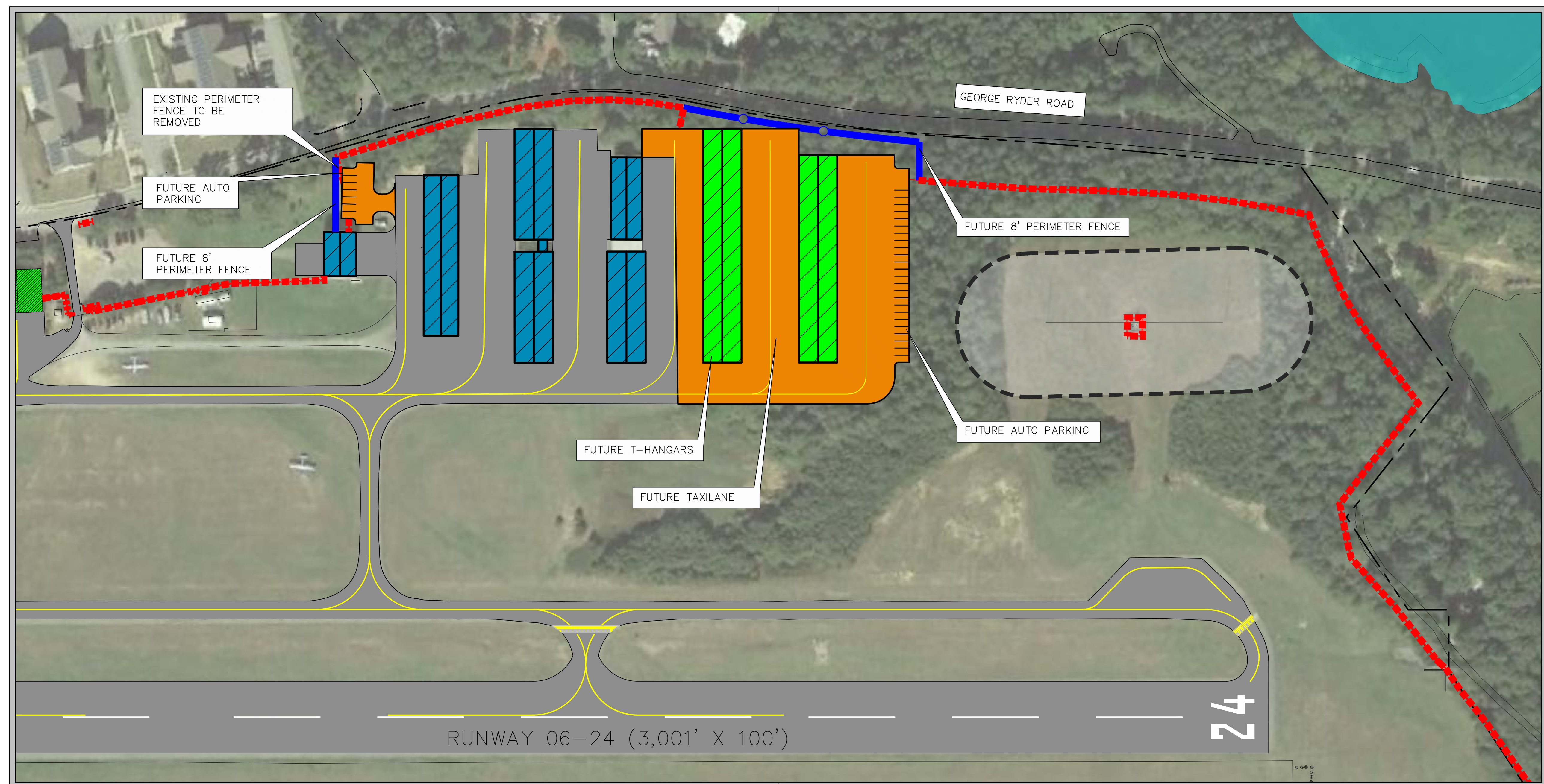


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 Gale Associates, Inc.
 Engineers - Planners
 6 Bedford Farms Drive
 Bedford, NH 03110
 P 603.471.1887
 F 603.471.1809
 www.gainc.com

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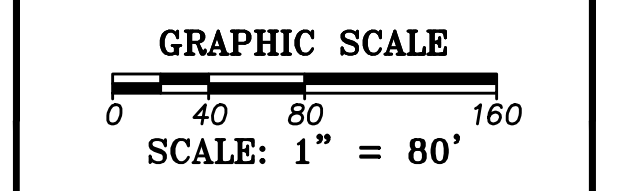


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PROPOSED HANGAR LOCATION

DRAWING NO.

FIG.2

HANGAR – ALTERNATIVE

SCALE: 1" = 80'

LEGEND		
ITEM	(E) EXISTING	(F) FUTURE
AIRPORT PROPERTY LINE	---	---
BUILDINGS/HANGARS		
PAVEMENT		
8' CHAINLINK FENCE		

NOTES:

- 1) THE NDB SHALL BE DECOMMISSIONED FOR ALTERNATIVE 2

3/29/2021 2:20:10 PM U:\777095 COX EA and WMP\CADD\777095-COX-FIG 2.dwg (APL)

- The Airport and Town violate their federal obligations (specifically Grant Assurance #19 *Operation and Maintenance* and #20 *Hazard Removal and Mitigation*) and jeopardize the Airport's eligibility to receive future federal funding assistance
- Vegetative obstructions continue to negatively affect the Airport's protected surfaces, resulting in a continuing threat to the safety of airport users and neighboring properties
- The Runway 06-24 thresholds may require displacement, shortening the landing length available for airport uses
- Shorter landing distances may discourage the use of the Airport by many aircraft types currently operating at COX, which will have a negative effect of the Airport's ability to serve its users, thereby reducing revenue and the Airport's role in the National Plan of Integrated Airport Systems⁵
- Airport continues to be dependent on its non-direction beacon (NDB) as its sole navigational aid
- The FAA's 2018 *Navigation Programs Strategy* calls for NDBs to be gradually phased out of the National Airspace System, and by 2030 all NDB approaches are expected to be removed from the NAS
- In June 2020, MassDOT/AD ceased to provide funding assistance for the maintenance of the NDB

Environmental Impacts

- Since no obstruction removal is conducted, there are no environmental impacts resulting from implementation of this alternative

Summary of Alternative 1

- Trees continue obstruct the Airport's protected surfaces
- Fails to address a known safety condition and violates federal obligations
- This alternative does not meet the stated purpose and need
- Displaced threshold of approximately 390 feet on Runway 06 due to a 19.5-foot controlling penetration located approximately 507 feet off the runway end. This scenario reduces the available landing distance to approximately 2,611 feet on the Runway 06 end
- Displaced threshold of approximately 286 feet on Runway 24 due to a 14.3-foot controlling penetration located approximately 332 feet off the runway end. This scenario reduces the available landing distance to approximately 2,715 feet on the Runway 24 end
- This alternative does not comply with the requirements of FAA Engineering Brief No. 99

4.1.2 Alternative 2- Displace the existing threshold, or light penetrating obstructions, and seek to acquire Avigation Easements for obstruction lighting (see Figure 3)

Assumptions

- The Runway 06-24 thresholds are displaced
- The Airport secures documents, permission, and/or rights necessary to light obstructions
- Obstruction lights are installed in accordance with FAA requirements

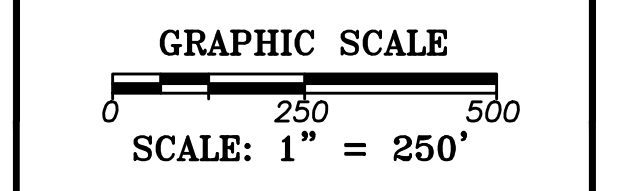
⁵ https://www.faa.gov/airports/planning_capacity/npias/

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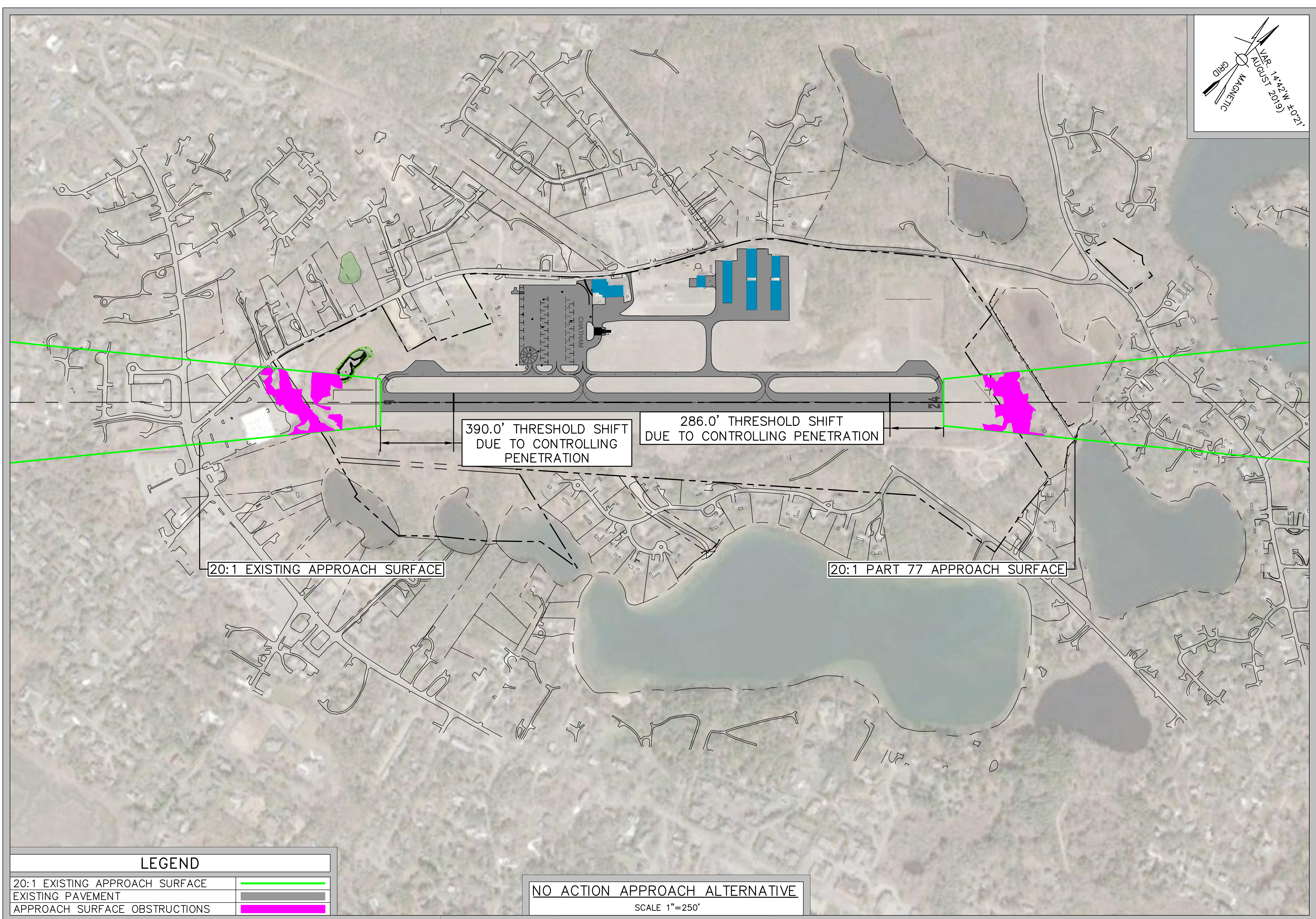
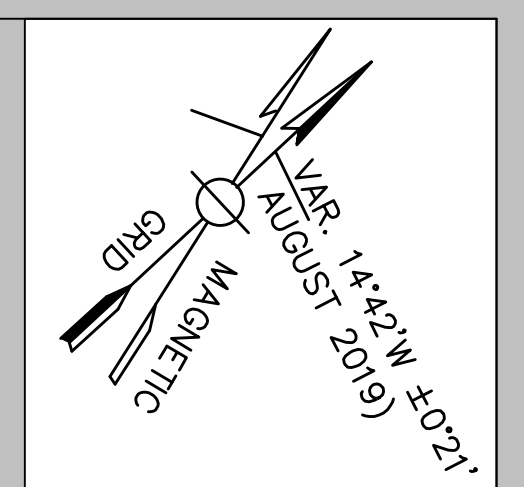


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ALTERNATIVE 2
 DISPLACE EXISTING
 THRESHOLD

DRAWING NO.

FIG. 3



LEGEND	
20:1 EXISTING APPROACH SURFACE	
EXISTING PAVEMENT	
APPROACH SURFACE OBSTRUCTIONS	

NO ACTION APPROACH ALTERNATIVE
 SCALE 1"=250'

Airport Impacts

- Reduction in takeoff length and landing length available to pilots which further shortens a 3,001' runway
- Potential diminishment of the viability of the Airport's role in the National Plan of Integrated Airport Systems
- Lighting trees in a forested area would prove to be cumbersome and costly due to the number of trees, and lack of proper infrastructure to support lighting efforts
- The Airport would need to continuously monitor the vegetation and adjust the lighting as vegetation grows, which is impractical
- As trees grow and obstruct the approach surfaces the Airport may be forced to further displace their thresholds
- Airport continues to be dependent on its non-direction beacon (NDB) as its sole navigational aid
- The FAA's 2018 *Navigation Programs Strategy* calls for NDBs to be gradually phased out of the National Airspace System, and by 2030 all NDB approaches are expected to be removed from the NAS
- In June 2020, MassDOT/AD ceased to provide funding assistance for the maintenance of the NDB

Environmental Impacts

- There are no environmental impacts associated with the acquisition of aviation easements
- Permanent and temporary impacts associated with the construction and/or placement of lighting infrastructure
- Significant visual impacts to neighboring residential and commercial properties

Summary of Alternative 2

- Lighting trees is an impractical endeavor given the forest-like conditions surrounding the Airport
- Visual impacts from lighting trees would pose as a nuisance to neighboring residential and commercial properties
- This option only provides a temporary solution to a long-term problem
- Lighting trees may not be an effective method supported by the FAA Flight Procedures Office
- This alternative does not meet the stated need and purpose
- This alternative does not comply with the requirements of FAA Engineering Brief No. 99

4.1.3 Alternative 3- Remove trees from the Airport's protected surfaces, on and off-Airport property where property rights exist, and seek to acquire approximately 4 Aviation Easements for future obstruction removal where penetrations have been identified in the approach surface according to Runway Type 2 of FAA Engineering Brief No. 99⁶ (see Figure 4)

Assumptions

- The Airport seeks aviation easements over 4 parcels in the Runway 06-24 ends containing trees that obstruct the Airport's protected surfaces

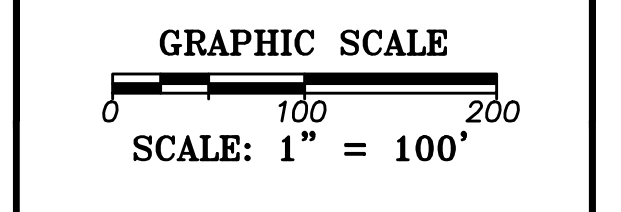
⁶ Engineering Brief No. 99, Changes to Tables 3-2 and 3-4 of Advisory Circular 150/5300-13A, *Airport Design*

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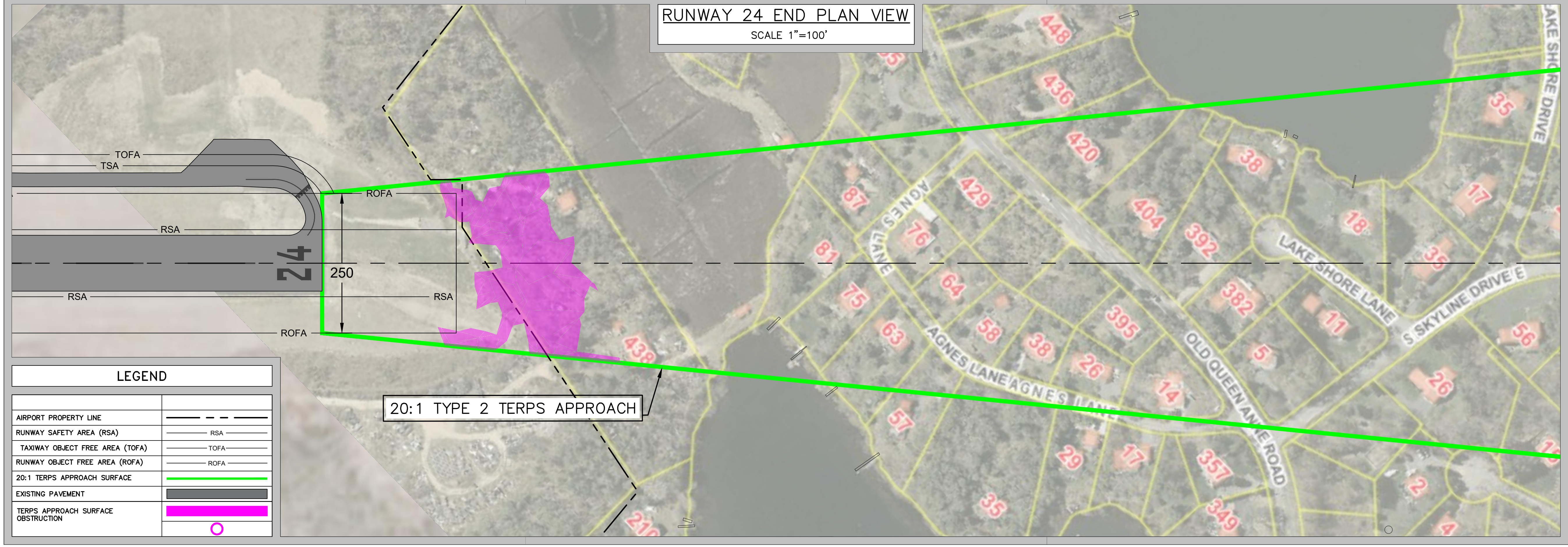
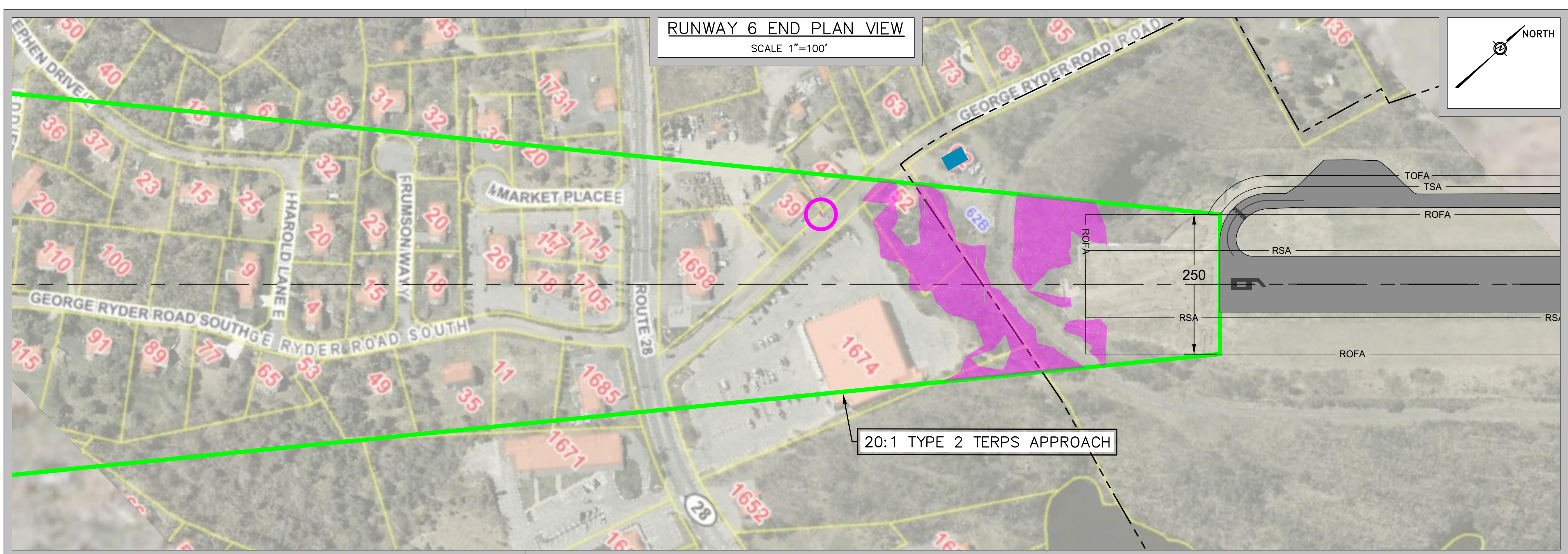
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CHECKED BY	MPC		
DATE	MARCH, 2021		



SHEET TITLE
 ALTERNATIVE 3
 TREE REMOVAL
 FROM RUNWAY
 6-24 TYPE 2

DRAWING NO.

FIG. 4



LEGEND

AIRPORT PROPERTY LINE	---
RUNWAY SAFETY AREA (RSA)	— RSA —
TAXIWAY OBJECT FREE AREA (TOFA)	— TOFA —
RUNWAY OBJECT FREE AREA (ROFA)	— ROFA —
20:1 TERPS APPROACH SURFACE	—
EXISTING PAVEMENT	█
TERPS APPROACH SURFACE OBSTRUCTION	○

- The Airport secures documents, permissions, and/or rights necessary to obtain eligibility for future obstruction clearing efforts to maintain its existing approach surfaces in accordance with FAA Engineering Brief No. 99
- Obstruction removal occurs on-Airport property, Town right-of-way, and on parcels where the Airport currently possesses easements

Airport Impacts

- The Airport eliminates trees that have a negative and unsafe effect on the Airport's existing visual approach surfaces
- Enhances safety for pilots, passengers, neighboring properties, and aircraft due to the removal of trees
- Airport maintains compliance with FAA Grant Assurances
- Airport continues to be dependent on its non-direction beacon (NDB) as its sole navigational aid
- The FAA's 2018 *Navigation Programs Strategy* calls for NDBs to be gradually phased out of the National Airspace System, and by 2030 all NDB approaches are expected to be removed from the NAS
- In June 2020, MassDOT/AD ceased to provide funding assistance for the maintenance of the NDB

Environmental Impacts

- There are no environmental impacts associated with the acquisition of aviation easements
- Temporary wetland impacts as a result of selective tree removal
- Selective tree removal is proposed to occur within wetland resource areas and their buffers as noted below:
 - Runway 06
 - Wetland: 1,996 square feet
 - Vernal Pool: 218 square feet
 - 350' Vernal Pool buffer (per Cape Cod Commission): 35,015 square feet

Summary of Alternative 3

- Vegetative obstructions are removed, eliminating the negative and unsafe effect they present to the Airport's approach surfaces
- Enhanced safety of pilots, passengers, and neighboring residential and commercial properties
- While maintaining the Airport's existing approach surface complies with FAA requirements, it fails to address the aeronautical needs of the Airport and users
- Does not address the decommissioning of the Airport's non-directional beacon
- This alternative does not comply with the requirements of FAA Engineering Brief No. 99

4.1.4 Alternative 4- Remove trees from the Airport's protected surfaces, on and off-Airport property where property rights exist, and seek to acquire approximately 21 Aviation Easements for future obstruction removal where penetrations have been identified in the approach surfaces according to Runway Type 4 of FAA Engineering Brief No. 99 (Figure 5)

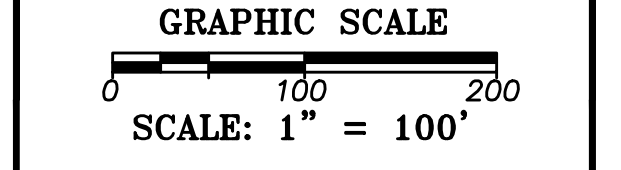
Assumptions

- The Airport seeks aviation easements over 21 parcels in the Runway 06-24 ends containing trees that obstruct the Airport's protected surfaces

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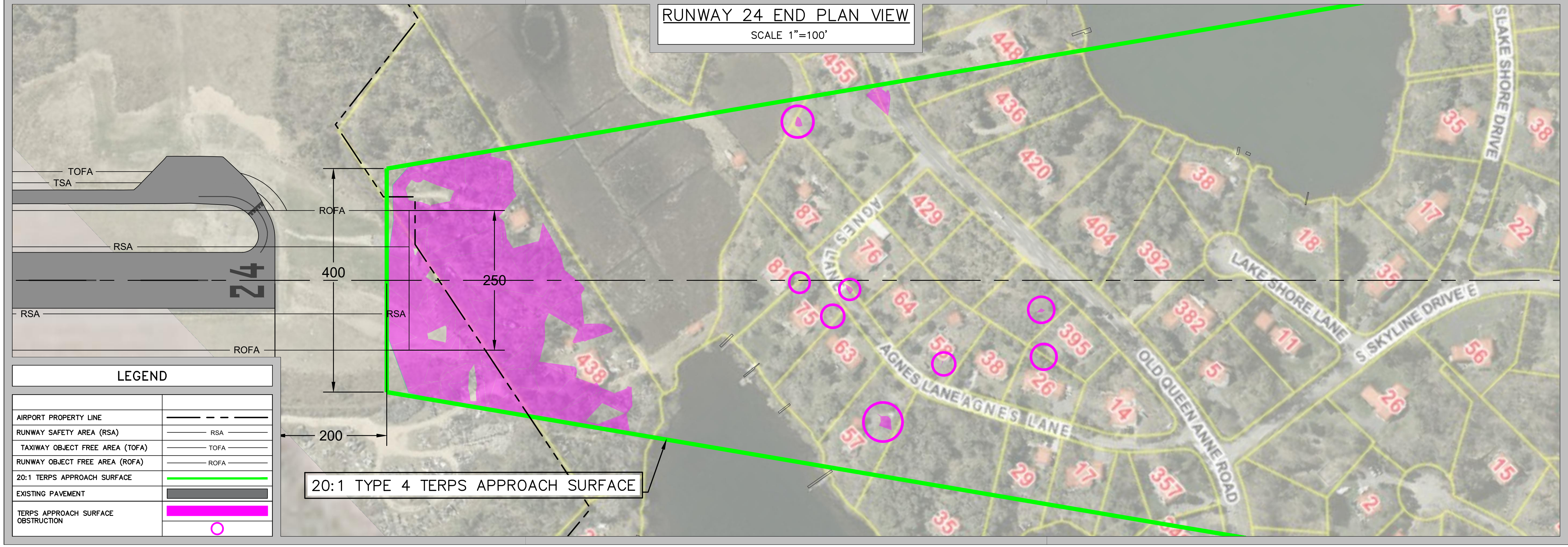
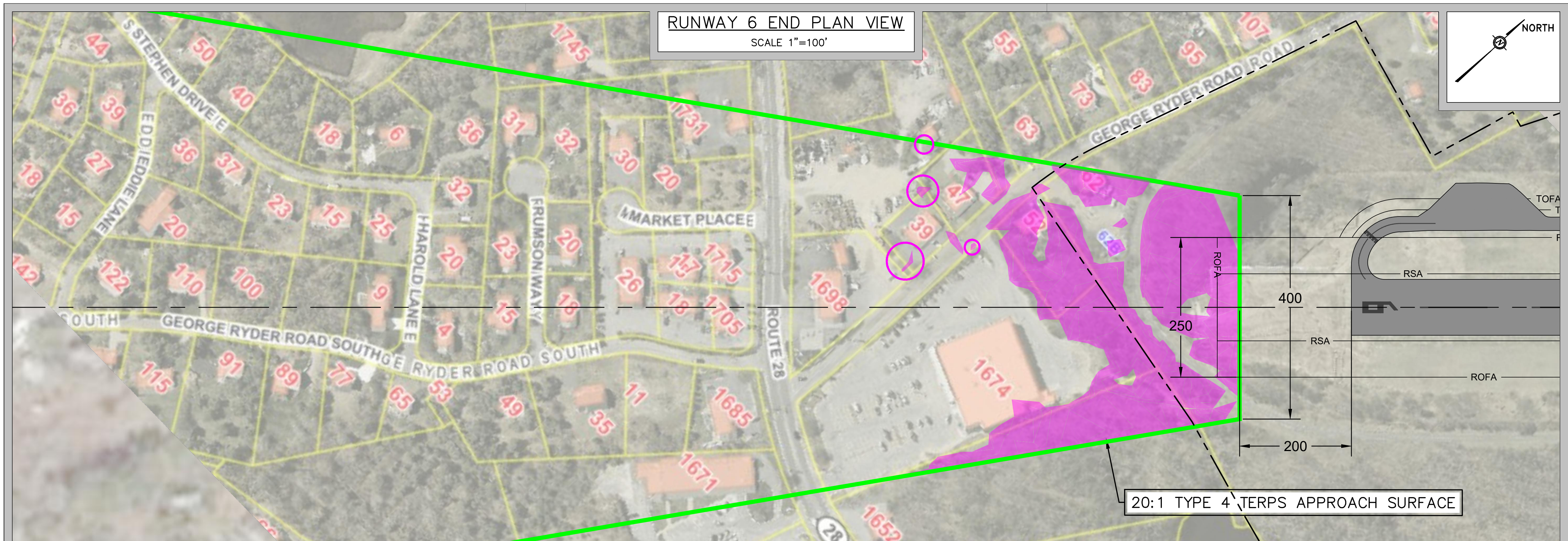


SHEET TITLE

ALTERNATIVE 4
 TREE REMOVAL
 FROM RUNWAY
 6-24 TYPE 4

DRAWING NO.

FIG. 5



3/29/2021 10:37:54 AM U:\777095 COV EA and VMP\CADD\777095-COV-FIG 5.dwg (APL)

LEGEND

AIRPORT PROPERTY LINE	---
RUNWAY SAFETY AREA (RSA)	---
TAXIWAY OBJECT FREE AREA (TOFA)	---
RUNWAY OBJECT FREE AREA (ROFA)	---
20:1 TERPS APPROACH SURFACE	---
EXISTING PAVEMENT	---
TERPS APPROACH SURFACE OBSTRUCTION	○

- The Airport secures documents, permissions, and/or rights necessary to obtain eligibility for future obstruction clearing efforts
- Obstruction removal occurs on-Airport property, Town right-of-way, and on parcels where the Airport currently possesses easements

Airport Impacts

- The Airport eliminates trees that have a negative and unsafe effect on the Airport's protected surfaces
- Enhanced safety for pilots, passengers, neighboring properties, and aircraft due to the removal of trees
- Airport maintains compliance with FAA Grant Assurances
- FAA Flight Procedures can design a non-precision approach with vertical guidance (GPS approach) under this alternative which addresses the future decommissioning of the NDB
- Enhances airspace safety by providing a more accurate, direct, and unobstructed approach to Runway 06-24
- Improves safety at the Airport due to a stabilized approach⁷ (i.e., the pilot establishes and maintains a constant angle glidepath towards a predetermined point on the landing runway)
- Reduces missed approaches and diversions when weather conditions result in low ceilings

Environmental Impacts

- There are no environmental impacts associated with the acquisition of aviation easements
- Temporary wetland impacts as a result of selective tree removal
- Selective tree removal is proposed to occur within wetland resource areas and their buffers as noted below:
 - Runway 06
 - Wetland: 4,650 square feet
 - Vernal Pool: 8,272 square feet
 - 350' Vernal Pool buffer (per Cape Cod Commission): 95,432 square feet

Summary of Alternative 4

- Vegetative obstructions are removed, eliminating the negative and unsafe effect they present to the Airport's approach surfaces
- Enhanced safety of pilots, passengers, and neighboring residential and commercial properties
- The Airport avoids the need to displace its threshold and therefore, positions the Airport to retain its existing client base, thereby preserving community revenue generated from landside sources (e.g., fuel, rental cars, hangars, etc.) and tourism (e.g., restaurants, hotels, property rentals, etc.)
- This alternative meets the stated need and purpose

⁷https://www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/waas/benefits/

4.2 Development of Hangars

4.2.1 Alternative 1- No Action

Assumptions

- Additional hangars are not constructed at the Airport

Airport Impacts

- The Airport continues to lack the adequate infrastructure to meet existing demand for hangar units
- The Airport misses out on the opportunity for additional sources of revenue and the ability to contribute to becoming self-sufficient

Environmental Impacts

- No construction is proposed as part of Alternative 1, and therefore, no environmental resources will be impacted by this alternative

Summary of Alternative 1

- The Airport continues to lack the infrastructure necessary to meet hangar demand and misses out on the opportunity for additional revenue and ability to meet the aeronautical needs of the Airport
- This alternative does not meet the stated purpose and need

4.2.2 Alternative 2- Development of Hangars (see Figure 6)

Assumptions

- The Airport constructs hangars as demand is realized. It is proposed that two (2) T-hangar buildings (approximately 22 units) with vehicular parking to the north of the existing H-3 T-hangar row, including access taxilanes, and a small vehicle parking area adjacent to the SRE building are constructed
- It is anticipated that the new T-hangars will be funded by private developers and that the Airport will incur no costs associated with their construction

Airport Impacts

- The project area for this proposed alternative is currently vacant and will allow the Airport to address hangar capacity in the short-term and/or as demand warrants
- Enhances safety at the Airport by providing delineated parking spaces inside the fence to differentiate between automobile parking areas and aircraft movement areas
- Provides the Airport with additional sources of revenue

Environmental Impacts

- No anticipated wetland impacts
- Approximately 118,500 square feet of additional impervious surface
- Requires geotechnical investigation of project area to confirm suitable soils as there is a significant elevation change in a portion of this area

VAR. 14°42'W ±021'
 AUGUST 2019
 MAGNETIC
 GRID

GALE
 Gale Associates, Inc.
 Engineers - Planners
 6 Bedford Farms Drive
 Bedford, NH 03110
 P 603.471.1887
 F 603.471.1809
 www.gainc.com

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PREPARED FOR:

PROJECT
 ENVIRONMENTAL ASSESSMENT AND VEGETATION MANAGEMENT PLAN
 AIP NO. 3-25-0015-26-2020

OWNER
 CHATHAM MUNICIPAL AIRPORT
 TOWN OF CHATHAM, MASSACHUSETTS

NO.	DATE	DESCRIPTION	BY
PROJECT NO.		777095	
DESIGNED BY		DCQ	
DRAWN BY		DCQ	
CHECKED BY		MPC	
DATE		MARCH, 2021	

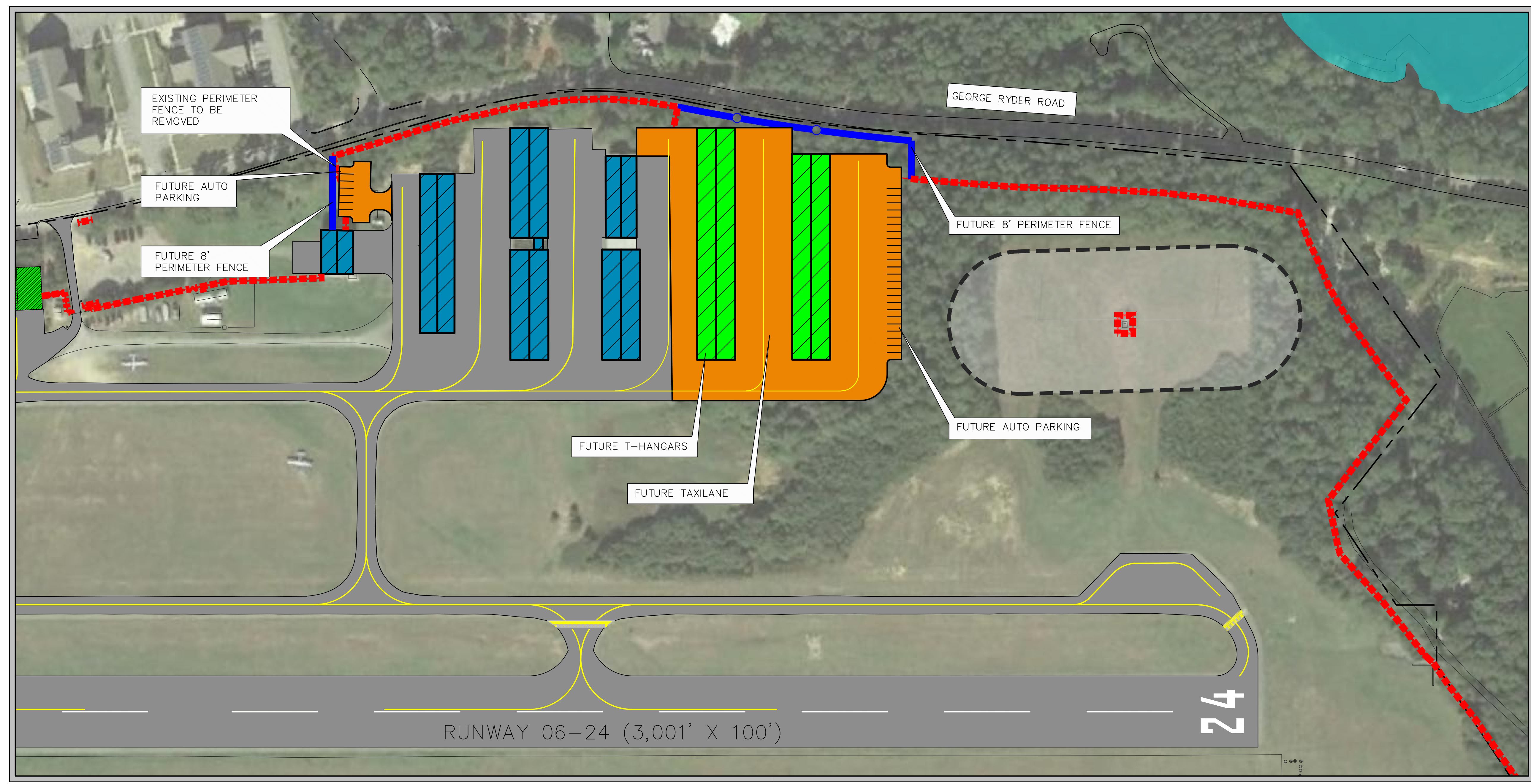
GRAPHIC SCALE
 0 40 80 160
 SCALE: 1" = 80'

SHEET TITLE

ALTERNATIVE 2
 DEVELOPMENT OF
 HANGARS

DRAWING NO.

FIG.6



HANGAR – ALTERNATIVE
 SCALE: 1" = 80'

LEGEND		
ITEM	(E) EXISTING	(F) FUTURE
AIRPORT PROPERTY LINE	---	---
BUILDINGS/HANGARS	[Blue Hatched Box]	[Green Hatched Box]
PAVEMENT	[Grey Box]	[Orange Box]
8' CHAINLINK FENCE	[Red Dashed Line]	[Blue Dashed Line]

NOTES:

- 1) THE NDB SHALL BE DECOMMISSIONED FOR ALTERNATIVE 2

3/29/2021 11:12:19 AM U:\777095 COX EA and IMP\CADD\777095-COX-FIG 6.dwg (APL)

Summary of Alternative 2

- The Airport constructs 22 additional hangar units, meeting demand and increasing opportunities for revenue generation
- This alternative meets the stated purpose and need

5.0 Selection of Preferred Alternatives

The alternatives analysis presented in Section 4 of this document resulted in the selection of the following:

5.1 Acquisition of Avigation Easements and Vegetative Obstruction Removal

The preferred avigation easement acquisition and vegetative obstruction removal alternative (Alternative 4) includes removing trees from the Airport's protected surfaces, on and off Airport property where property rights exist, and seeking to acquire approximately 21 avigation easements for future obstruction removal where obstructions have been identified in the approach surfaces.

5.2 Development of Hangars

The preferred hangar development alternative (Alternative 2) includes the construction of two (2) T-hangar buildings (approximately 22 units) with vehicular parking to the north of the existing H-3 T-hangar row, including access taxilanes, and a small vehicle parking area adjacent to the SRE building.

6.0 Affected Environment/Environmental Consequences

FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, effective July 16, 2015, provides requirements for compliance with the National Environmental Policy Act (NEPA). Order 1050.1F requires that Airport sponsors evaluate all proposed actions against the following Impact Categories:

- Air Quality
- Biological resources (including fish, wildlife, and plants)
- Climate
- Coastal resources
- Department of Transportation Act, Section 4(f)
- Farmlands
- Hazardous materials, solid waste, and pollution prevention
- Historical, architectural, archaeological, and cultural resources
- Land use
- Natural resources and energy supply
- Noise and compatible land use
- Socioeconomics, environmental justice and children's environmental health and safety risks
- Visual effects (including light emissions)
- Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)

An assessment was performed for each potential environmental impact category identified per Order 1050.1F *Environmental Impacts: Policies and Procedures*, July 16, 2015. Of the 14 FAA categories, 7 are not discussed in this EA because they are either not present in the Area of the Proposed Action(s), or if present would not be affected by the activities associated with the alternatives evaluated. Table 2 lists the categories excluded in the discussion with this EA and the rationale for exclusion.

Table 2: *Environmental Impact Categories Excluded from the EA*

Impact Category	Rationale for exclusion
Wild and Scenic Rivers	Under the Wild and Scenic Rivers Act, “certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.” ⁸ There are no wild and scenic rivers within the project area.
Coastal Resources	The Proposed Actions will not impact a coastal barrier resource system, pose an impact to coral reef ecosystems, or cause adverse impacts to the coastal environment that cannot be satisfactorily mitigated.
Farmlands	Pockets of “farmland of unique importance and statewide importance” are present in the vicinity of the Airport, however, they are populated with residential housing and the Proposed Action(s) do not have the potential to convert important farmlands to non-agricultural uses.
Hazardous Materials, Solid Waste, and Pollution Prevention	The Proposed Action is not anticipated to generate, disturb, transport, or treat, store or dispose of, hazardous material, pollution, or solid waste.
Land Use	The Airport is located within the Town of Chatham’s Municipal Zone, while Airport property is surrounded primarily by Residential land areas with a few parcels categorized as General Business. In 1997, the Town of Chatham adopted the Airport Approach Protection Bylaw for the purposes of promoting safety and welfare of the public by restricting the height of structures and other objects in the vicinity of the Airport’s approach zones.
Natural Resources and Energy Supply	The Proposed Actions will not result in major changes to stationary facilities, or movement of aircraft and/or ground vehicles that would have a measurable effect on local supplies of energy or natural resources.
Noise and Noise-Compatible Land Uses	The Chatham Municipal Airport is classified as a B-I (small airplane) Airport, according to its most recent Master Plan Update. FAA Order 1050.1F, Appendix B states that, “No noise analysis is needed for projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speed less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations).” Further, equipment associated with the Proposed Action will temporarily include construction vehicles, concrete mixer, and semi-contractor trailers, which are expected to produce noise levels typical of a construction site. Construction equipment will be used during daylight hours.

⁸ Wild & Scenic Rivers Act, October 2, 1968

6.1 Air Quality

Barnstable County meets the national primary or secondary ambient air quality standards for National Ambient Air Quality Standards. The Proposed Actions (Easement Acquisitions and Vegetation Obstruction Removal) meet the Federal Presumed To Confirm Actions Under General Conformity⁹, and they are not anticipated to change the operational environment of the airport in such a way as to increase air emissions above *de minimis* thresholds. The development of hangars (approximately 22 units) is intended to meet the demand of based aircraft owners, including those that have expressed concerns over the high salty air conditions damaging aircraft stored outdoors. Temporary, minor construction activity is required for the development of hangars and the site work associated with parking and building site preparation. The combined level of construction activity for these project components is anticipated to be on a smaller scale than other construction activities identified in the Federal Presumed To Confirm Actions Under General Conformity, and therefore project construction emissions are anticipated to fall well below the *de minimis* threshold and presumed to conform.

6.2 Biological Resources (including fish, wildlife, and plants)

Activities involving or affecting terrestrial and aquatic plant and animal species, game and non-game species, special status species (state or federally listed threatened or endangered), species of concern, or environmentally sensitive or critical habitat need to be reviewed for impacts. The proposed action may include a limited amount of vegetation management in designated National Heritage Endangered Species Program (NHESP) Priority Habitat (see Figure 7). The work within these areas is expected to be limited to selective tree clearing while maintaining the understory within Priority Habitat buffers and protecting water quality to the greatest extent practicable. This activity is not anticipated to have a significant impact to plant or animal species, nor result in a “take” of habitat as defined by NHESP. The proposed action does not include work within rivers or lakes, and as such, direct or indirect impacts to aquatic species is not anticipated.

In 1992, MassDOT Aeronautics began a long-term vegetation management program to assist public-use airports in the Commonwealth in their efforts to enhance public safety and to comply fully with Federal and State laws, rules, regulations, advisories, and orders with regard to maintaining Protection Zones (PZs) free from obstructions. The initial action in MassDOT Aeronautics vegetation management program was to work with the MA Department of Environmental Protection (MA DEP) and Massachusetts Port Authority (MassPort) to streamline the permit process for vegetation management in wetland resource areas. A Generic Environmental Impact Report (GEIR) for Vegetation Removal in Wetlands at Public Use Airports (EOEA #8979) was completed in 1993. The GEIR evaluated the probable environmental impacts of vegetation clearing projects in wetland resources for the purpose of maintaining PZ free from vegetation obstructions at public-use airports throughout the Commonwealth.

Since the completion of the GEIR, MassDOT Aeronautics and FAA have assisted in funding over 15 VMPs throughout the state at General Aviation (GA) airports, based on available funds and urgency of obstruction removal. Following the initiation of the VMPs at each of the airports, monitoring has been performed, typically focusing upon the vegetative regrowth, especially within wetlands, the evaluation of wildlife habitat, and overall health of the wetland. Additional observations have been made relative to overall site conditions including general conditions of erosion, stream scour, and sedimentation, especially in the immediate years following the initial site work, when the greatest vegetive change occurs. Some general conclusions are based on multiple years of wetland monitoring at each of the airports (37 aggregate years of monitoring for all airports):

⁹ <https://www.govinfo.gov/content/pkg/FR-2007-07-30/pdf/07-3695.pdf>

Figure 7- NHESP Priority Habitat

ENVIRONMENTAL ASSESSMENT
 CHATHAM MUNICIPAL AIRPORT (CQX)
 CHATHAM, MA



- NHESP Data**
- NHESP Priority Habitat of Rare Species
 - NHESP Estimated Habitat of Rare Wildlife
 - Certified Vernal Pool
 - Potential Vernal Pool
 - Area of Critical Environmental Concern (ACEC)
- Wetlands**
- Marsh/Bog
 - Wooded Marsh
 - Cranberry Bog
 - Salt Marsh
 - Open Water
 - Reservoir w/PWSID
 - Tidal Flats
 - Beach/Dune
- Regulated Areas**
- Zone II Well Area
 - IWPA
- Outstanding Resource Waters (ORW)**
- ORW for ACEC
 - PWS Contributor
 - ORW for PWS and Other

Reference: MassGIS OLIVER Data Viewer



- Wetland jurisdictional boundaries have not been observed to change as a consequence of the VMP activities.
- Incidental observation of water features at airports (e.g., streams or vernal pools) have not shown any noticeable change in local hydrology, such as diminished or increased flooding boundaries in pools or increased stream scour. While there is a theoretical increase in runoff potential following tree removal due to the loss of rainfall interception by the tree canopy, this appears to be offset by the dense regrowth of the shrub layer once light is able to reach the former forest floor.
- Increased stream scour and excessive erosion have not been noted following any of the VMP cutting at any of the airports.
- There have been no long-term impacts on erosion or sedimentation within wetlands due to the tree cutting activity. Short term erosion during initial cutting has been controlled and restored during operations.
- No diminishment of rare species or their habitat has been observed as part of the VMP activities and some improvements to rare species habitat have been noted.

6.3 Department of Transportation Act, Section 4(f)

49 United States Code (USC), Subtitle I, Section 303 provides that the U.S. Secretary of Transportation shall not approve any program or projects requiring the use of publicly owned land or a public park, recreation area, or wildlife and waterfowl refuge of national, State or local significance, or land of a historic site of national, State, or local significance unless there is no prudent and feasible alternative to using that land, and the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

In 1999, following a meeting with the Chatham Airport Commission, the Town of Chatham requested approval of the Airport Commission for the proposed bike trail across airport property to the south, following the perimeter fencing to Wilfred Road. As part of the request and approval, the Town of Chatham agreed to relocate the bike trail at any time in the future from any location which interferes with the provisions of the required safety zones at the Airport. As part of this Environmental Assessment, the Airport filed a Notice of Proposed Construction or Alteration (FAA Form 7460-1) through the FAA's Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) to evaluate the existing location of the bike path in relationship to the proposed primary surface. The FAA issued an evaluation determination on March 5, 2021 with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground. The FAA does not object to the proposal (see Appendix A).

6.4 Historical, Architectural, Archaeological, and Cultural Resources

Archaeological and Historical Services, Inc. conducted intensive (locational) subsurface survey testing between December 7, 2020 and December 23, 2020. The survey was conducted under Massachusetts Historical Commission (MHC) Permit No. 4051. The Tribal Historic Preservation Offices (THPOs) of the Wampanoag Tribe of Gay Head (Aquinnah), and the Mashpee Wampanoag Tribe were informed in advance of the archaeological survey. There were four areas where the locational survey was conducted. No significant finds are associated with three of the four areas, and no further testing is recommended by AHS. One of the areas is considered potentially archaeologically sensitive and a site examination survey is recommended for this site. However, the potentially sensitive area is not associated with the Proposed Action(s) associated with this Environmental Assessment.

In addition, the Massachusetts Historical Commission (MACRIS) database was reviewed to identify information on historic properties that may be affected by the proposed action(s). A review of the data base indicates that one property, the Emery Cranberry Bog located at the end of Runway 24 is listed on the MACRIS database. However, this parcel is not recommended for listing in the National Register of Historic Places according to the MACRIS database.

6.5 Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks

The scope of the Proposed Action(s) is small, and except for isolated portions of selective vegetation management, the work will occur entirely on airport property. The nature of the Proposed Action(s) is not anticipated to result in: disproportionately high and adverse effects (human health, economic, or environmental) on minority or low-income populations; disproportionate health and safety risks to children; extensive relocation of residents or community businesses contributing to severe economic hardship for affected communities; or disruption of local traffic patterns thereby reducing levels of service of roads serving the community.

Vegetation management work will cause minor temporary construction-period impacts on private properties. However, this work will not disrupt or divide the physical arrangement of the established community. Most of the off-airport work will include selective, isolated tree removal procedures. The work will be highly localized and will occur over a short duration (1 – 3 days is typical for the average size private property). The work will not require any temporary or permanent relocation of people, businesses, or services.

Proposed Action(s) undertaken on airport property may cause minor temporary increases in traffic associated with construction vehicle trip generation and utility tie-in. These impacts will be minimal, and local traffic patterns will not be disrupted as a result of the project. The type of projects proposed under these actions will not appreciably induce substantial economic growth either directly or indirectly or change the community tax base.

6.6 Visual Effects (including light emissions)

Visual effects include light emissions, visual resources, and visual character. Light emissions include light that emanates from a light source into the surrounding environment. Existing light emissions at the Airport come from the following sources: building area lights; apron area lighting; runway, taxiway edge lighting systems; Runway End Identifier Lights (REILS); airport rotating beacon, and off-Airport obstruction lights.

Visual character refers to the overall visual makeup of the existing environment. The visual character of the neighborhood surrounding the airport includes buildings of typical local architectural style interspersed among the rich coastal natural resources of the Cape.

The Proposed Action has the potential for both construction period and permanent visual effect impacts. All aspects of construction are expected to occur during daylight hours, so construction-period light emissions (including glare) are presumed to not be an issue. Temporary impacts to visual resources and visual character for activities during construction are unavoidable. Visual construction impacts can be mitigated for projects that occur on airport property by using appropriate site screening methods.

Vegetation management and tree clearing associated with this action will reduce tree cover on select properties in the vicinity of the airport. However, as identified in Table 1, tree removal off airport is expected to be minimal and is not anticipated to result in extensive removal of screening from existing light emissions on or off airport property. Obstruction removal from the Airport’s approach surface is a requirement per the FAA Grant Assurances for safe aircraft operation. Though these impacts are unavoidable, it is expected that any additional light emissions will be

minimal. Light emissions from new hangar development are expected to have a *de minimis* impact by employing proper lighting design and use of mitigation measures such as dark-sky compliant fixtures and proper light shielding in accordance with Cape Cod Commission requirements.

6.7 Water Resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)

6.7.1 Wetlands

The preferred alternative for aviation easements/vegetation obstruction removal will require the removal of select vegetation from wetlands, a vernal pool located on-airport property and within the buffers to these resource areas. However, the proposed work is to remove select trees and not alter wetlands hydrology or soil elevations. Therefore, no wetland resources will be lost as part of this work and the only alteration will be the conversion to more of a sapling and shrub dominated wetlands. While a breakdown of the area requiring obstruction removal is provided below, it is important to note that the obstruction removal will be selective and include only those penetrations and near penetrations (typically within 10' of protected surfaces) and not result in widespread clear-cutting. Vegetation removal will be performed in a manner that minimizes impacts to resource areas.

- Runway 06
 - Wetland: 4,650 square feet
 - Vernal Pool: 8,272 square feet
 - 350' Vernal Pool buffer (per Cape Cod Commission): 95,432 square feet

Further, based upon the years of vegetation monitoring of VMPs at multiple Airports in Massachusetts, there has been no observation of changes in the local hydrology as might have been evidenced by increased stream scour, erosion, and sedimentation, or diminished or increased flood boundaries associated with streams or pools, including vernal pools.

6.7.2 Floodplains

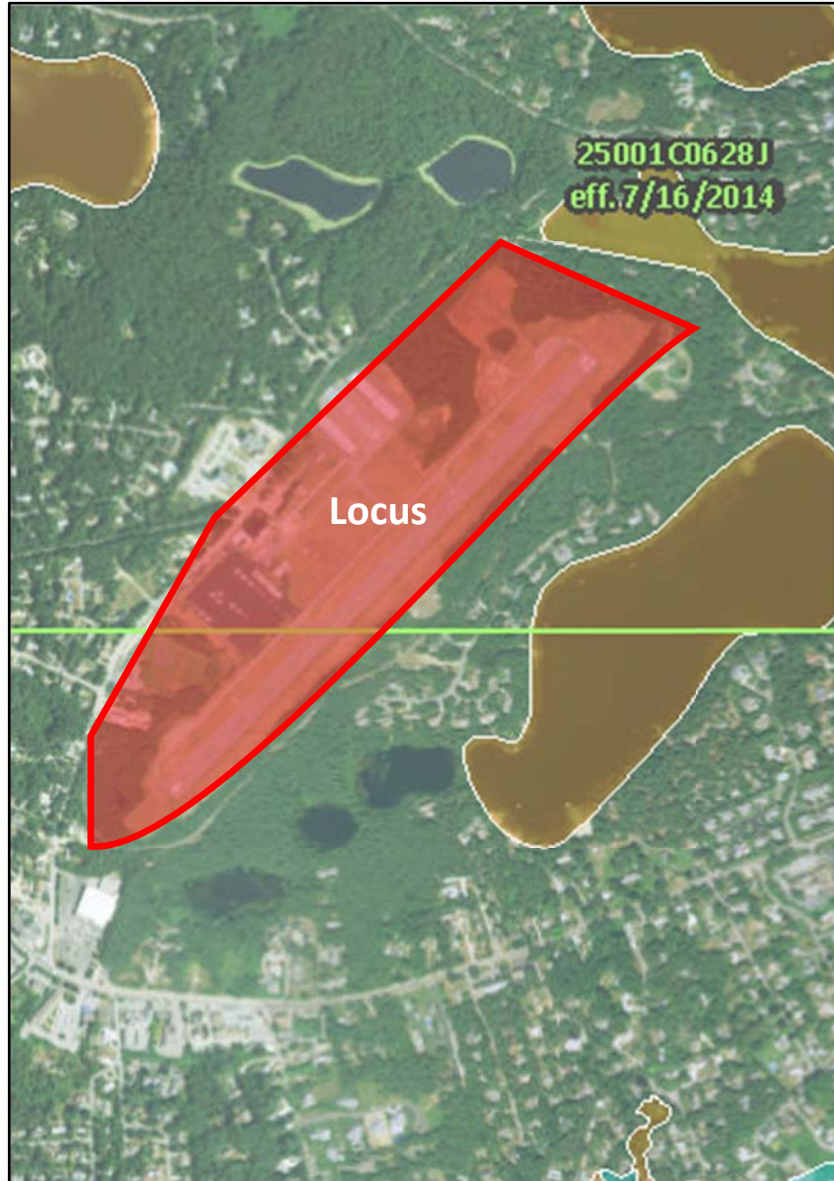
According to the Federal Emergency Management Agency (FEMA), two areas on or around Airport property are classified as Zone X, meaning that the areas have a 0.2 percent chance of annual flooding. These areas are associated with White Pond, to the east of Airport property, and Emery Pond, to the northeast of Airport property (See Figure 8).

6.7.3 Surface Waters

The Preferred Alternative(s) will not impound, divert, drain, control, or otherwise modify the waters of any stream or other body of water.




Figure 8- FEMA Floodplain Plan

ENVIRONMENTAL ASSESSMENT CHATHAM MUNICIPAL AIRPORT (CQX) CHATHAM, MA



Reference: FEMA National Flood Hazard Layer (NFHL) Viewer

Legend

-  1% Annual Chance Flood (100-year)
-  0.2% Annual Chance Flood (500-year)
-  Regulatory Floodway

6.7.4 Groundwater

As of August 2008, a total of 16 Sole Source Aquifers have been designated by EPA Region 1, New England Office, including the Cape Cod Sole Source Aquifer, which serves approximately 147,725 permanent residents and 424,445 peak seasonal residents.

As part of the Chatham Airport Groundwater Management Plan (GMP - Appendix B) dated November 1989; five monitoring wells were installed to characterize the site hydrogeology and groundwater quality conditions. In addition to the five monitoring wells, water levels were also measured at existing wells and ponds. The groundwater elevation measurements were used to develop a groundwater contour map (see figure in the GMP - Appendix B). The groundwater generally flows toward the airport from the east and west and then southwest towards the intersection of George Ryder Road and Main Street.

Proposed federal financially assisted projects which have the potential to contaminate designated aquifers are subject to EPA review. Examples of federally funded projects which have been reviewed by EPA in New England include:

- Highway improvements and new road construction
- Airport improvements
- Transportation stations and maintenance facilities
- New construction of rail lines
- Large wastewater treatment facilities
- Projects funded through Community Development Block Grants
- Large residential developments funded through the Rural Utilities Service
- Water system improvements

6.7.4.1 Discharge History

The Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs (EEA) offers a searchable online data portal¹⁰ identifying waste sites and reported releases of hazardous materials within the state. A total of 99 records exist for releases within the boundaries of the Town of Chatham. Of these 99 records, one record of a release (#4-0001147) occurred on April 15, 1992 on the Airport and it has a DEP/NFA (No Further Action) compliance status. This status means that response actions were taken at the time of the incident and MDEP feels that "no further action" was required for the site. A second release (#4-0013528), located near the south end of the Airport but off of Airport property, occurred on November 29, 1997 and it has an RAO compliance status. This status, short for "Response Action Outcome," means that the response actions carried out were sufficient to achieve a level of no significant risk, or at least ensure that all substantial hazards were eliminated.

Further investigation via the Massachusetts EEA Data Portal revealed additional information about the November 29, 1997, release (#4-0013528). According to the December 1998 Response Action Outcome (RAO) Statement prepared by the licensed site professional assigned to the incident, a small plane crashed on privately-owned property located at 1652 Main Street in Chatham, Massachusetts, which is located south of the Runway 06 end, off of Airport property. The crash occurred in the rear portion of the property next to

¹⁰ <https://eeaonline.eea.state.ma.us/Portal/#!/search/wastesite>

Bearses Pond. According to the RAO Statement, approximately 30 gallons of aviation gasoline leaked from the wing tanks, contaminating soil and groundwater below the plane. Additionally, a separate small area approximately 20 feet from the main body of the plane was also contaminated by lubricating oil where the engine landed.

Response actions were supervised by a licensed site professional (LSP) to remove oil-contaminated soil from the site of the aircraft engine and aviation gasoline contaminated soil from the plane area. Based on these remedial response actions, a permanent solution was achieved, and the site is classified as “closed”.

No other reportable releases have occurred on Airport property since 1997.

In 1999 Bennett & O’Reilly, Inc prepared an Underground Injection Control (UIC) Closure Assessment Report at the Airport in accordance with the provisions of the MassDEP “Closure Requirements for Shallow Injection Wells” Closure Guidance, 1995, consistency with the MA Contingency Plan (MCP), 310 CMR 40.000. The report included the following:

“On January 23, 1992, the Chatham Municipal Airport was determined by the MA Department of Environmental Protection to be a Location To Be Investigated (LBTI), as a possible disposal site within the provisions of the MGL Chapter 21E and the Massachusetts Contingency Plan, 310 CMR 40.00, as associated with the discovery of moderate levels of tetrachloroethylene (PCE) within the Chatham Indian Hill wellfield. An on-site visit was conducted on December 10, 1991, by the Department, upon which one floor drain, which discharged into a MDC trap and leaching basin, and three, subsurface, 55 gallon perforated barrels used as leaching pits were observed in the main building. Subsequent to this LTBI determination, and on-site visit, the MADEP Division of Water Supply issued a Notice of Noncompliance on March 2, 1992, to the Town of Chatham Municipal Airport.

A Phase I Limited Site Investigation was conducted in October 1992 by the firm of DeFeo, Wait & Pare, Inc. (DWP), per the Department’s request. The purpose of the Phase I investigation was to identify any release of oil and/or hazardous materials that may have occurred on or adjacent to the property, and/or to determine if there was a potential for such a release to occur under the jurisdiction of the MA Oil and Hazardous Material Release Prevention Act, Chapter 21E of the MA General Laws. This investigation included the research of environmental records and collection of soil and groundwater samples for laboratory analysis.

According to the Phase I Limited Site Investigation report issued by DWP, low level contamination was identified in two indoor leaching pits (UI-2 and UI-2) and the MCD trap. It was the recommendation of DWP that these drainage areas be sealed, in accordance with the UIC Closure Program (UIC) Regulations (310 CMR 72.00). **It was further determined that the source of PCE contamination within the Indian Hill wellfield was not related to activities within the Chatham Municipal Airport, as no significant concentrations of PCE were discovered, and the Chatham Airport is located hydrologically downgradient to the wellfield.** On February 1, 1994, the Department (Gregg Hunt) officially issued a determination that “no further action” was required at the site.

On February 4, 1999, Bennett & O’Reilly, Inc., was contacted by the Town of Chatham Water Quality Laboratory (Robert Duncanson) to provide environmental assessment and appropriate remedial response measures, if required, for the abandonment of the floor drain and three (3) leaching pits. Assessment

activities were conducted on April 7, 1999, by Bennett & O'Reilly, Incl, personnel (Craig Sasse), as assisted by Bob Duncanson of Chatham Water Quality Laboratory. Five hand borings were conducted within the floor drain areas. As representing leach pit sidewalls and bottom of hole areas, soil samples were collected, preserved and forwarded to Groundwater Analytical of Buzzards Bay, MA for Total Petroleum Hydrocarbon (TPH ASTM D3328-90), Volative Organic Compounds (EPA 8260B) and trace metal (ICP-AES and CVAA) analysis.

Laboratory analysis was received by Bennett & O'Reilly, Inc., on April 23, 1999. These results were compared to the Method 1- Risk Characterization standards for the strictest GW-1 and S-1/GW-1 categories and to the Reportable Concentration standards of the RCS-1 standards. Although low levels of PCE were reported within the HB-1:0-5' and HB-2:0-5 intervals and low levels of trace metals, primarily arsenic and chromium, were noted in each sampling location, all reported concentrations were well below the most stringent Method 1- Risk Characterization Standards and RCS-1 Standards. As such, soil conditions and the Chatham Municipal Airport represent a condition of "No Significant Risk", and no remedial repose actions were conducted as part of the of the UIC closure procedures."

A copy of the entire report is located in Appendix C .

6.7.4.2 Measures to Protect the Sole Source Aquifer

6.7.4.2.1 Vegetation Management

The Airport and vegetation management areas are located within the Cape Cod Sole Source Aquifer, as noted above, and within the MADEP Approved Zone II Wellhead Protection Area. The Zone II area includes three wells- Indian Hill (0.2 miles east), Well 8 (0.35 miles north), Training Field (0.4 miles north) see Figure 9. The wells and associated Zone II areas are located outside of vegetation maintenance areas. The proposed vegetation management is not anticipated to affect the groundwater within the work areas for many of the reasons noted in Section 6.2. In addition, as noted in the Airport's Draft Vegetation Management Plan (see Appendix D), select methods of vegetation removal, including the timing of removal and limited use of machinery, are designed to provide a high level of protection of the soils and a correspondingly low potential for sedimentation into wetland resources. The proposed mitigation of these potential erosion impacts shall include a combination of construction methodology, construction specifications, erosion control barriers, construction timing, monitoring, and some revegetation. The construction specifications, which will be included in the work contract, will direct the contractor to repair soils disturbed by machinery by restoring each area to grade, and then converting the area with seed and/or mulch. On slopes, an erosion control barrier will be included in the mitigation as directed by the on-site inspector. Other specifications will include staging areas, log removal methods, slash maintenance and a detail of areas to be avoided with machinery. There will be a general soil erosion specification authorizing the on-site inspector to direct the contractor to repair damaged areas on a case-by-case basis.

The placement of erosion control barriers will be determined by the on-site inspector on an as-needed-basis. A detail of the correct installation of haybale and silt fence barriers, as well as depicted locations of erosion and sedimentation controls along defined haul roads and staging areas, will be included in the contract plans and documents.

Construction timing is perhaps the most important tool in controlling the disturbance of soils during the implementation of the VMP. The removal vegetation when the soils relatively dry, or otherwise stable will significantly reduce the potential for widespread soil disturbance. The bid documents and/or the Order of Conditions will emphasize that suitable soil conditions are required for vegetation removal in wetland areas.

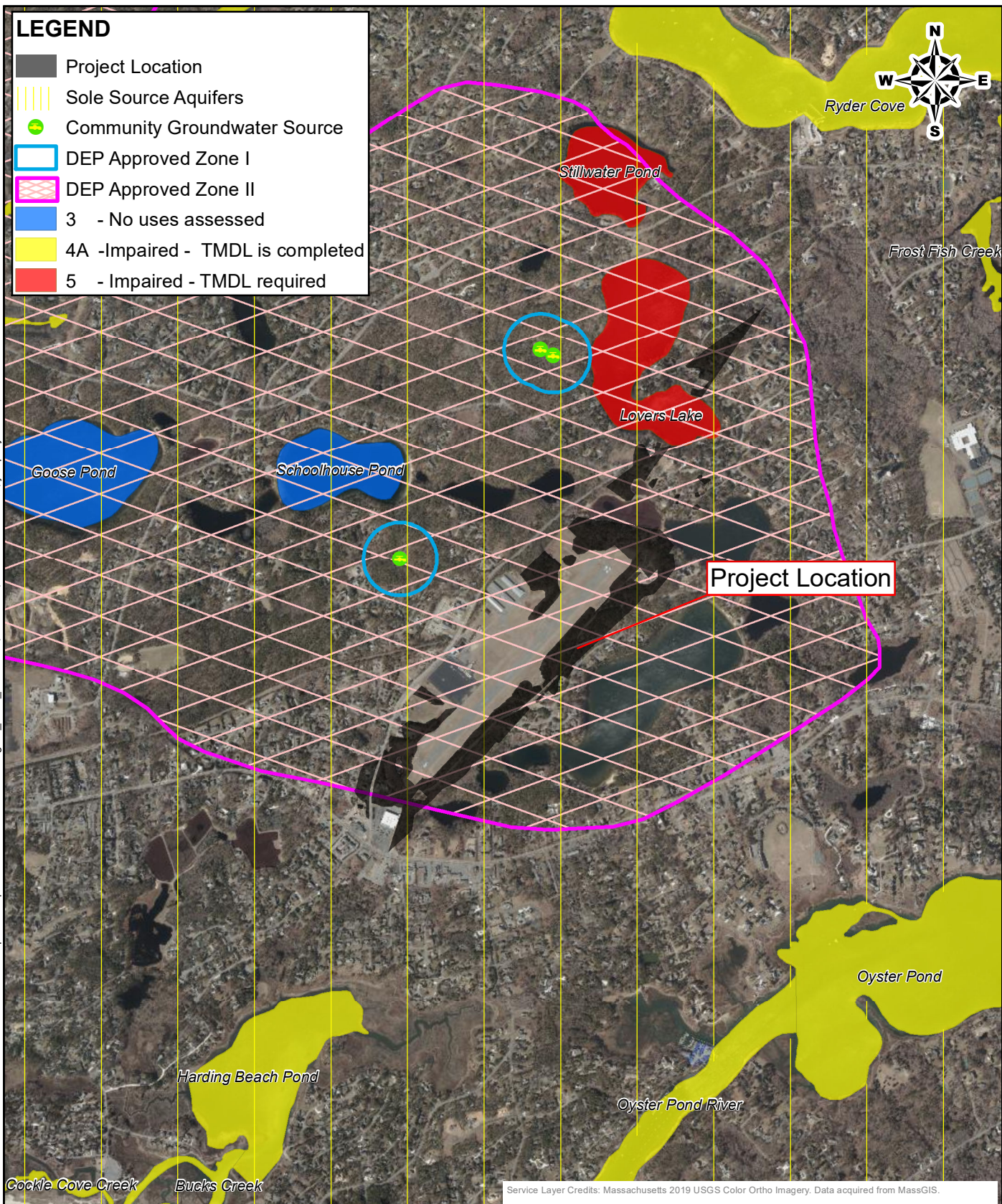
The monitoring of the project by an engineer/environmental scientist who is responsible for the correct implementation of the plan and the Order of Conditions is an important feature of the project. The individual (or team) will be authorized to request the contractor to repair soils, install erosion control measures, use specific access routes, avoid sensitive areas, and comply with the construction specifications and applicable permits.

6.7.4.2.2 T-Hangar Construction

The proposed T-hangar construction will include two (2) buildings to accommodate approximately 22 units for use by individual aircraft owners. Each hangar unit is anticipated to be approximately 7,400 square feet in size. The primary purpose of the T-hangars is for the protection of aircraft from weather and in particular, the high salt content in the air at Chatham Airport. In support of the hangars, development will include taxiways needed to provide access to the existing taxiway/taxilane system, and vehicle parking. The proposed area of disturbance, including construction staging is expected to occur within 2.6 acres of airport property. The

LEGEND

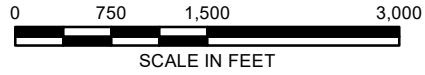
- Project Location
- Sole Source Aquifers
- Community Groundwater Source
- DEP Approved Zone I
- DEP Approved Zone II
- 3 - No uses assessed
- 4A -Impaired - TMDL is completed
- 5 - Impaired - TMDL required



© 2021 - GZA GeoEnvironmental, Inc. J:\0_166600 - 0_166699\15.0166692.03 Chatham Airport Comprehensive VMP\GIS\mxd\Fig5-6_VMP_PWS.mxd, March 03, 2021 - 4:43:55 PM, jacquelyn.claver

Service Layer Credits: Massachusetts 2019 USGS Color Ortho Imagery. Data acquired from MassGIS.

UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR THE USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.



**CHATHAM AIRPORT VMP
CHATHAM, MA**

PREPARED BY:
GZA GeoEnvironmental, Inc.
 Engineers and Scientists
www.gza.com

PREPARED FOR:
GALE ASSOCIATES INC
 163 LIBBEY PARKWAY
 WEYMOUTH, MA 02189

PUBLIC WATER SUPPLIES

PROJ MGR:	SDR	REVIEWED BY:	GPD	CHECKED BY:	SLL
DESIGNED BY:	JRC	DRAWN BY:	JRC	SCALE:	1 in = 1,500 ft.
DATE:	03/03/2021	PROJECT NO:	15.0166692.03	REVISION NO:	

**FIG
9**

construction of hangars and associated pavement would occur in phases as demand for hangars materializes, and a relatively small quantity of materials would be on site at any time. Potential construction impacts from the proposed hangar development would be reduced through the implementation of an erosion and sediment control plan, including stormwater runoff controls and Best Management Practices (BMPs).

It is important to note that the Airport maintains a current Stormwater Pollution Prevention Plan (SWPPP) in accordance with the United States Environmental Protection Agency. Structural controls and practices used to minimize the exposure of potential pollutant sources to rain, snow, snowmelt, and stormwater include the following:

- Shallow grassed swales- removes pollutants through sedimentation and gravity separation
- Deep sump catch basins- removes trash, debris, and coarse sediment from stormwater runoff and serves as temporary spill containment devices for floatable such as oils and greases
- Leaching catch basis- permit runoff to infiltrate into the ground
- Oil/water separators and secondary containment structure- separates and diverts oil and fuel from stormwater. The system has an oil stop valve, safety oil sump and a secondary underground storage tank. The oil stop valve's ballasted float remains open when submerged in water but closed and sealed when submerged in oil or fuel. When closed the pollutant is captured by the underground storage tank
- Infiltration basis with infiltration trench- impounds and stores runoff until it can exfiltrate through the basin floor, and sides/bottom of the stone infiltration trench. The trench provides the storage of runoff under ground level

In addition, the Airport maintains a current Spill Prevention, Control and Countermeasures Plan (SPCC) in accordance with EPA regulations to prevent, prepare for, and respond to oil spills. The Airport further maintains a policy that prohibits the storage of fuel or oil in hangars other than that contained in the aircraft tank itself, or the aircraft owner's vehicle fuel tank that is stored when the owner is away on a flight. Other BMPs are employed such as materials are to be stored in properly labeled containers with expiration dates, potential health hazard, suggestions for handling, and first aid instructions. Activities such as aircraft and equipment washing are restricted to a designated wash area at the Airport where waste is collected and discharged to the existing oil/water separator at the Airport. Aircraft fueling occurs in a similar designated area.

During construction of the hangars, contractor's operating construction vehicles and equipment on the Airport must be prepared to expeditiously contain and clean up spills resulting from fuel or hydraulic fluid leaks. This includes having properly trained personnel and the appropriate equipment on-site to perform such cleanup.

6.7.5 Climate

Although there are currently no Federal standards for aviation related Green House Gas (GHG) emission, it is well established that GHG emissions can affect climate. The proposed alternatives would contribute GHGs temporarily during construction.

According to the 2021 Airport Master Plan, the number of based aircraft is expected to increase from 40 to 47 over the twenty-year planning period. The construction to accommodate this anticipated gradual growth is expected to fall well below *de minimis* thresholds, as supported by larger scale construction projects in the Federal Presumed to Conform Actions Under General Conformity¹¹. While the project would ultimately result in a slight increase in aircraft traffic and associated GHG emission, it is anticipated that this increase would have a negligible impact on climate.

7.0 Mitigation

The Proposed Action involves the construction of T-hangars as the future need may arise, and the removal of vegetative obstructions from 21 properties, Town right-of-way, and Airport property. Additionally, the Proposed Action seeks to acquire avigation easements over 21 properties for the purpose of future obstruction removal. Based on the analysis in this EA and extensive experience with similar projects at multiple airports, the environmental impacts resulting from these actions are not anticipated to be significant. The Airport proposes the following mitigation efforts with respect to vegetation obstruction removal:

- Cutting tree trunks and brush to ground level, without stump removal, minimizing ground impacts;
- Tree cutting and removal will be performed in a manner that causes the least amount of environmental disturbance. Considerations will be given to leave downed trees and branches on site, where practical, to minimize disturbance and create wildlife habitat;
- Using equipment that will perform adequately while minimizing soil disturbance and wetland disturbance. Mid-sized equipment such as tracked or four-wheel drive vehicles will be used to move trees to staging areas for processing into smaller material and loading to prevent ground disturbance;
- Within wetlands, the stumps of the trees will be left in place, no soil disturbance, grading or grubbing will take place, and no fill material or temporary mats (or similar measures) will be placed in wetlands;
- All ground disturbing activity will be halted immediately, and MHC would be notified should evidence of archaeological or historical resources be encountered during obstruction removal activities;
- Sediment and erosion control, dust prevention, and hazardous spill prevention and response plans (above and beyond the Airport's SPCCC) will be developed and implemented;
- On residential properties, stumps will be cut 6" below grade so that replanting ground cover necessary following tree removal can occur. This may include grasses and shrubs that will not intrude into the Airport's approach surfaces;
- Vegetation removal activities will be performed during frozen ground, or otherwise dry and stable conditions;
- Special care shall be taken that machinery is not being driven, and logs are not being stockpiled/stored within wetlands;
- Tree cutting near vernal pools shall be performed after amphibians migrate from the pool; and
- Tree removal within wetlands shall be done by mechanical means from the uplands or hand felling, and within the vernal pool removal shall be done with hand tools only.

¹¹ <https://www.fws.gov/policy/library/2007/E7-14644.pdf>



8.0 List of Preparers

Federal Aviation Administration
Mr. Richard Doucette
1200 District Avenue
Burlington, MA 01803

Gale Associates, Inc.
Mr. Matthew Caron
Six Bedford Farms Drive, Suite 101
Bedford, NH 03110

GZA GeoEnvironmental
Mr. Steve Riberdy
1350 Main Street #1400
Springfield, MA

9.0 List of Agencies Consulted

Massachusetts Department of Transportation
Aeronautics Division
Mr. Nathan Rawding
1 Harborside Drive, Suite 205N
Boston, MA 02128

Tribal Historic Preservation Officer
Mashpee Wampanoag Tribe
Mr. David Weeden
438 Great Neck Road South
Mashpee, MA 02649

Tribal Historic Preservation Officer
Wampanoag Tribe of Gay Head (Aquinnah)
Ms. Bettina Washington
20 Black Brook Road
Aquinnah, MA 02535

Commonwealth of Massachusetts
Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125

United States Environmental Protection Agency
5 Post Office Square
Boston, MA 02109

10.0 Public Involvement

During the development of this Environmental Assessment, the Airport Commission held a public information meeting on February 10, 2021, outlining the Environmental Assessment process. At the completion of the draft Environmental Assessment, the draft EA was made available during a regularly scheduled Airport Commission meeting on April 14, 2021. Subsequently, the draft EA was posted to the Town's website on May 14, 2021. Circulation of the draft Environmental Assessment for public comment was advertised on May 27, 2021, and June 3, 2021, in the Cape Cod Chronicle advising readers where locate the document and where to send comments.

At the close of the public comment period, all comments were reviewed by the Airport Commission and the FAA. Input received, both written comments received during the public comment period as well as verbal comments provided in virtual public meetings and via phone calls, have been incorporated into the document when appropriate. Responses to the most frequent and/or substantive comments are provided below: For a full listing of public comments submitted, please see Appendix E.

Q: Who is responsible for overseeing the development of the Environmental Assessment and is it an impartial assessment?

A: All work on the Environmental Assessment has been completed under the supervision of the Federal Aviation Administration (as required by federal regulations) and the Chatham Airport Commission (as required by local and state law). Gale Associates is working under a contract with the Town of Chatham, funded by federal and state grants. The FAA and the Airport Commission are responsible for the information contained in the document.

Q: Why has the Jet-A fuel facility, which was proposed in the Airport Master Plan, been omitted from the Environmental Assessment?

A: The jet-A fuel tank is excluded from the assessment because it is not being proposed at this time. At some point in the future if/when it is proposed for construction, the regulations applicable at that time will determine what analysis is required. Currently, the FAA does NOT conduct Environmental Assessments for most fueling facilities. The FAA interprets fuel farms as being Categorically Excluded pursuant to section 5-6.4(u) of FAA Order 1050.1F, unless they have remote fueling capabilities. This is often the case at very large, commercial service airports. This is generally not the case at general aviation airports.

Q: Why is the Airport pushing to expand airport traffic, including larger, noisier commercial flights?

A: There are no proposed improvements in the Master Plan or the Environmental Assessment that calls for the expansion of airport traffic or larger/noisier aircraft. Aircraft are limited in large part by runway length requirements, and there is no proposal to lengthen the airport's existing runway. Chatham is a public-use airport and is open to all types of aircraft that can utilize the Airport given its limited runway length. The FAA and the Town of Chatham cannot prohibit pilots from utilizing the Airport.

Q: Can the Airport limit the size and number of planes that use the Airport? And can the Airport restrict the hours that planes can access the Airport?

A: The Airport Commission and the FAA cannot limit the size and number of planes that use the Airport. Aircraft are limited in large part to the length of runways. There are no plans in the Master Plan or the Environmental Assessment to increase the length of the runway. Regarding hours of operation, the Airport could adopt a voluntary

program restricting the hours of operations at the Airport, but all public use airports are open 24 hours/day, except in an emergency.

Q: Why does the Environmental Assessment claim that there are no environmental impacts associated with the acquisition of aviation easements?

A: There are no environmental impacts associated with the actual acquisition of aviation easements, as that is simply a negotiated real estate transaction between the landowner and the entity seeking an easement. There are however, potential environmental impacts associated with tree clearing which is discussed in the Environmental Assessment.

Q: Has either the FAA or Airport Commission directly contacted all private parties that are potentially targeted for aviation easements?

A: At this time, no property owners have been contacted regarding aviation easements. It is premature to notify property owners at this time as there has been no commitment from Town, State or FAA to fund an aviation easement acquisition project. Further, the Town still has other options available to them to remove vegetation without the need for aviation easements.

Q: What restoration efforts occur as part of tree clearing projects?

A: Restoration efforts following selective tree clearing are highly dependent on a number of factors, particularly where the tree is located. If trees are removed from "landscaped" areas on private property, typically the stump is ground in place and all debris removed. The property is loamed and seeded to match the adjacent landscaped area. If trees are removed from a wooded area, typically the stumps remain, and the large trunk and branches may remain or are chipped or removed. In some instances, where tree clearing may occur in wetlands and wetland buffers, permitting requirements dictate that some "slash" remain as habitat for wetland species. Permitting requirements for work in sensitive areas such as wetlands or rare species habitat will determine any specific mitigation in those instances.

Q: What safeguards does the Airport have in place regarding the existing fuel facility and the proposed jet-A fuel facility?

A: The Airport maintains a Stormwater Pollution Prevention Plan and Spill Control and Countermeasures Plan in accordance with EPA regulations. The existing fuel facility at the Airport is also equipped with EPA compliant containment and secondary containment systems which include oil/water separators.

Q: Does the Environmental Assessment propose to clear cut 10 acres of trees and destroy wetlands, including a vernal pool?

A: The Environmental Assessment does not propose to cut 10 acres of trees. There are select trees within 4.2 acres off-airport property in the Runway 06 end that need to be removed, and within 3.4 acres off-airport property in the Runway 24 end (see page 3 of the Environmental Assessment). The Airport Commission cannot legally "destroy" vernal pools or wetlands. Any proposed clearing within wetland resource areas must comply with local, state, and federal requirements, including local Conservation Commission and Cape Cod Commission requirements.



Q: What is the purpose of new hangars when the Master Plan calls for nominal growth within the forecast planning period.

A: The development of hangars is proposed to meet future demand as it materializes. Hangars are not expected to be constructed until the demand is realized. The purpose of including the hangars in the Environmental Assessment is so that the Airport is positioned to move forward with development in the future.

Q: Are straight-in approaches less safe than the current circling approaches?

A: Circling approaches inherently present more of a hazard than straight-in procedures. By aligning the procedures with the runway and providing glide path information, the procedure will become more precise and safer.



FAA OBSTRUCTION EVALUATION/AIRPORT AIRSPACE ANALYSIS



Federal Aviation Administration

March 05, 2021

TO:
Chatham Municipal Airport
Attn: Matt Caron
15 Constitution Drive
Londonderry, NH 03110
mpc@gainc.com

RE: (See attached Table 1 for referenced case(s))
FINAL DETERMINATION

Table 1 - Letter Referenced Case(s)

Table with 7 columns: ASN, Prior ASN, Location, Latitude (NAD83), Longitude (NAD83), AGL (Feet), AMSL (Feet). It lists 8 rows of case data for Chatham, MA.

Description: Evaluate existing bike path below proposed primary surface.

We do not object to the construction described in this proposal provided:

You comply with the requirements set forth in FAA Advisory Circular 150/5370-2, "Operational Safety on Airports During Construction."

This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground.

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

This determination expires on September 5, 2022 unless:
(a) extended, revised or terminated by the issuing office.

(b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for the completion of construction, or the date the FCC denies the application.

NOTE: Request for extension of the effective period of this determination must be obtained at least 15 days prior to expiration date specified in this letter.

If you have any questions concerning this determination contact Tracey Mcinnis (781) 238-7621 tracey.mcinnis@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2020-ANE-1894-NRA.

Tracey Mcinnis
Specialist
Signature Control No: 459548117-472820213

Chatham Airport Groundwater Management Plan

CHATHAM
REC'D.
11-24-89 JAB
SEP 19 1989
D.E.P.
SOUTHEAST REGION
WATER POLLUTION CONTROL
SCANNED

**CHATHAM AIRPORT COMMISSION
CHATHAM, MASSACHUSETTS**

GROUNDWATER MANAGEMENT PLAN

NOVEMBER, 1989

**PREPARED BY
DUFRESNE-HENRY, INC.
WESTFORD, MASSACHUSETTS**

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WATER CONTROL LABORATORIES
 A DIVISION OF COOPERATING MANAGEMENT INC.
 HOPKINTON INDUSTRIAL PARK
 106 SOUTH ST.
 HOPKINTON, MA 01748
 508-435-6824
 Mass Cert No 313 * Conn Cert No PH-0515 * EPA ID No MA059

WCI ID

91325734

ACCOUNT -

000512

CODE PAGE

1

SAMPLE IDENTIFICATION INFORMATION

CHATHAM AIRPORT (MW 5)
 GROUNDWATER STUDY

REFERRED BY:

DUPRESNE HENRY, INC.
 239 LITTLETON RD.
 SUITE 1A
 WESTFORD, MA.

GENE SCORAGER

COLLECTION

05/11/89
 15:40

RECEIVED

05/12/89

REPORTING

06/04/89

REPORT

FINAL REPORT

COMMENT

TESTS	RESULTS	UNITS	DETECTION LIMIT	METHOD
*** GENERAL INFORMATION				
(COLLECTOR: DUPRESNE HENRY)				
*** SAMPLE PREPARATION				
DIGESTION METALS	5/12/89			
DIGESTION HYDRIDES	5/12/89			
DIGESTION MERCURY	5/15/89			
*** NITROGENS				
NITRATE	<0.5	MG/L	0.5	353.3
*** TRACE METALS				
WATER				
ARSENIC	0.121	MG/L	0.005	7061
BARIUM	0.62	MG/L	0.010	6010
CADMIUM	<0.001	MG/L	0.001	7131
CHROMIUM, TOTAL	0.540	MG/L	0.001	7191
LEAD	0.104	MG/L	0.001	7421
MERCURY	<0.001	MG/L	0.001	7471
SELENIUM	<0.005	MG/L	0.005	7741
SILVER	0.001	MG/L	0.001	7760
*** VOLATILE ORGANICS				
VOA ANALYSIS DATE:	5/24/89			
*** PESTICIDES				
WATER				
PEST ANALYSIS DATE:	6/2/89			
PEST EXTRACTION DATE	5/19/89			
ALDRIN	ND	UG/L	0.20	8080
ALPHA-BHC	ND	UG/L	0.20	8080
BETA-BHC	ND	UG/L	0.20	8080
GAMMA-BHC	ND	UG/L	0.20	8080
DELTA-BHC (LINDANE)	ND	UG/L	0.20	8080
CHLORDANE	ND	UG/L	0.20	8080
4,4'-DDD	ND	UG/L	0.20	8080
4,4'-DDE	ND	UG/L	0.20	8080
4,4'-DDT	ND	UG/L	0.20	8080
DIELDRIN	ND	UG/L	0.20	8080
ENDOSULFAN I	ND	UG/L	0.20	8080
ENDOSULFAN II	ND	UG/L	0.20	8080
ENDOSULFAN SULFATE	0.62	UG/L	0.20	8080
ENDRIN	ND	UG/L	0.20	8080

CONTINUED ON NEXT PAGE

CHATHAM AIRPORT (MW-5)



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 136 SOUTH ST.
 HOPKINTON, MA 01748
 508-435-6824
 Mass Cert No 313 - Conn Cert No PH-0515 - EPA ID No MA059

WCL ID : 91325730

ACCOUNT : 000512

CODE PAGE : 1

SAMPLE IDENTIFICATION INFORMATION

CHATHAM AIRPORT (MW-3)
 GROUNDWATER STUDY

REFERRED BY:

GENE SCHRAGER

DUPRESNE-HENRY, INC.
 239 LITTLETON RD.
 SUITE 1A
 WESTFORD, MA.

COLLECTED	RECEIVED	REPORTED
05/12/89 08:15	05/12/89	06/04/8

REPORT

COMMENT.

FINAL REPORT

TESTS	RESULTS	UNITS	DETECTION LIMIT	METHOD
*** GENERAL INFORMATION				
(COLLECTOR: DUFRESNE-HENRY)				
*** SAMPLE PREPARATION				
DIGESTION-METALS	5/12/89			
DIGESTION-HYDRIDES	5/12/89			
DIGESTION-MERCURY	5/15/89			
*** NUTRIENTS				
NITRATE	3.0	MG/L	0.5	353.3
*** TRACE METALS				
WATER				
ARSENIC	0.218	MG/L	0.005	7061
BARIUM	0.92	MG/L	0.010	6010
CADMIUM	0.001	MG/L	0.001	7131
CHROMIUM, TOTAL	0.660	MG/L	0.001	7191
LEAD	0.235	MG/L	0.001	7421
MERCURY	<0.001	MG/L	0.001	7471
SELENIUM	0.006	MG/L	0.005	7741
SILVER	0.001	MG/L	0.001	7760
*** VOLATILE ORGANICS				
VOA ANALYSIS DATE:	5/24/89			
*** PESTICIDES				
WATER				
PEST ANALYSIS DATE:	6/2/89			
PEST EXTRACTION DATE	5/19/89			
ALDRIN	ND	UG/L	0.20	8080
ALPHA-BHC	ND	UG/L	0.20	8080
BETA-BHC	ND	UG/L	0.20	8080
GAMMA-BHC	ND	UG/L	0.20	8080
DELTA-BHC (LINDANE)	ND	UG/L	0.20	8080
CHLORDANE	ND	UG/L	0.20	8080
4,4'-DDD	ND	UG/L	0.20	8080
4,4'-DDE	ND	UG/L	0.20	8080
4,4'-DDT	ND	UG/L	0.20	8080
DIELDRIN	ND	UG/L	0.20	8080
ENDOSULFAN I	ND	UG/L	0.20	8080
ENDOSULFAN II	ND	UG/L	0.20	8080
ENDOSULFAN SULFATE	0.88	UG/L	0.20	8080
ENDRIN	ND	UG/L	0.20	8080

CONTINUED ON NEXT PAGE

CHATHAM AIRPORT (MW-3)



WATER CONTROL LABORATORIES
 A DIVISION OF COOPERATING MANAGEMENT INC.
 HOPKINTON INDUSTRIAL PARK
 106 SOUTH ST.
 HOPKINTON, MA 01748
 508-435-6824
 Mass. Cert. No. 313 • Conn. Cert. No. PH-0515 • EPA ID No. MA059

WCLID #
 91325728

ACCOUNT #
 000512

CODE PAGE #
 1

SAMPLE IDENTIFICATION INFORMATION
 CHATHAM AIRPORT (MW-2)
 GROUNDWATER STUDY

REFERRED BY:

GENE SCHIRAGER

DUPRESNE-HENRY, INC.
 239 LITTLETON RD.
 SUITE 1A
 WESTFORD, MA.

COLLECTED	RECEIVED	REPORTED
05/12/89 11:00	05/12/89	05/31/89

REPORT:

FINAL REPORT

COMMENT:

TESTS	RESULTS	UNITS	DETECTION LIMIT	METHOD #
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*** GENERAL INFORMATION
 (COLLECTOR: DUPRESNE-HENRY)

*** SAMPLE PREPARATION

DIGESTION-METALS	5/12/89
DIGESTION-HYDRIDES	5/12/89
DIGESTION-MERCURY	5/15/89

*** NUTRIENTS

NITRATE	<0.5	MG/L	0.5	353.3
---------	------	------	-----	-------

*** TRACE METALS

	WATER			
ARSENIC	0.233	MG/L	0.005	7061
BARIUM	0.72	MG/L	0.010	6010
CADMIUM	0.001	MG/L	0.001	7131
CHROMIUM, TOTAL	0.480	MG/L	0.001	7191
LEAD	0.126	MG/L	0.001	7421
MERCURY	0.001	MG/L	0.001	7471
SELENIUM	0.007	MG/L	0.005	7741
SILVER	0.002	MG/L	0.001	7760

*** PESTICIDES

	WATER			
PEST ANALYSIS DATE:	5/26/89			
PEST EXTRACTION DATE:	5/19/89			
ALDRIN	ND	UG/L	0.20	8080
ALPHA-BHC	ND	UG/L	0.20	8080
BETA-BHC	ND	UG/L	0.20	8080
GAMMA-BHC	ND	UG/L	0.20	8080
DELTA-BHC (LINDANE)	ND	UG/L	0.20	8080
CHLORDANE	ND	UG/L	0.20	8080
4,4'-DDD	ND	UG/L	0.20	8080
4,4'-DDE	ND	UG/L	0.20	8080
4,4'-DDT	ND	UG/L	0.20	8080
DIELDRIN	ND	UG/L	0.20	8080
ENDOSULFAN I	ND	UG/L	0.20	8080
ENDOSULFAN II	ND	UG/L	0.20	8080
ENDOSULFAN SULFATE	0.90	UG/L	0.20	8080
ENDRIN	ND	UG/L	0.20	8080
ENDRIN ALDEHYDE	ND	UG/L	0.20	8080
HEPTACHLOR	ND	UG/L	0.20	8080
HEPTACHLOR EPOXIDE	ND	UG/L	0.20	8080

CONTINUED ON NEXT PAGE

CHATHAM AIRPORT (MW-2)



CHATHAM AIRPORT
Chatham, Mass.

Date Drilled: April 18, 1989 and April 19, 1989

M-1

0 -55' Sand Gravel
55 -60' Gray Clay
60 -70' Sand Gravel
Static: 57'
69' Deep

M-4

0 -50' Sand Gravel
50 -60' Gray Clay
60 -75' Sand Gravel
Static: 58'
74' Deep

M-2

0 -50' Sand Gravel
50 -55' Gray Clay
60 -75' Sand Gravel
Static: 57'
74' Deep

M-5

0 -45' Sand Gravel
45 -55' Gray Clay
55 -75' Sand Gravel
Static: 49'
74' Deep

M-3

0 -55' Sand Gravel
55 -60' Gray Clay
60 -70' Sand Gravel
Static: 56'
71' Deep

3.3 GROUNDWATER QUALITY

Groundwater samples were collected from monitoring wells, MW-1 - MW-5 on May 12 and July 20, 1989. The chemical results for these two rounds of sampling have been summarized on Tables 3 and 4 and compiled in Appendix D. There were no available historic water quality data for the Airport to compare with the results of the aforementioned two rounds of sampling.

The pH varied between 5.96 and 6.70 for both rounds with an arithmetic mean of 6.32. In general, the slightly acidic pH's are consistent with groundwater conditions in the Cape Cod and other New England aquifers. Specific conductance ranged between 80-250 microohms/cm with an arithmetic mean of 161 microohms/cm. Specific conductance is a measure of the dissolved minerals in the groundwater. The sampling results indicate a low dissolved mineral content.

The concentration of nitrate varied from 0.5 to 3.0 ppm. The highest concentrations of nitrate, 2.0 ppm and 3.0 ppm, were detected in monitoring well MW-3. This well is located downgradient from the Airport subsurface sewage disposal system (see Appendix A in back pocket). These results are below the EPA primary drinking water limit of 10 ppm.

The concentration of chloride varied from 12 to 65 ppm with an arithmetic mean of 29 ppm. These results are below the EPA secondary drinking water limit of 250 ppm.

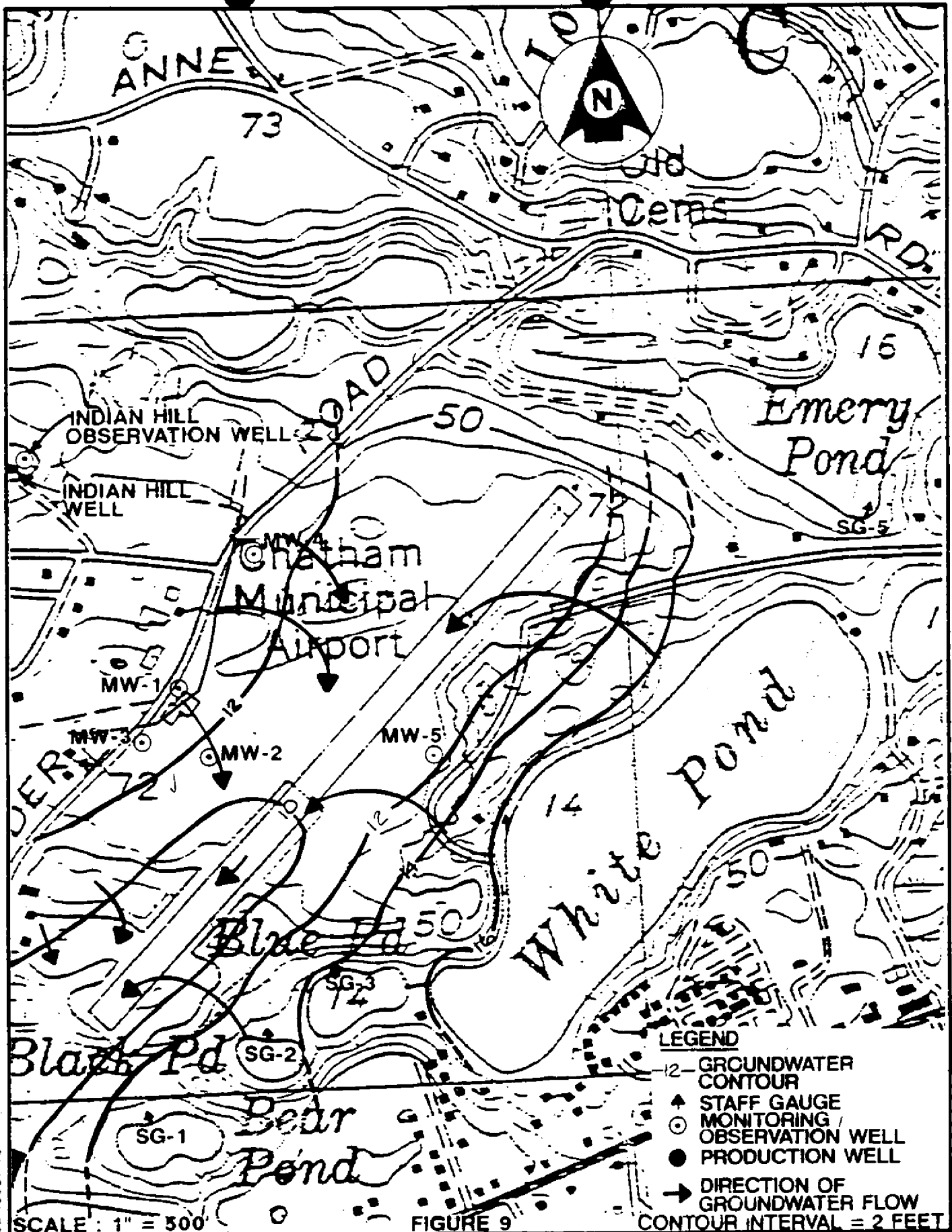
The concentrations of several of the heavy metals from "unfiltered" groundwater samples for the first round of sampling exceeded the EPA Safe Drinking Water Standards. These concentrations were high because the samples were not filtered prior to analysis and as such, both suspended solids (metals in suspension) and metals in solution were determined. For Round #2, the

heavy metal concentrations on "filtered" groundwater samples were all below the EPA maximum contaminant levels. Therefore, we consider the second round results and not the first to be representative of the true groundwater quality for heavy metals.

For Round #1, no VOC's (EPA Method 524) or EDB (EPA Method 504) were detected in the monitoring wells except chloroform in monitoring wells MW-4 and MW-5. The levels of chloroform were 0.7 and 0.5 ppm, respectively. We believe that these low levels of chloroform occur naturally in groundwater in proximity to a marine environment. No VOC's or EDB were detected in Round #2.

Neither herbicides nor acid, base, neutral compounds were detected in either round of sampling.

The pesticide endosulfane sulfate was detected in Round #1 in monitoring wells MW-2, MW-3, and MW-5 at concentrations of 0.90, 0.88, and 0.62 ppb, respectively. The source of the endosulfane sulfate is uncertain, but may have originated at the Cape Cod Mosquito Control property. No pesticides were detected in Round #2.



BRUNING 44 232 45337.13

SCALE : 1" = 500'

FIGURE 9

- LEGEND**
- 2- GROUNDWATER CONTOUR
 - ▲ STAFF GAUGE
 - MONITORING / OBSERVATION WELL
 - PRODUCTION WELL
 - DIRECTION OF GROUNDWATER FLOW
- CONTOUR INTERVAL = 2 FEET

Client No.	817050
Proj. Mgr.	DFE
Date	6/9/39

**CHATHAM MUNICIPAL AIRPORT
GROUNDWATER CONTOUR
MAP**

CHATHAM MASSACHUSETTS


 Duffness-Harry
Inc.

A

TABLE 1
MONITORING WELL DATA

Well Identification	Well Depth (feet)	Length of Screen (feet)	Elevation of Well (feet) Top of PVC Casing	Screen Ft. (MSL)
MW-1	69	10	69.46	0 to 10'
MW-2	74	10	61.96	-4 to -4'
MW-3	71	15	67.23	-4 to 11'
MW-4	74	15	68.78	-6 to 9'
MW-5	74	10	64.71	-10 to 0

FATIGABLE FOR SCREEN LENGTHS & LOCATIONS?

The construction of a typical monitoring well is shown on Figure 5.

Water level information was taken at the five monitoring wells, Indian Hill Well, Indian Hill observation well, and the five ponds. All water level observation locations were surveyed with respect to the National Geodetic Vertical Datum (N.G.V.D.) (Appendix C).

The locations of the five monitoring wells were selected in order to characterize the site hydrogeology and groundwater quality conditions according to the following criteria: provide sufficient upgradient water level and groundwater quality information; provide sufficient downgradient water level and groundwater quality information; and locate and identify potential sources of contamination. Only the five monitoring wells were sampled and analyzed as part of the Groundwater Management Plan.

Groundwater level measurements were taken at the other locations (see above) to supplement on-site data for groundwater flow conditions.

BRUNING 44-232 45337-13

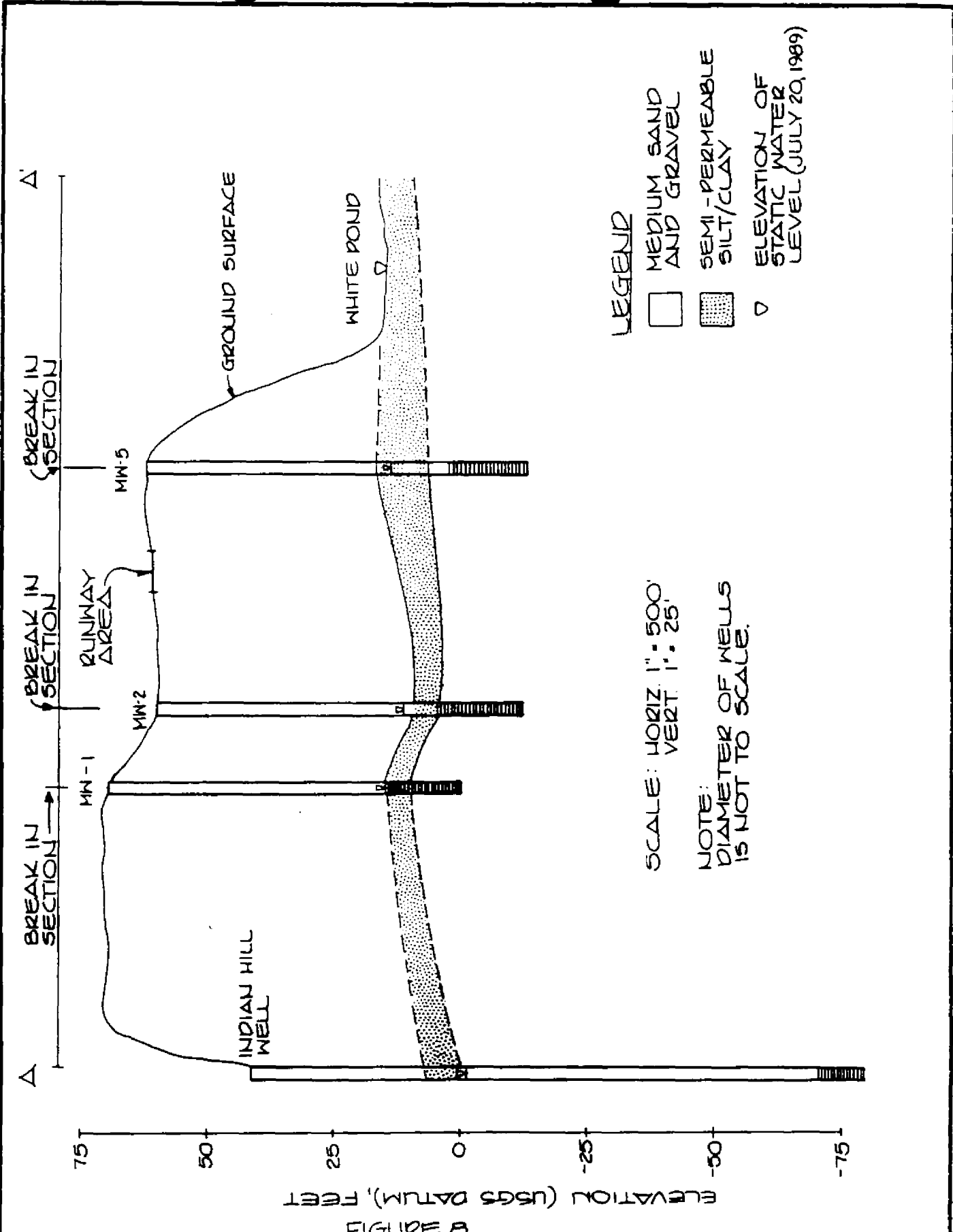


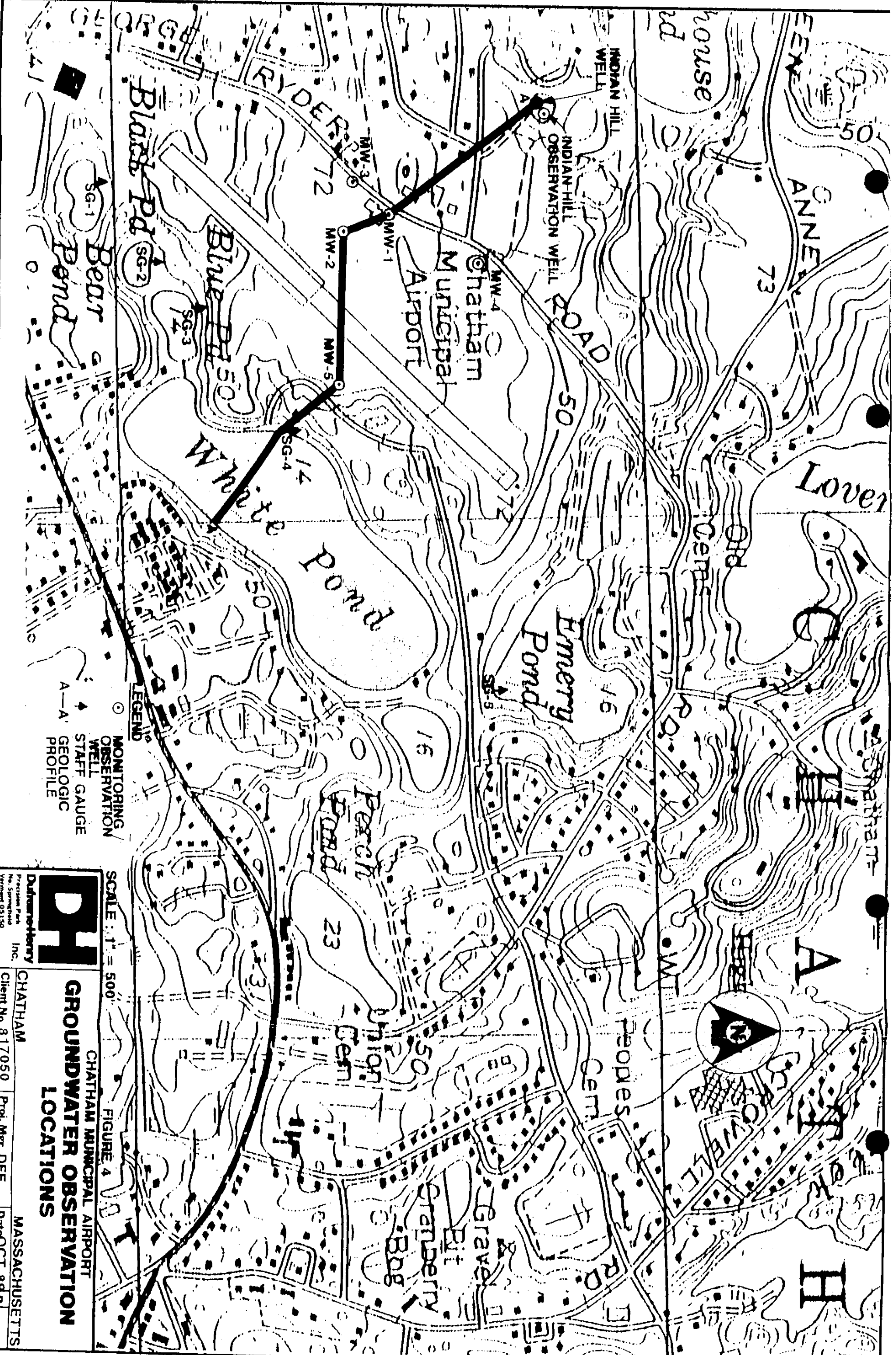
FIGURE B

Client No.	817050	CHATHAM MUNICIPAL AIRPORT GEOLOGIC PROFILE (A-A') SEE FIGURE 4 FOR LOCATION OF PROFILE CHATHAM MASSACHUSETTS	 Dufresne-Henry Inc.
Proj. Mgr.	D.F.E.		
Date	OCT. 89		

A

Table 2. Ground Water Elevation Data

LOCATION	ELEVATION TOP OF PVC CASING OR STAKE (feet)		WATER LEVEL MEASUREMENTS (feet)		ELEVATION OF GROUND WATER, USGS DATUM (feet)		
	MAY 15, 1989	JUNE 9, 1989	JUNE 9, 1989	JULY 20, 1989	MAY 15, 1989	JUNE 9, 1989	JULY 20, 1989
MN-1	69.46	54.83	54.46	54.46	13.89	14.63	15.00
MN-2	61.96	50.24	50.27	50.27	11.43	11.72	11.69
MN-3	67.23	54.87	54.81	54.81	12.56	12.36	12.42
MN-4	68.78	57.89	58.10	58.10	13.69	10.89	10.68
MN-5	64.71	53.88	50.23	50.23	10.63	10.83	14.48
INDIAN HILL	42.40	42.07	35.20	35.20	7.92	0.33	-0.72
INDIAN OBS-R	44.14	34.37	35.36	35.36	10.59	9.77	8.78
BEARSE P 5G-1	14.40				13.06	13.31	13.47
BLACK P 5G-2	15.21				14.01	14.10	14.32
BLUE P 5G-3	16.65				15.56	15.62	15.72
WHITE P 5G-4	16.87				15.56	16.07	15.72
ENERY P 5G-5	18.56				17.12	17.92	16.89



LEGEND

- MONITORING WELL
- OBSERVATION WELL
- ▲ STAFF GAUGE
- A—A— GEOLOGIC PROFILE

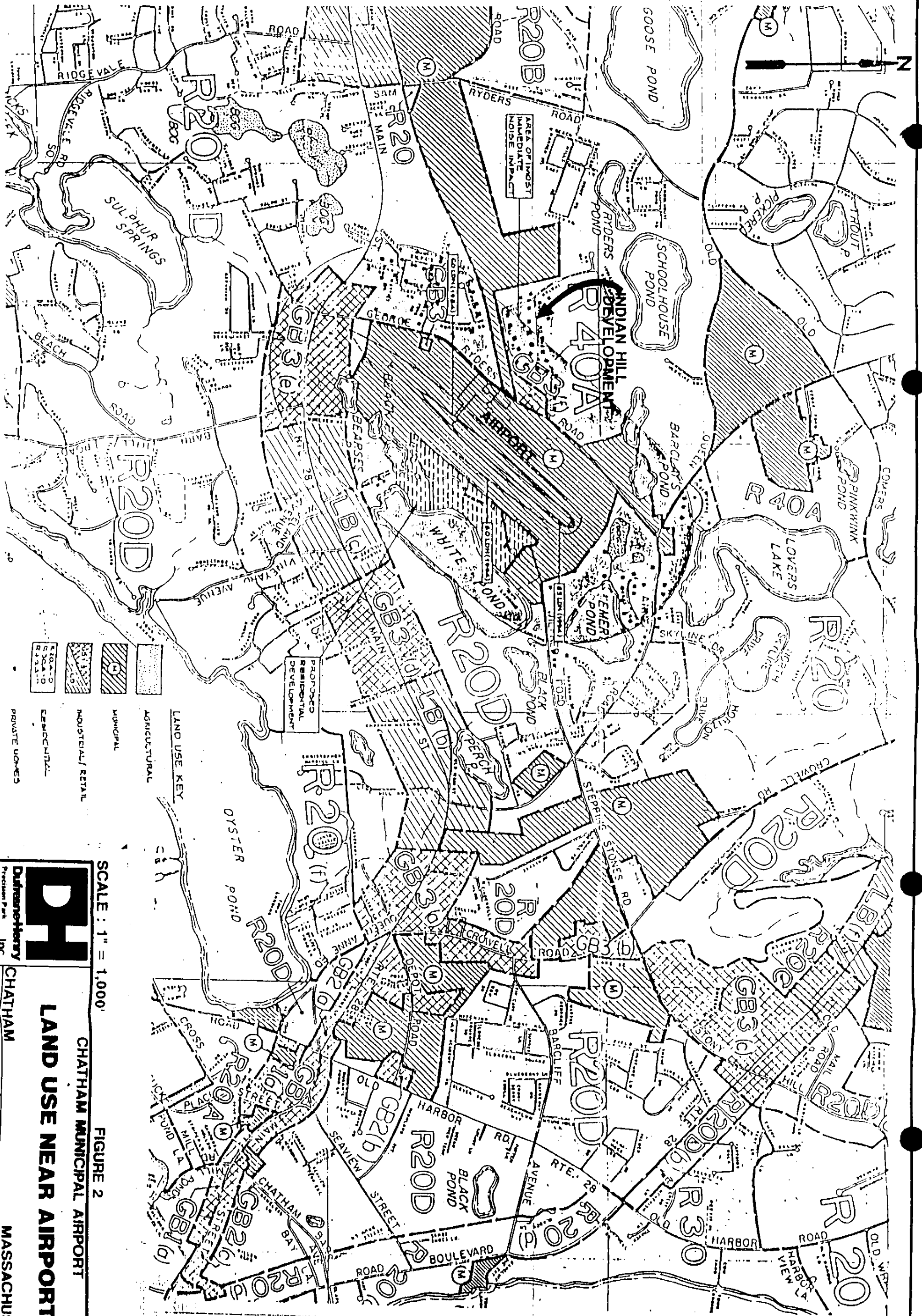
SCALE: 1" = 500'

FIGURE 4



Dufur-Hoffman
Precision Park
No. Springfield
Vermont 05150
Inc.

CHATHAM
MASSACHUSETTS
CHATHAM MUNICIPAL AIRPORT
GROUNDWATER OBSERVATION
LOCATIONS
Client No. 817050
Proj. Mgr. DFE
Date OCT 89 B



LAND USE KEY

- AGRICULTURAL
- MUNICIPAL
- INDUSTRIAL/ RETAIL
- COMMERCIAL
- PRIVATE USES
- PROPOSED RESIDENTIAL DEVELOPMENT

SCALE : 1" = 1,000'

FIGURE 2

CHATHAM MUNICIPAL AIRPORT

LAND USE NEAR AIRPORT

CHATHAM MASSACHUSETTS

Dufresne-Henry Inc.
 Precision Park
 No. Springfield
 Vermont 05150

Client No. 817050 Proj. No. DFE Date 10/89



FIGURE 1 SCALE: 1" = 1,000'

BRUNING 44 232 45337 13

Client No.	817050
Proj. Mgr.	DFE
Date	NCV39

CHATHAM MUNICIPAL AIRPORT
LOCATION MAP
 CHATHAM MASSACHUSETTS

Dufresne-Henry
 Inc.

DH

A



CHATHAM AIRPORT
Chatham, Mass.

Date Drilled: April 18, 1989 and April 19, 1989

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55 -60' Gray Clay
60 -70' Sand Gravel
Static: 57'
69' Deep

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60 -75' Sand Gravel
Static: 58'
74' Deep

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0 -50' Sand Gravel
50 -55' Gray Clay
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0 -45' Sand Gravel
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BRUNING 44-232 45337-13

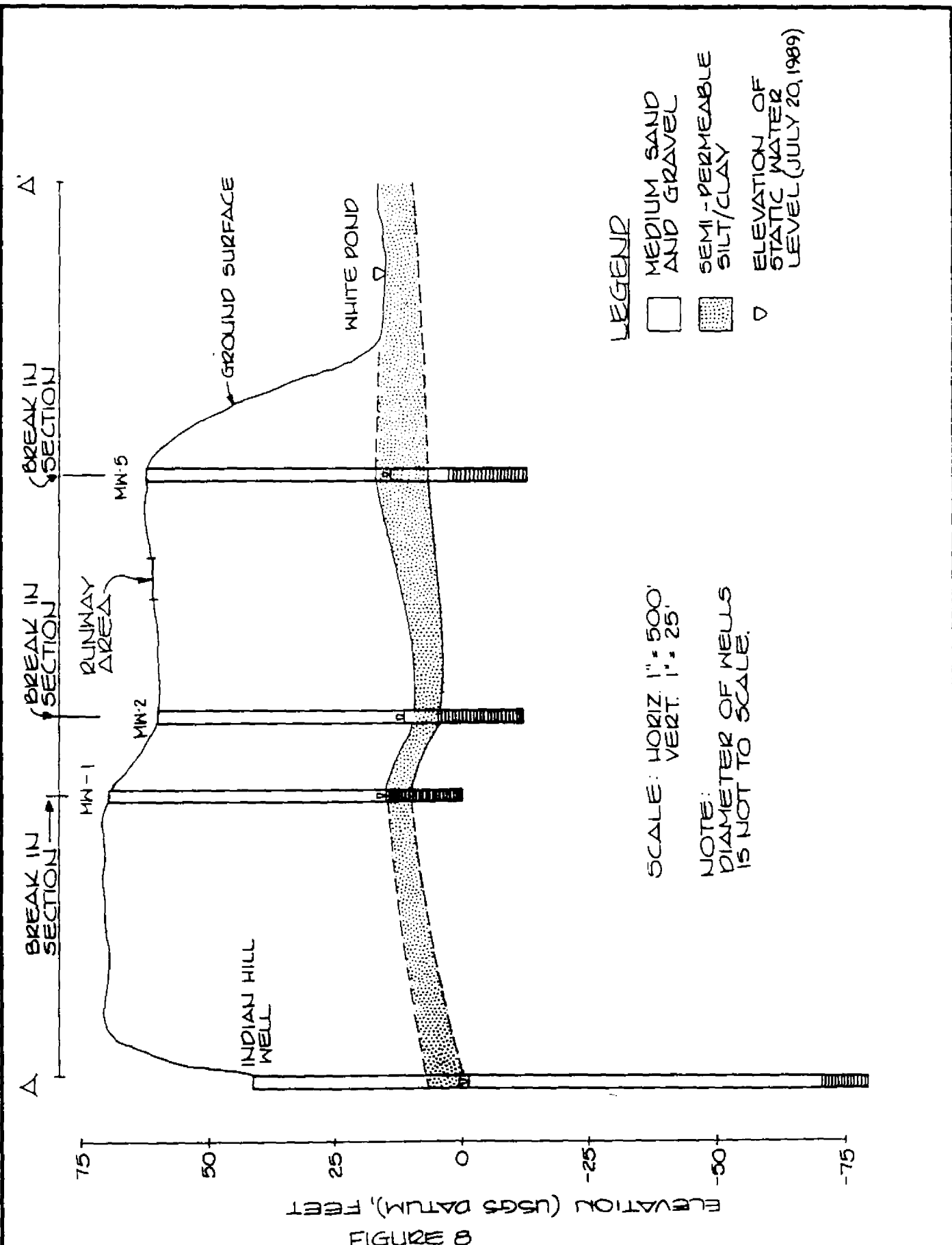


FIGURE 8

Client No.	817050	CHATHAM MUNICIPAL AIRPORT GEOLOGIC PROFILE (A-A') SEE FIGURE 4 FOR LOCATION OF PROFILE	 Dufrene-Henry Inc.
Proj. Mgr.	D.F.E.		
Date	OCT. 89	CHATHAM	MASSACHUSETTS

A

UIC Closure Assessment

SCANNED

Records Retention Check List

Segregated: May 27, 2004

DEP Box #
SRC Box #

RTN : 4-0001147 Notification Date: 4/15/1992
Action: DEPNFA Date: 2/1/1994

Location Aid: CHATHAM AIRPORT
GEORGE RYDER RD, CHATHAM

Notification Record

Notification Records -- circle document(s): RNF RLF RLFA

Response Action Outcome -- circle type: Class A Class B

Activity and Use Limitation

No Further Action (NFA) Submittal

Waiver Completion Statement

SP Evaluation Opinion -- circle type: NDS NFA

Notice of Audit Findings (NOFA)

- Level 1
- Level 2
- Level 3

Audit Follow Up Plan and Post Audit Completion Statement

Correspondence -- circle document(s): NOR, NORA, NON, PAN, ACOP, UAO,

various DEP correspondence Other

Phase I Initial Site Investigation

Phase II-Comprehensive Site Assessment

Prat. Assess. Rept.

SCANNED

UIC CLOSURE ASSESSMENT

Chatham Municipal Airport
240 George Ryder Road
Chatham, MA
BO99-2262

August 11, 1999

4-1147

BENNETT & O'REILLY, Inc.

Engineering, Environmental & Surveying Services

Sanitary
Site Development
Waste Water Treatment
Water Supply

21E/Site Remediation
Hydrogeologic Survey
Water Quality Monitoring
Consulting

Property Line
Subdivision
Land Court
Trial Court Witness



1573 Main Street
PO Box 1667
Brewster, MA 02631
508-896-6630
508-896-4687 Fax

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240 George Ryder Road
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August 11, 1999

Underground Injection Control Program Attn: Mark Dakers
MA DEP (SERO)
Division of Water Supply, Cape Cod Basin Team
20 Riverside Drive
Lakeville, MA 02347

RE: UIC Closure Assessment
 Chatham Municipal Airport
 240 George Ryder Road - Chatham, MA

Dear Mr. Dakers:

BENNETT & O'REILLY, INC., has prepared the following UIC Closure Assessment Report as documentation of the environmental assessment and construction activities conducted for the abandonment of floor drains at the subject property. These activities were conducted in accordance with the provisions of the MA DEP "Closure Requirements for Shallow Injection Wells" UIC Closure Guidance, 1995), as consistent with the MA Contingency Plan (MCP), 310 CMR 40.000.

This project has proceeded with my oversight in a manner consistent with the MCP Response Action Performance Standards (RAPS) pursuant to 310 CMR 40.0191 and QA/QC policies of BENNETT & O'REILLY, INC. The facts and statements herein are, to the best of our knowledge, a true and accurate representation of the site activities, remedial response actions and environmental conditions associated with the project.

SITE DESCRIPTION/ENVIRONMENTAL CONDITIONS [Refer to Appendix A]

The subject site, the Chatham Municipal Airport, is located on the east side of George Ryder Road in Chatham, MA, some two miles northeast of Chatham Center. The Airport consists of 101 acres of land and contains two buildings: the terminal with attached maintenance building, and a corrugated steel airplane hanger with ten bays located north of the main building. The remainder of the property is developed by the runway, parking lots, and other maintenance facilities.

Abutting properties to the north, east, and west, primarily consists of single family seasonal use, residential dwellings. The Town of Chatham Town Office Annex is located on the west side of George Ryder Road, directly across from the Airport. Blue, Black and Bearses Ponds abut the southern property line, amidst various residential dwellings. Main Street, some 1,500' south of the property, is occupied by offices, shops restaurants, laundromats and dry cleaners.

The site primarily slopes to the south-southeast, with the exception of the northern portion which slopes to the north-northeast. Based upon review of topographical maps and local hydrologic surveys, groundsurface elevation is determined to be 60-65' GL in the area of the Airport buildings. Groundwater is estimated to be at approximately 53'+/- below grade in this same area. Regional groundwater contours appear to indicate a southeasterly groundwater flow direction at the site toward Aunt Lydia's Cove and Nantucket Sound.

The subject site, and surrounding area, are serviced by municipal water and the site is serviced by an on-site septic system. The site is located within the Zone II Protective Radius of the Town of Chatham's Wellfield, known as Indian Hill Well, located approximately 1,000' northwest of the Airport in a residential area near the intersection of George Ryder Road and Indian Hill Road. Based upon the site location within a Zone II and proximity of groundwater, the GW-1 and GW-3 groundwater categories apply. The S-2/GW-1 and S-2/GW-2 soil categories apply in the evaluation of potential soil impact associated with floor drain discharge.

BACKGROUND [Refer to Appendix C]

On January 23, 1992, the Chatham Municipal Airport was determined by the MA Department of Environmental Protection to be a Location To Be Investigated (LTBI), as a possible disposal site within the provisions of the MGL Chapter 21E and the Massachusetts Contingency Plan, 310 CMR 40.000, as associated with the discovery of moderate levels of tetrachloroethylene (PCE) within the Chatham Indian Hill wellfield. An on-site visit was conducted on December 10, 1991 by the Department, upon which one floor drain, which discharged into a MDC trap and leaching basin, and three, subsurface, 55 gallon perforated barrels used as leaching pits were observed in the main building. Subsequent to this LTBI determination, and on-site visit, the MA DEP Division of Water Supply issued a Notice of Noncompliance on March 2, 1992 to the Town of Chatham Municipal Airport.

A Phase I Limited Site Investigation was conducted in October, 1992 by the firm of DeFeo, Wait & Paré, Inc. (DWP), per the Department's request. The purpose of the Phase I investigation was to identify any release of oil and/or hazardous materials that may have occurred on or adjacent to the property, and/or to determine if there was a potential for such a release to occur under the jurisdiction of the MA Oil and Hazardous Material Release Prevention Act, Chapter 21E of the MA

General Laws. This investigation included the research of environmental records and collection of soil and groundwater samples for laboratory analysis.

According to the Phase I Limited Site Investigation Report issued by DWP, low level contamination was identified in two indoor leaching pits (UI-2 and UI-3) and the MDC trap. It was the recommendation of DWP that these drainage areas be sealed, in accordance with the UIC Closure Program (UIC) Regulations (310 CMR 27.00). It was further determined that the source of PCE contamination within the Indian Hill wellfield was not related to activities within the Chatham Municipal Airport, as no significant concentrations of PCE were discovered, and the Chatham Municipal Airport is located hydrologically downgradient to the wellfield. On February 1, 1994, the Department (Gregg Hunt) officially issued a determination that "no further action" was required at the site.

ASSESSMENT [Refer to Appendix B]

On February 4, 1999, BENNETT & O'REILLY, INC., was contacted by the Town of Chatham Water Quality Laboratory (Robert Duncanson) to provide environmental assessment and appropriate remedial response measures, if required, for the abandonment of the floor drain and three (3) leaching pits. Assessment activities were conducted on April 7, 1999, by BENNETT & O'REILLY, INC., personnel (Craig Sasse), as assisted by Bob Duncanson of the Chatham Water Quality Laboratory. Five hand borings were conducted within the four floor drain areas. As representing leach pit sidewalls and bottom of hole areas, soil samples were collected, preserved and forwarded to Groundwater Analytical of Buzzards Bay, MA for Total Petroleum Hydrocarbon (TPH ASTM D3328-90), Volative Organic Compounds (EPA 8260B) and trace metal (ICP-AES and CVAA) analysis.

RISK CHARACTERIZATION [Refer to Appendix D]

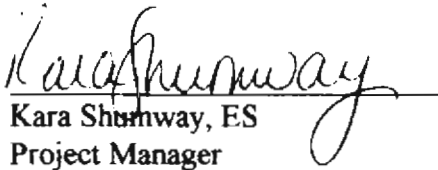
Laboratory analysis was received by BENNETT & O'REILLY, INC., on April 23, 1999. These results were compared to the Method 1 - Risk Characterization standards for the strictest GW-1 and S-1/GW-1 categories and to the Reportable Concentration standards of the RCS-1 standards. Although low levels of PCE were reported within the HB-1:0-5' and HB-2:0-5 intervals and low levels of trace metals, primarily arsenic and chromium, were noted in each sampling location, all reported concentrations were well below the most stringent Method 1 - Risk Characterization Standards and RCS-1 Standards. As such, soil conditions at the Chatham Municipal Airport represent a condition of "No Significant Risk", and no remedial response actions were conducted as part of the UIC closure procedure.

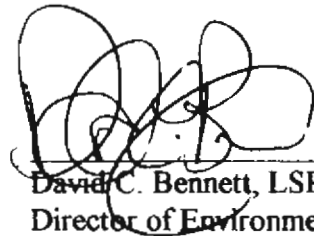
On July 26, 1999, EnviroSafe, as the environmental contractor, cleaned, filled and sealed the exterior components of the floor drain, consisting of the MDC trap, D-Box and leaching pit (UI-1) [Refer to Appendix A- Site Plan]. The sealing of the interior floor drain and leaching pits was

conducted by EnviroSafe, Corp., on August 4, 1999, under the supervision of BENNETT & O'REILLY, INC. These activities were initiated by the removal of metal plates which covered the UI-2 and UI-3 leaching pits in the main hanger. Grit/sludge was removed from within the perforated barrels and loaded into metal Department of Transportation (DOT) drums for off-site disposal as solid waste debris under a uniform hazardous waste manifest. The concrete cap used to seal the UI-4 leaching pit location was then broken up and the contents inspected. UI-4 appeared to have been filled with clean sand. The rubber mat and grate overlying the floor drain in the maintenance building were then removed and the area similarly cleaned. All areas were then backfilled with clean material and sealed with a concrete cap.

This UIC Closure Assessment has been conducted in accordance with the UIC Closure Guidance Document, as consistent with the MA DEP Contingency Plan, 310 CMR 40.000. Should you have any questions or require any further information, please contact me directly.

Very truly yours,
BENNETT & O'REILLY, INC.


Kara Shumway, ES
Project Manager


David C. Bennett, LSP
Director of Environmental Services

cc: Bob Duncanson - Chatham Water Quality Laboratory
Tinker Meades - Chatham Plumbing Inspector
Chatham Chief Municipal Officer

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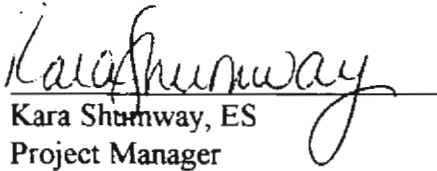
Laboratory analysis was received by BENNETT & O'REILLY, INC., on April 23, 1999. These results were compared to the Method 1 - Risk Characterization standards for the strictest GW-1 and S-1:GW-1 categories and to the Reportable Concentration standards of the RCS-1 standards. Although low levels of PCE were reported within the HB-1:0-5' and HB-2:0-5 intervals and low levels of trace metals, primarily arsenic and chromium, were noted in each sampling location, all reported concentrations were well below the most stringent Method 1 - Risk Characterization Standards and RCS-1 Standards. As such, soil conditions at the Chatham Municipal Airport represent a condition of "No Significant Risk", and no remedial response actions were conducted as part of the UIC closure procedure.

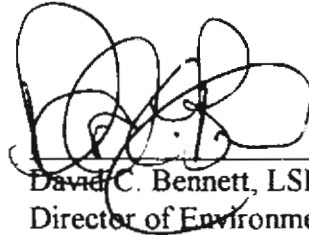
On July 26, 1999, EnviroSafe, as the environmental contractor, cleaned, filled and sealed the exterior components of the floor drain, consisting of the MDC trap, D-Box and leaching pit (UI-1) [Refer to Appendix A- Site Plan]. The sealing of the interior floor drain and leaching pits was

conducted by EnviroSafe, Corp., on August 4, 1999, under the supervision of BENNETT & O'REILLY, INC. These activities were initiated by the removal of metal plates which covered the UI-2 and UI-3 leaching pits in the main hanger. Grit/sludge was removed from within the perforated barrels and loaded into metal Department of Transportation (DOT) drums for off-site disposal as solid waste debris under a uniform hazardous waste manifest. The concrete cap used to seal the UI-4 leaching pit location was then broken up and the contents inspected. UI-4 appeared to have been filled with clean sand. The rubber mat and grate overlying the floor drain in the maintenance building were then removed and the area similarly cleaned. All areas were then backfilled with clean material and sealed with a concrete cap.

This UIC Closure Assessment has been conducted in accordance with the UIC Closure Guidance Document, as consistent with the MA DEP Contingency Plan, 310 CMR 40.000. Should you have any questions or require any further information, please contact me directly.

Very truly yours,
BENNETT & O'REILLY, INC.


Kara Shumway, ES
Project Manager


David C. Bennett, LSP
Director of Environmental Services

cc: Bob Duncanson - Chatham Water Quality Laboratory
Tinker Meades - Chatham Plumbing Inspector
Chatham Chief Municipal Officer

UIC CLOSURE ASSESSMENT

Chatham Municipal Airport
240 George Ryder Road
Chatham, MA
BO99-2262

August 11, 1999

Prepared for:
Town of Chatham
c/o Robert Duncanson
Water Quality Laboratory
283 George Ryder Road
Chatham, MA 02633

Prepared by:
BENNETT & O'REILLY, INC.
P.O. Box 1667
Brewster, MA 02631

APPENDIX A: Reference Plans

- FIGURE 1: Site Locus Map (USGS Chatham Quadrangle, 1998)
- FIGURE 2: Hydrologic Map - Groundwater Resource of Cape Cod, MA
- FIGURE 3: MA DEP GIS Map - Bureau of Waste Site Cleanup (1997)
- FIGURE 4: Site Plan "Chatham Municipal Airport, Sketch Plan ...", Prepared by BENNETT & O'REILLY, INC., Dated July 29, 1999

APPENDIX B: Field Reports

- Geologic Borehole Logs
- Inspection Reports

APPENDIX C: Environmental Records

- UIC Notification Form
- Form WS1: Notice of Plumbing Inspector Approval to Seal Floor Drain
- Hazardous Waste Manifests

APPENDIX D: Laboratory Analysis

APPENDIX E: Quality Assurance/Quality Control

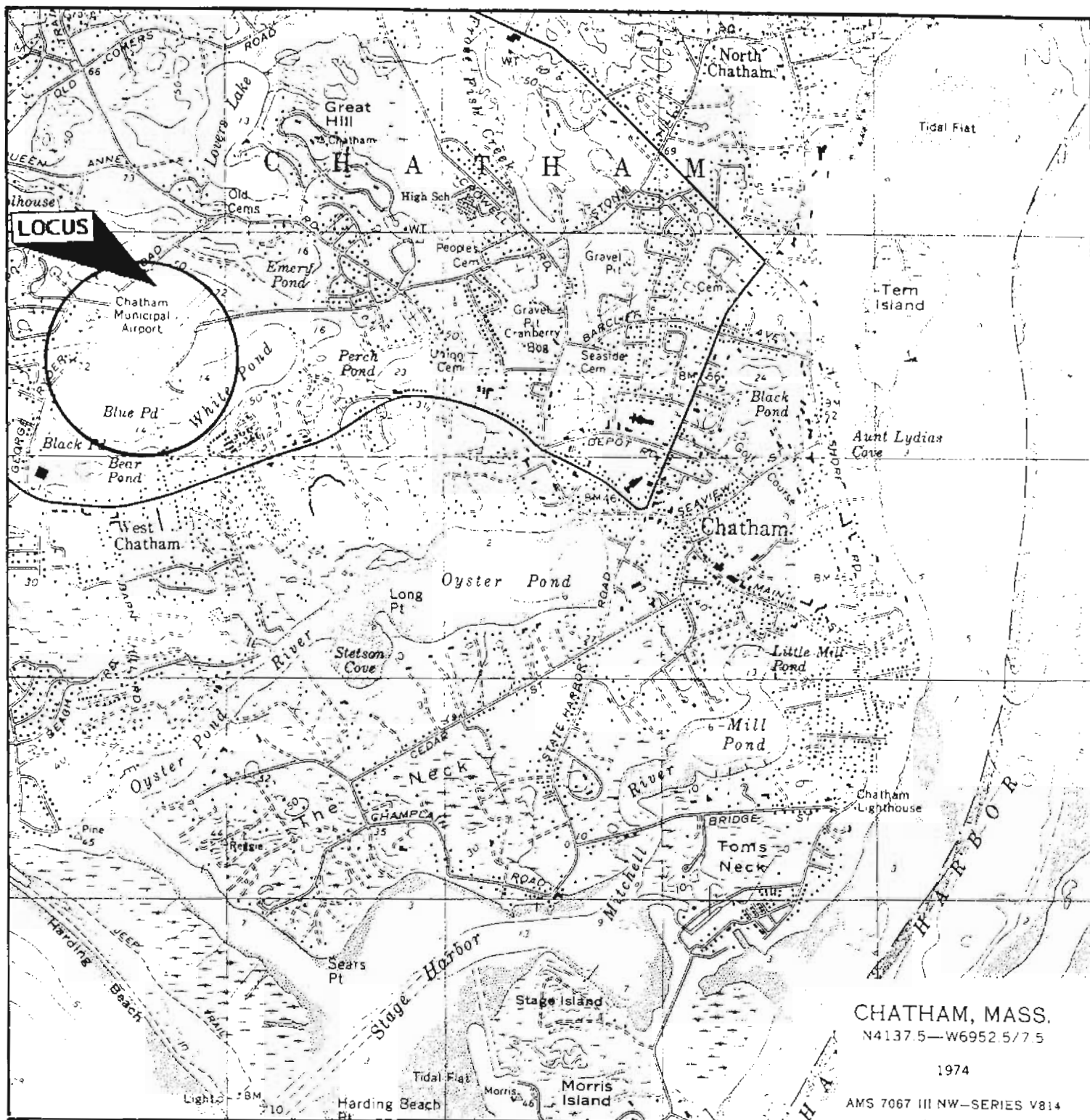
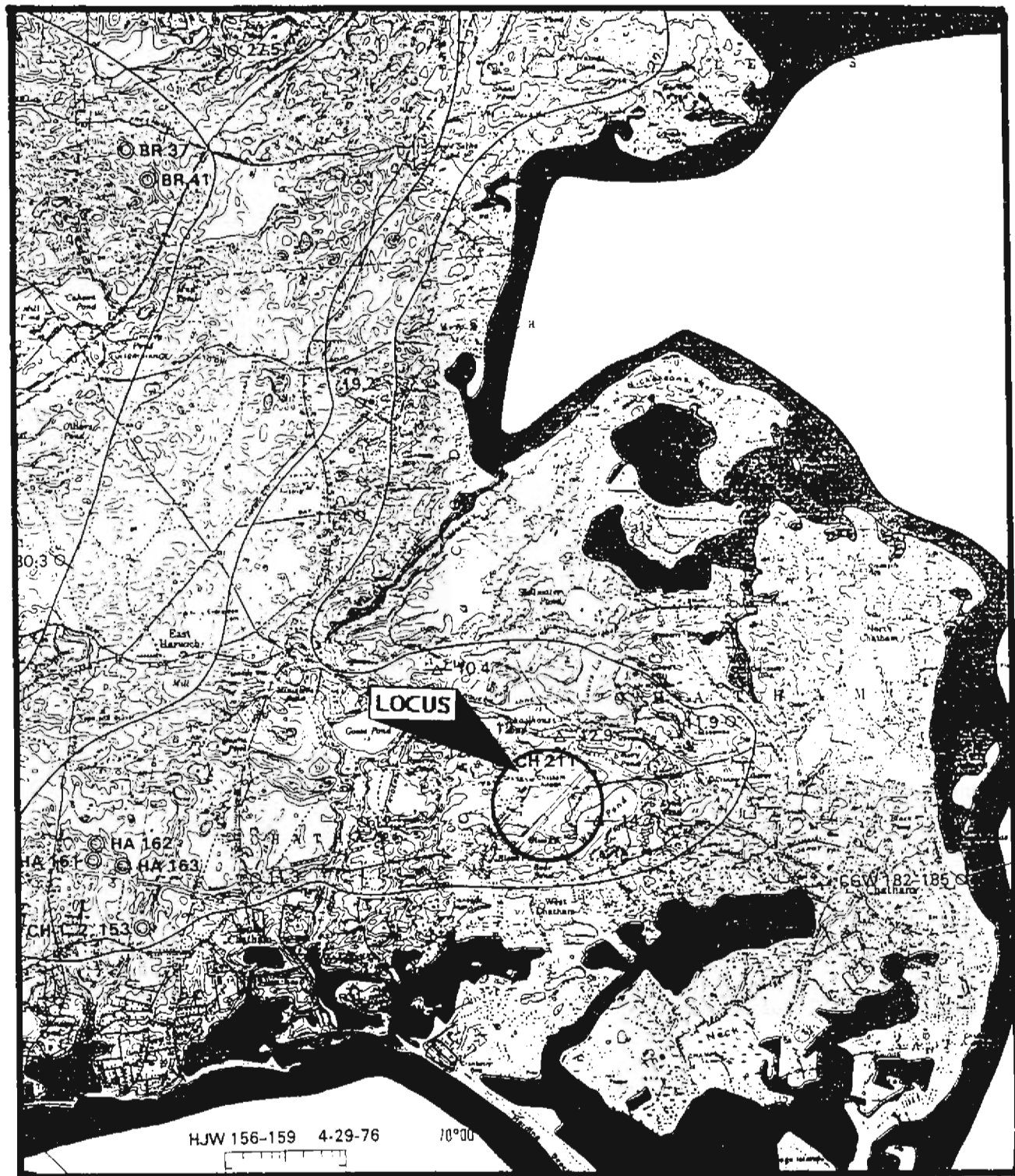


FIGURE 1: The subject site is located at 240 George Ryder Road, in Chatham, MA, some two miles northwest of Chatham Center. Abutting properties to the north, east and west primarily consist of single family seasonal use, residential dwellings. Blue, Black and Bearses Ponds abut the southern property line, amidst various residential dwelling.



GROUND-WATER RESOURCES OF CAPE COD, MASSACHUSETTS

By

Denis R. LeBlanc, John H. Guswa, Michael H. Frimpter, and Clark J. Londquist

1986

FIGURE 2: Hydrologic Atlas shows the location of the subject site, Chatham Municipal Airport, relative to regional groundwater flow contours and topographic elevations. Regional groundwater contours indicate a southeasterly groundwater flow direction at the site toward Aunt Lydia's Cove and Nantucket Sound.



MA DEP - Bureau of Waste Site Cleanup

Harwich Quadrangle

Scale 1:25000

Revised 11/85 (05/85) (11/85) (11/85)

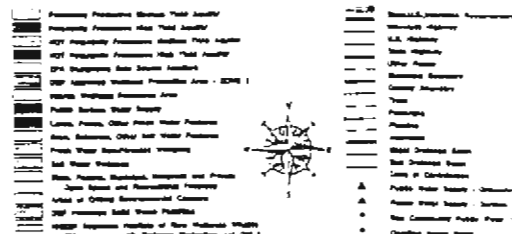
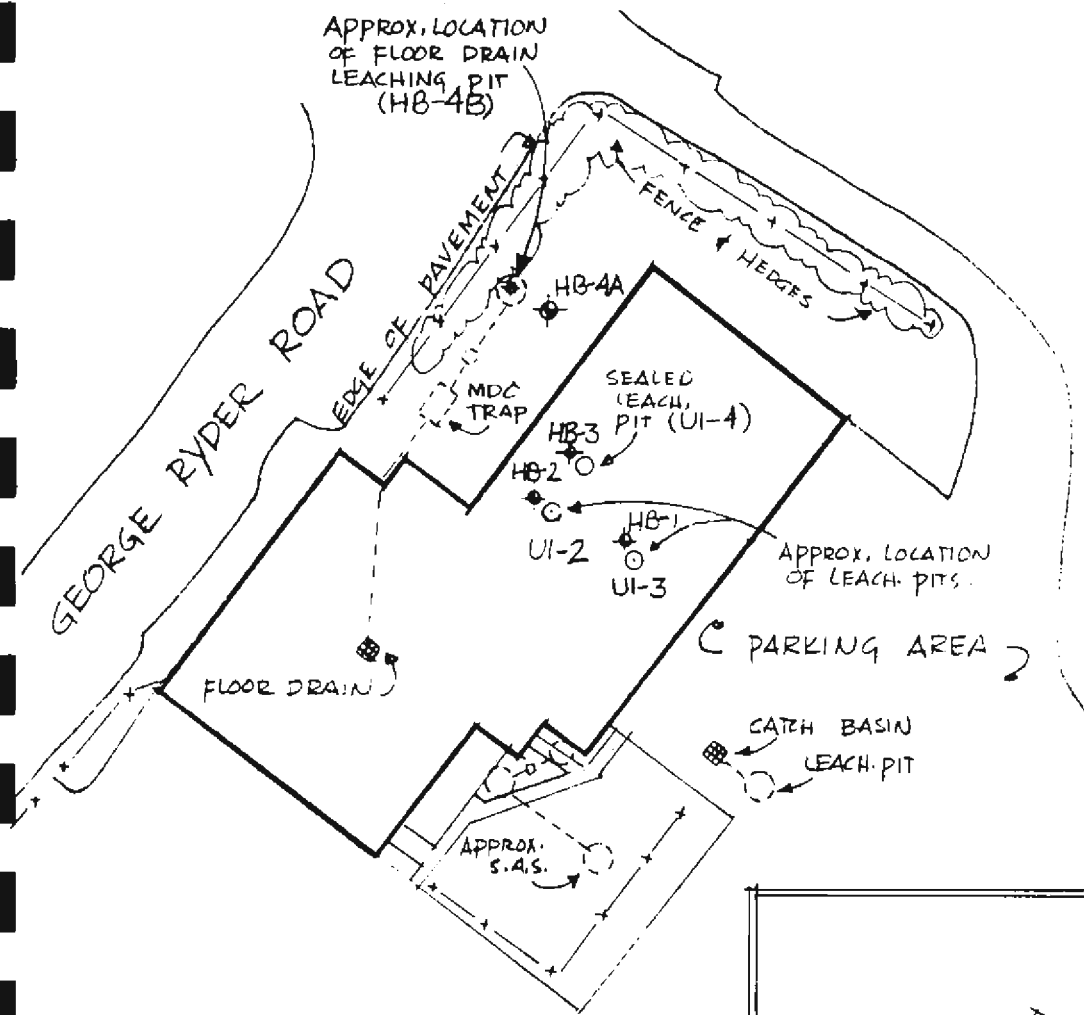


FIGURE 3: MA DEP BWSC Map shows the locus site Chatham Municipal Airport as within the Zone II - Protective Radius for the Town of Chatham's Wellfield, known as Indian Hill Well, located some 1,000' to the northwest. Based upon its location within the Zone II, the GW-1 groundwater and S-2/GW-1 soil categories apply.



PLAN DETAIL

SCALE: 1" = 50'

SKETCH PLAN OF LAND

CHATHAM MUNICIPAL AIRPORT

240 GEORGE RYDER ROAD
CHATHAM, MA.

PREPARED FOR:

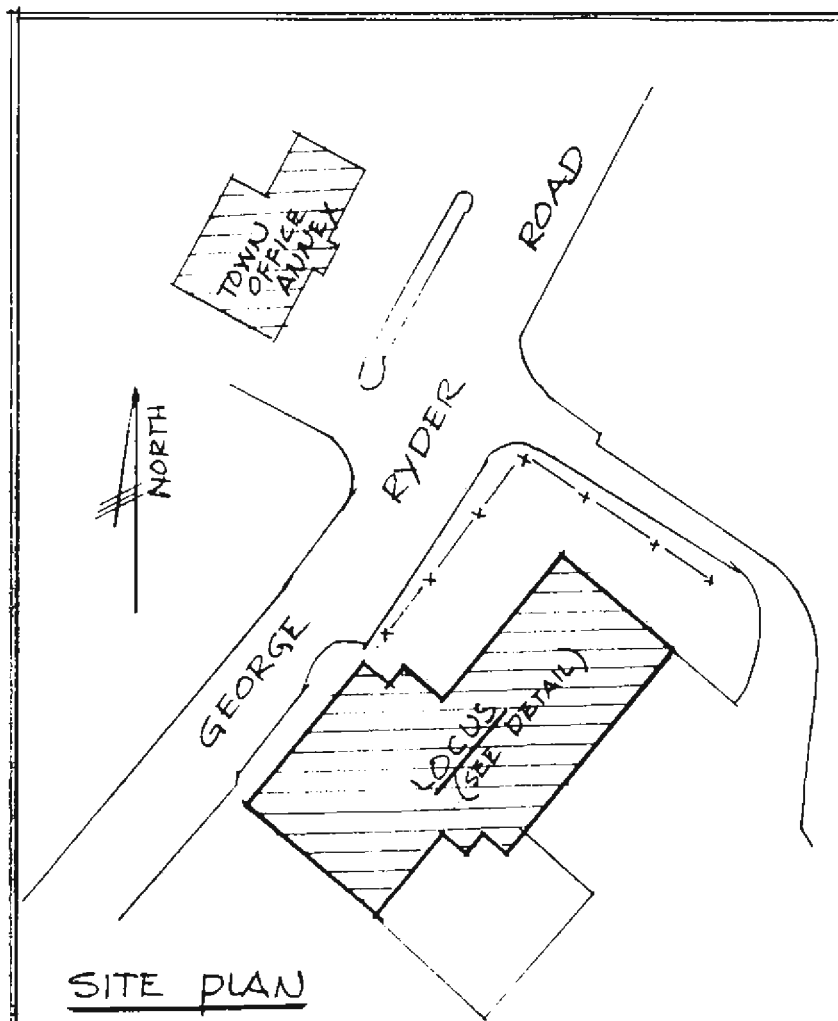
THE TOWN OF CHATHAM

% ROBERT DUNCANSON, DIRECTOR
WATER QUALITY LABORATORY
549 MAIN ST., CHATHAM, MA.

SCALE AS NOTED

JULY 29, 1999

BENNETT & O'REILLY, INC.
1573 MAIN STREET
BREWSTER, MA.









SITE PLAN

SCALE: 1" = 80'









BENNETT & O'REILLY, Inc.

1573 Main Street
 PO Box 1667
 Brewster, MA 02631

Sheet 1 of 4
 508-896-6630
 508-896-4687 Fax

 SAND  GRAVEL  SILT SAND  PEAT  CLAY  FILL	Job Number: BO99-2262 Date: 4/7/99 Job Name: Chatham Airport Test Hole Number: HB-1 Witness: Craig Sasse, E.S., Bob Duncanson - Town of Chatham Drilling Contractor: BENNETT & O'REILLY, INC. Sampling Method: 3" bucket auger	
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





GEOLOGIC BOREHOLE LOG

Lithology	Depth	Type of Sample	Depth	Standard Penetration		Well Specification & Remarks	Lithology/Sediment Description
				Blows per 6" Drive	% of Recovery		
   	5	A	0-5	NA	100	PID Response (ppm) WSC 94-400 0-5 1.0* 5-8 BDL *No odor detected	FILL: No odor, no staining. SAND: Light brown to buff with FE staining, medium to coarse with fines, poorly sorted, stratified with gravel.
   	10	A	5-8	NA	100		
	15						
	20						
	25						
	30					SWL: NWE	
	35					Backfill with clean sand. Patch open hole with concrete to grade.	
	40						
	45						
	50						

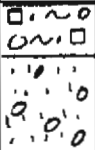
BENNETT & O'REILLY, Inc.

1573 Main Street
 PO Box 1667
 Brewster, MA 02631

Sheet 2 of 4
 508-896-6630
 508-896-4687 Fax

 SAND	 GRAVEL	 SILT SAND	Job Number: BO99-2262 Job Name: Chatham Airport Test Hole Number: HB-2 Witness: Craig Sasse, E.S., Bob Duncanson - Town of Chatham Drilling Contractor: BENNETT & O'REILLY, INC. Sampling Method: 3" bucket auger	Date: 4/7/99
 PEAT	 CLAY	 FILL		

GEOLOGIC BOREHOLE LOG







Lithology	Depth	Type of Sample	Depth	Standard Penetration		Well Specification & Remarks	Lithology/Sediment Description
				Blows per 6" Drive	% of Recovery		
	5	A	0-5	NA	100	PID Response (ppm) WSC-94-400 0-5 1.2* 5-8 BDL *No odor detected	FILL: No odor, no staining. SAND: Light brown with FE staining, medium to coarse with fines, poorly sorted, moderately stratified with gravel.
	10	A	5-8	NA	100		
	15						
	20						
	25						
	30					SWL: NWE	
	35						
	40					Backfill with clean sand. Patch open hole with cement, flush to grade.	
	45						
	50						

BENNETT & O'REILLY, Inc.



Sheet 3 of 4

1573 Main Street
 PO Box 1667
 Brewster, MA 02631

508-896-6630
 508-896-4687 Fax

			Job Number: BO99-2262	Date: 4/7/99
SAND	GRAVEL	SILT SAND	Job Name: Chatham Airport	
			Test Hole Number: HB-3	
PEAT	CLAY	FILL	Witness: Craig Sasse, E.S., Bob Duncanson, Town of Chatham	
			Drilling Contractor: BENNETT & O'REILLY, INC.	
			Sampling Method: 3" bucket auger	







GEOLOGIC BOREHOLE LOG

Lithology	Depth	Type of Sample	Depth	Standard Penetration		Well Specification & Remarks	Lithology/Sediment Description
				Blows per 6" Drive	% of Recovery		
	5	A	0-5	NA	100	PID Response (ppm) WSC-94-400 0-5 BDL 5-8 BDL	FILL: No odor, no staining. SAND: Light brown with FE staining, medium to coarse with fines, poorly sorted, stratified with gravel.
		A	5-10	NA	100		
	10						
	15						
	20						
	25						
	30					SWL: NWE	
	35					Backfill with clean sand. Patch open hoie with cement. flush to grade.	
	40						
	45						
	50						




BENNETT & O'REILLY, Inc.

1573 Main Street
 PO Box 1667
 Brewster, MA 02631

Sheet 4 of 4
 508-896-6630
 508-896-4687 Fax

 SAND  GRAVEL  SILT SAND  PEAT  CLAY  FILL	Job Number: BO99-2262 Date: 4/7/99 Job Name: Chatham Airport Test Hole Number: HB-4A, B Witness: Craig Sasse, E.S., Bob Duncanson - Town of Chatham Drilling Contractor: BENNETT & O'REILLY, INC. Sampling Method: 3" bucket auger
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GEOLOGIC BOREHOLE LOG

Lithology	Depth	Type of Sample	Depth	Standard Penetration		Well Specification & Remarks	Lithology/Sediment Description
				Blows per 6" Drive	% of Recovery		
	5	A	0-5	NA	100	PID Response (ppm) WSC-94-400 0-3 BDL 3-9 BDL 10-15 BDL	HB-4A: SAND: Light brown with fines, FE staining, medium with fines and gravel, poorly sorted.
	10	A	5-9	NA	100		
	15	A	10-15	NA	100		
	20						
	25						
	30					SWL: NWE	HB-4B: SAND: Tan to buff, medium to coarse, well sorted, very clean.
	35					Conduct HB-4A 6' offset south of leaching pit to 9'. Conduct HB-4B at center of leaching pit from 10'-15'.	
	40						
	45						
	50						

BENNETT & O'REILLY, Inc.

REPORT NUMBER: 1

1573 Main Street
PO Box 1667
Brewster, MA 02631

508-896-6630
508-896-4687 Fax

INSPECTORS DAILY RECORD OF WORK PROGRESS

Job Number: BO99-2262 Date: 7/26/99

Job Name: Chatham Municipal Airport

Feature: UIC Closure

Contractor: BENNETT & O'REILLY, INC., EnviroSafe, Corp., Chatham Water Quality Laboratory

Type of Work: Inspection

Weather Conditions: Partly cloudy

Temperature: 80F

Contractor's Work Force (Indicate classification, including Subcontractor personnel)

BENNETT & O'REILLY, INC.: Craig Sasse - ES, EnviroSafe: 1 foreman (Nick Christiani), 3 laborers, Chatham Water Quality Laboratory: Bob Duncanson

Equipment in use or idled (identify which)

Vac-truck

Materials or equipment delivered, quantity or pay items placed

NA

Non-conforming materials or work, field problems, inspections of previously reported deficiencies

Scheduling conflict, no access to hangers

Summary of construction activities

9:00am

BENNETT & O'REILLY, INC., arrives at site. Met by EnviroSafe, Corp., personnel (1 foreman, 3 laborers). Meet with Bob Duncanson. Chatham officials had no notification of work scheduled. No access to interior of hangers. EnviroSafe, Corp., personnel to muck exterior components and fill with flowable fill. Interior work (mucking, drumming, and sealing of floor drains), rescheduled for Wednesday, August 4. BENNETT & O'REILLY, INC., leaves site at 10:00am.

BENNETT & O'REILLY, Inc.

REPORT NUMBER: 2

1573 Main Street
PO Box 1667
Brewster, MA 02631

508-896-6630
508-896-4687 Fax

INSPECTORS DAILY RECORD OF WORK PROGRESS

Job Number: BO99-2262 Date: 8/4/99
Job Name: Chatham Municipal Airport
Feature: UIC Closure
Contractor: BENNETT & O'REILLY, INC., EnviroSafe Corp., Chatham Water Quality Laboratory
Type of Work: Inspection
Weather Conditions: Sunny, breezy, warm Temperature: 78F

Contractor's Work Force (Indicate classification, including Subcontractor personnel)

BENNETT & O'REILLY, INC.: Kara Shumway - ES, EnviroSafe, Corp.: 1 foreman (Nick Christiani) and two laborers, Chatham Water Quality Laboratory: Bob Duncanson

Equipment in use or idled (identify which)

Compressor, jack hammer

Materials or equipment delivered, quantity or pay items placed

NA

Non-conforming materials or work, field problems, inspections of previously reported deficiencies

NA

Summary of construction activities

9:10am

BENNETT & O'REILLY, INC., personnel arrive at site. EnviroSafe and Duncanson on site. Two leach pits uncovered and cleaned out. Sealed drain broken open - note clean sand within.

9:55am

Gain entrance into maintenance building. Open floor drain and remove approximately 5 gallons of grit. EnviroSafe awaiting arrival of plumber to seal drain. BENNETT & O'REILLY, INC., personnel note all drain/leaching pits clean. Leave site.



Commonwealth of Massachusetts
Executive Office of Environmental Affairs

Department of Environmental Protection

William F. Weld
Governor
Daniel S. Greenbaum
Commissioner

UIC NOTIFICATION FORM DIVISION OF WATER SUPPLY

The Underground Injection Control (UIC) program protects drinking water by regulating discharges to the ground via injection wells such as dry wells and septic systems. Pursuant to UIC regulations (310 CMR 27.00), the discharge of pollutants via a floor drain to such a well must cease.

This notification form is to be used to report which of the options under I below (per DEP regulations) your facility will follow regarding your floor drain(s). Supply all information and attachments for that option. Supply all information for II and III as noted.

I. Option chosen for floor drain upon closure of injection well:

A. Plug the floor drain, if applicable (see 248 CMR 2.09).

1. Copy of Form WS1: Notice of Plumbing Inspector Approval to Seal Floor Drain (where applicable),
and Plumbing Permit Number: # 3854

2. Date of plugging: 8 / 4 / 99

B. Connect floor drain to a holding tank/containment basin that meets all appropriate DEP regulations and policies.

1. Floor plan with tank location

2. Type of tank: _____

3. DEP Permit #, where applicable _____

4. Containment Basin Notification & required attachments, where applicable

5. Date of connection: _____/_____/_____

C. Connect floor drain to municipal sewer (only allowed per DEP regulation 314 CMR 7.00 re. sewer discharge permits).

1. DEP sewer discharge permit & permit/transmittal number: # _____

2. Waste Water Treatment Plant permit & permit number: # _____

3. Date of hookup: _____/_____/_____

D. Close and remove entire service bay.

SEE REVERSE SIDE

___ II. **Waste Management Plan** (methods to be used to properly collect, store, and dispose of all potentially hazardous wastes) must be supplied by all facilities generating, managing, or disposing of hazardous materials and/or wastes.

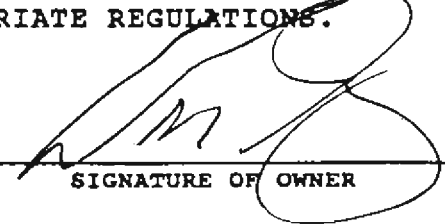
X III. **Sampling Results**, where required, must be supplied with this form. Any abandoned separator must be pumped empty and cleaned.

Name of Business: Town of Chatham Municipal Airport
Mailing Address: c/o Robert Duncanson, Water Quality Lab., 283 George Ryder
Location: 240 George Ryder Road, Chatham, MA Road, Chatham, MA 02633
Facility Owner: Town of Chatham Phone: (508) 945-5188
Nature of Business: Transportation
EPA Hazardous Waste Generator ID Number: _____
Number of Floor Drains at facility: before closure: 3 after: 0
Previous Final Point of Discharge of Floor Drain: Two drains discharged

directly below into leaching area, one drain discharged into a MDC trap and into a leaching pit.

I HEREBY CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED IN THIS DOCUMENT AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THAT THE INFORMATION IS TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING POSSIBLE FINES AND IMPRISONMENT.

I UNDERSTAND THAT I MUST HANDLE, STORE, AND DISPOSE OF ALL HAZARDOUS WASTES IN AN ENVIRONMENTALLY SOUND MANNER IN ACCORDANCE WITH ALL APPROPRIATE REGULATIONS.



SIGNATURE OF OWNER

4/24/99

DATE

Any questions may be directed to the UIC Program at (617)292-5770. Submit this form and all required attachments for I (only the attachments for the option chosen), II, and III to the following address:

Underground Injection Control Program
DEP/Division of Water Supply
One Winter Street, 9th floor
Boston, MA 02108

Send duplicate copies of all forms to: Local Board of Health
Local Plumbing Inspector



Commonwealth of Massachusetts
Executive Office of Environmental Affairs

Department of Environmental Protection

William F. Weld
Governor
Trudy Cox
Secretary, EDEA
David B. Struhs
Commissioner

FORM WS1

Notice of Plumbing Inspector Approval to Seal Floor Drain April 1992

Note: This Application Does Not Apply To Any Facility Whose Floor Drain Is Connected To A Municipal Sewer System.

To: Plumbing Inspector for the City/Town of Chatham

Company Name: Town of Chatham Municipal Airport
Nature of Business: Transportation
Mailing Address: c/o Robert Duncanson, Water Quality Lab., 283 George Ryder
Location: 240 George Ryder Road Road, Chatham, MA 02633
Phone Number: (508) 945 -- 5188
Facility Owner: Town of Chatham,
requests to seal 3 floor drains.
of drains

Any additions or alterations to the system are not permissible without the approval of the local plumbing inspector. All seals must be in compliance with 248 CMR. This form must show both signatures before copy may be filed with DEP.

Upon approval, a completed copy of this notice shall be filed immediately with the DEP Under-ground Injection Control Program (@617/556-1165) at the address below. Upon completion of all work, the applicant shall file the DEP UIC Notification Form to the same address.

Signature of Facility Owner

Date

Approval/Signature of Local Plumbing Inspector

Date

Plumbing Permit #

Owner shall send a completed
copy of this form to:

DEP/Division of Water Supply
Underground Injection Control Program
One Winter Street, 9th floor
Boston, MA 02108



COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street
Boston, Massachusetts 02108

FOR IN-STATE WASTE
OIL ONLY
OR
IN-STATE VSQG HW/WO

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MP 501894551188000011		Manifest Document No. 00101		2. Page 1 of 1		information in the shaded areas is not required by Federal law.			
3. Generator's Name and Mailing Address Chatham Municipal Airport 240 George Ryder Road Chatham, MA 02633				A. State Manifest Document Number MA K836560		B. State Gen. ID SAME					
4. Generator's Phone (508 945-5188)				C. State Trans. ID MA COMMP75689		D. Transporter's Phone (508 888-5478)					
5. Transporter 1 Company Name Enviro-Safe Corporation		6. US EPA ID Number MAD985259323		E. State Trans. ID		F. Transporter's Phone ()					
7. Transporter 2 Company Name		8. US EPA ID Number		G. State Facility's ID Not Required		H. Facility's Phone (508 822-1151)					
9. Designated Facility Name and Site Address Olson's Greenhouses 590 South Street East Raynham, MA 02767				10. US EPA ID Number MAD059733378							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.		
a. Waste Petroleum Oil, N.O.S. (not DOT regulated)						001	TT	G	MA99		
b.											
c.											
d.											
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)						K. Handling Codes for Wastes Listed Above					
a.											
b.											
c.											
d.											
15. Special Handling Instructions and Additional Information Material tested being marketed as MA99						Emergency Contact: Heather Atwood 508-888-5478					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.											
17. Transporter 1 Acknowledgement of Receipt of Materials						Printed/Typed Name Robert A. Duncanson		Signature <i>Robert A. Duncanson</i>		Date 9/26/99	
18. Transporter 2 Acknowledgement of Receipt of Materials						Printed/Typed Name Steve Dennis		Signature <i>Steve Dennis</i>		Date 9/26/99	
19. Discrepancy Indication Space						Printed/Typed Name Robert Wellington		Signature <i>Robert Wellington</i>		Date 9/26/99	
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						Printed/Typed Name Robert Wellington		Signature <i>Robert Wellington</i>		Date 9/26/99	

Form Approved OMB No. 2050-0039
EPA Form 8700-22 (Rev. 9-94) Previous editions are obsolete



COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS MATERIALS
One Winter Street
Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12 pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA 50 894551 B B 600012		Manifest Document No. 1	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address: Chatham Municipal Airport 240 George Ryder Road Chatham, MA 02633 Telephone: (508) 945-5188				A. State Manifest Document Number MA K087636		
4. Generator's Name and Mailing Address: Enviro-Safe Corporation General Chemical Corp 133 Leland Street Frammingham, MA 01701				B. State Gen. ID Same		
5. US EPA ID No. Gen. MA D 9 8 5 2 6 9 3 2 3				C. State Trans. ID MA COM 8 6 1 9 6 0		
6. US EPA ID No. Trans. MA D 0 1 9 3 7 1 0 7 9				D. Transporter's Phone # 508 888-5478		
7. State Trans. ID MA -43069				E. State Trans. ID MA -43069		
8. Facility's Phone # 508 872-5000				F. Facility's Phone # 508 872-5000		
9. Description of Contents (including Proper Shipping Name, Hazard Class, and ID Number)				12. Containers	13. Total Quantity	14. Unit Weight
State Regulated Oily Solids (not regulated per 40CFR; per 49CFR)				No. 1	Type DM	Quantity 2100
						P MA 011
15. Special Handling Instructions and Additional Information: Emergency Phone #508-888-5478 Contact: Heather Atwood				16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.		
				17. Transporter 1 Acknowledgement of Receipt of Materials: Printed/Typed Name: Robert A. Duncan Signature: <i>Robert A. Duncan</i> Date: 10/26/99		
				18. Transporter 2 Acknowledgement of Receipt of Materials: Printed/Typed Name: Steve D... Signature: <i>Steve D...</i> Date: 11/26/99		
				19. Discrepancy Indication Space		
				20. Facility Owner or Operator: Certification of Receipt of hazardous materials covered by this manifest except as noted in Item 19. Printed/Typed Name: _____ Signature: _____ Date: _____		

in case of emergency or spill, inform: National Response Center (800) 424-9300
 TRANSPORTER 1 RETAINS

MA K087636 COPY>5: TRANSPORTER 1 RETAINS



COMMONWEALTH OF MASSACHUSETTS
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 DIVISION OF HAZARDOUS MATERIALS
 One Winter Street
 Boston, Massachusetts 02108

RECEIVED AUG 11 1999

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA P 508945318800001		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address CHATHAM MUNICIPAL AIRPORT 240 GEORGE RYDER RD. CHATHAM 02633				A. State Manifest Document Number MA K091326		B. State Gen. ID SAME			
4. Generator's Phone (508) 945-5788		5. Transporter 1 Company Name Enviro-Safe Corp.		6. US EPA ID Number MA A 8161960		C. State Trans. ID MA A 8161960		D. Transporter's Phone (508) 888-5478	
7. Transporter 2 Company Name		8. US EPA ID Number		E. State Trans. ID		F. Transporter's Phone ()		G. State Facility's ID Not Required	
9. Designated Facility Name and Site Address General Chemical Corp 133 Leland Street Framingham, MA 01701				10. US EPA ID Number MA A 01019371079		H. Facility's Phone (508) 872-5000			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)				12. Containers		13. Total Quantity		14. Unit Wt/Vol	
a. State reg. oily solids not reg. per 40 CFR; per 49				No. Type		0 0 1 D M 001 00		P	
b.									
c.									
d.									
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)				K. Handling Codes for Wastes Listed Above					
a.				b.		c.		d.	
b.									
15. Special Handling Instructions and Additional Information 24 HR. EMERGENCY CONTACT # (508) 888-5478 USE EMERGENCY RESPONSE GUIDE 27									
16. GENERATOR'S CERTIFICATION. I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name L. K. PICKET				Signature <i>[Signature]</i>				Date 08/10/99	
17. Transporter 1 Acknowledgement of Receipt of Materials				Printed/Typed Name N. P. CHRISTIANI				Signature <i>[Signature]</i>	
								Date 08/10/99	
18. Transporter 2 Acknowledgement of Receipt of Materials				Printed/Typed Name				Signature	
								Date	
19. Discrepancy Indication Space									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.									
Printed/Typed Name				Signature				Date	
								Month Day Year	

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

GENERATOR

TRANSPORTER

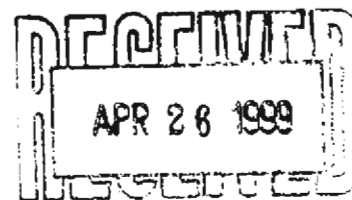
FACILITY

MA K091326 COPY 1 FACILITY MAILLS TO DESTINATION STATE

GROUNDWATER ANALYTICAL

Groundwater Analytical, Inc.
P.O. Box 1200
228 Main Street
Buzzards Bay, MA 02532
Telephone (508) 759-4441
FAX (508) 759-4475

April 23, 1999



Mr. David Bennett
Bennett & O'Reilly, Inc.
P.O. Box 1667
Brewster, MA 02631

Project: Chatham Municipal Airport/BO99-2262
Lab ID: 26181
Sampled: 04-07-99

Dear Dave:

Enclosed are the Volatile Organics, Metals and Hydrocarbon Fingerprint Analyses performed for the above referenced project. This project was processed for Standard Two Week turnaround.

This letter authorizes the release of the analytical results, and should be considered a part of this report. This report contains a project narrative indicating project changes and non-conformances, a brief description of the Quality Assurance/Quality Control procedures employed by our laboratory, and a statement of our state certifications.

I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Should you have any questions concerning this report, please do not hesitate to contact me.

Sincerely,

Jonathan R. Sanford
President

JRS/awc
Enclosures

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID:	HB-1:0-5	Laboratory ID:	26181-01
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	4	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	12
74-87-3	Chloromethane	BRL	ug/Kg	12
75-01-4	Vinyl Chloride	BRL	ug/Kg	12
74-83-9	Bromomethane	BRL	ug/Kg	12
75-00-3	Chloroethane	BRL	ug/Kg	12
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	12
60-29-7	Diethyl Ether	BRL	ug/Kg	12
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	62
75-09-2	Methylene Chloride	BRL	ug/Kg	12
156-60-5	trans-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl tert-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	cis-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	62
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	62
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	cis-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	62
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	trans-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	16	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	62
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

RCS-1
S-1/GW-1
500ug/Kg
(0.5ug/g)

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID:	HB-1:0-5	Laboratory ID:	26181-01
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	4	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	meta-Xylene and para-Xylene	BRL	ug/Kg	6
95-47-6	ortho-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	n-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	tert-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	sec-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	n-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	101 %	80 - 120 %
1,2-Dichloroethane-d ₄	101 %	80 - 120 %
Toluene-d ₈	99 %	81 - 117 %
4-Bromofluorobenzene	111 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID:	HB-1:5-8	Laboratory ID:	26181-02
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	4	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	13
74-87-3	Chloromethane	BRL	ug/Kg	13
75-01-4	Vinyl Chloride	BRL	ug/Kg	13
74-83-9	Bromomethane	BRL	ug/Kg	13
75-00-3	Chloroethane	BRL	ug/Kg	13
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	13
60-29-7	Diethyl Ether	BRL	ug/Kg	13
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	64
75-09-2	Methylene Chloride	BRL	ug/Kg	13
156-60-5	trans-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl tert-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	cis-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	64
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	64
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	cis-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	64
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	trans-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	64
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID:	HB-1:5-8	Laboratory ID:	26181-02
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO ₄ / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	4	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	meta-Xylene and para-Xylene	BRL	ug/Kg	6
95-47-6	ortho-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	n-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	tert-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	sec-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	n-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	101 %	80 - 120 %
1,2-Dichloroethane-d ₄	99 %	80 - 120 %
Toluene-d ₈	101 %	81 - 117 %
4-Bromofluorobenzene	110 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID:	HB-2:0-5	Laboratory ID:	26181-03
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	7	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	10
74-87-3	Chloromethane	BRL	ug/Kg	10
75-01-4	Vinyl Chloride	BRL	ug/Kg	10
74-83-9	Bromomethane	BRL	ug/Kg	10
75-00-3	Chloroethane	BRL	ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	10
60-29-7	Diethyl Ether	BRL	ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	5
67-64-1	Acetone	BRL	ug/Kg	100
75-15-0	Carbon Disulfide	BRL	ug/Kg	52
75-09-2	Methylene Chloride	BRL	ug/Kg	10
156-60-5	trans-1,2-Dichloroethene	BRL	ug/Kg	5
1634-04-4	Methyl tert-butyl Ether (MTBE)	BRL	ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	5
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	5
156-59-2	cis-1,2-Dichloroethene	BRL	ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	52
74-97-5	Bromochloromethane	BRL	ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	52
67-66-3	Chloroform	BRL	ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	5
71-43-2	Benzene	BRL	ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	5
79-01-6	Trichloroethene	BRL	ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	5
74-95-3	Dibromomethane	BRL	ug/Kg	5
75-27-4	Bromodichloromethane	BRL	ug/Kg	5
10061-01-5	cis-1,3-Dichloropropene	BRL	ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	52
108-88-3	Toluene	BRL	ug/Kg	5
10061-02-6	trans-1,3-Dichloropropene	BRL	ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	5
127-18-4	Tetrachloroethene	5	ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	5
591-78-6	2-Hexanone	BRL	ug/Kg	52
124-48-1	Dibromochloromethane	BRL	ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	5
108-90-7	Chlorobenzene	BRL	ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	5
100-41-4	Ethylbenzene	BRL	ug/Kg	5

RCS-1
S-1/GW-1
500 ug/K
(0.5ug/g)

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID:	HB-2:0-5	Laboratory ID:	26181-03
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-5
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	7	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	meta-Xylene and para-Xylene	BRL	ug/Kg	5
95-47-6	ortho-Xylene	BRL	ug/Kg	5
100-42-5	Styrene	BRL	ug/Kg	5
75-25-2	Bromoform	BRL	ug/Kg	5
98-82-8	Isopropylbenzene	BRL	ug/Kg	5
108-86-1	Bromobenzene	BRL	ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	5
103-65-1	n-Propylbenzene	BRL	ug/Kg	5
95-49-8	2-Chlorotoluene	BRL	ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	5
106-43-4	4-Chlorotoluene	BRL	ug/Kg	5
98-06-6	tert-Butylbenzene	BRL	ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	5
135-98-8	sec-Butylbenzene	BRL	ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	5
104-51-8	n-Butylbenzene	BRL	ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	5
91-20-3	Naphthalene	BRL	ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	5

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	100 %	80 - 120 %
1,2-Dichloroethane-d ₄	105 %	80 - 120 %
Toluene-d ₈	100 %	81 - 117 %
4-Bromofluorobenzene	117 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID:	HB-2:5-8	Laboratory ID:	26181-04
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	4	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	12
74-87-3	Chloromethane	BRL	ug/Kg	12
75-01-4	Vinyl Chloride	BRL	ug/Kg	12
74-83-9	Bromomethane	BRL	ug/Kg	12
75-00-3	Chloroethane	BRL	ug/Kg	12
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	12
60-29-7	Diethyl Ether	BRL	ug/Kg	12
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	60
75-09-2	Methylene Chloride	BRL	ug/Kg	12
156-60-5	trans-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl tert-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	cis-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	60
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	60
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	cis-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	60
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	trans-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	60
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID:	HB-2:5-8	Laboratory ID:	26181-04
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	4	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-12-3	meta-Xylene and para-Xylene	BRL	ug/Kg	6
95-47-6	ortho-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	n-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	tert-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	sec-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	n-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	100 %	80 - 120 %
1,2-Dichloroethane-d ₄	104 %	80 - 120 %
Toluene-d ₈	99 %	81 - 117 %
4-Bromofluorobenzene	105 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID:	HB-3:0-5	Laboratory ID:	26181-05
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-5
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	4	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	12
74-87-3	Chloromethane	BRL	ug/Kg	12
75-01-4	Vinyl Chloride	BRL	ug/Kg	12
74-83-9	Bromomethane	BRL	ug/Kg	12
75-00-3	Chloroethane	BRL	ug/Kg	12
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	12
60-29-7	Diethyl Ether	BRL	ug/Kg	12
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	58
75-09-2	Methylene Chloride	BRL	ug/Kg	12
156-60-5	trans-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl tert-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	cis-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	58
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	58
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	cis-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	58
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	trans-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	58
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID:	HB-3:0-5	Laboratory ID:	26181-05
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40ml. Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	4	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	meta-Xylene and para-Xylene	BRL	ug/Kg	6
95-47-6	ortho-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	n-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	tert-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	sec-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	n-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	101 %	80 - 120 %
1,2-Dichloroethane-d ₂	105 %	80 - 120 %
Toluene-d ₈	100 %	81 - 117 %
4-Bromofluorobenzene	111 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID: HB-3:5-8
 Project: Chatham Municipal Airport/BO99-2262
 Client: Bennett & O'Reilly
 Container: 40mL Glass
 Preservation: NaHSO4 / Cool
 Matrix: Soil
 % Moisture: 2

Laboratory ID: 26181-06
 QC Batch ID: VM4-1084-5
 Sampled: 04-07-99
 Received: 04-08-99
 Analyzed: 04-21-99
 Dilution Factor: 1
 Page: 1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	14
74-87-3	Chloromethane	BRL	ug/Kg	14
75-01-4	Vinyl Chloride	BRL	ug/Kg	14
74-83-9	Bromomethane	BRL	ug/Kg	14
75-00-3	Chloroethane	BRL	ug/Kg	14
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	14
60-29-7	Diethyl Ether	BRL	ug/Kg	14
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	7
67-64-1	Acetone	BRL	ug/Kg	140
75-15-0	Carbon Disulfide	BRL	ug/Kg	69
75-09-2	Methylene Chloride	BRL	ug/Kg	14
156-60-5	trans- 1,2-Dichloroethene	BRL	ug/Kg	7
1634-04-4	Methyl tert-butyl Ether (MTBE)	BRL	ug/Kg	7
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	7
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	7
156-59-2	cis- 1,2-Dichloroethene	BRL	ug/Kg	7
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	69
74-97-5	Bromochloromethane	BRL	ug/Kg	7
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	69
67-66-3	Chloroform	BRL	ug/Kg	7
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	7
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	7
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	7
71-43-2	Benzene	BRL	ug/Kg	7
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	7
79-01-6	Trichloroethene	BRL	ug/Kg	7
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	7
74-95-3	Dibromomethane	BRL	ug/Kg	7
75-27-4	Bromodichloromethane	BRL	ug/Kg	7
10061-01-5	cis- 1,3-Dichloropropene	BRL	ug/Kg	7
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	69
108-88-3	Toluene	BRL	ug/Kg	7
10061-02-6	trans- 1,3-Dichloropropene	BRL	ug/Kg	7
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	7
127-18-4	Tetrachloroethene	BRL	ug/Kg	7
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	7
591-78-6	2-Hexanone	BRL	ug/Kg	69
124-48-1	Dibromochloromethane	BRL	ug/Kg	7
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	7
108-90-7	Chlorobenzene	BRL	ug/Kg	7
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	7
100-41-4	Ethylbenzene	BRL	ug/Kg	7

**EPA Method 8260B (Continued)
Volatile Organics by GC/MS**

Field ID:	HB-3:5-8	Laboratory ID:	26181-06
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-5
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO ₄ / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	2	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	meta-Xylene and para-Xylene	BRL	ug/Kg	7
95-47-6	ortho-Xylene	BRL	ug/Kg	7
100-42-5	Styrene	BRL	ug/Kg	7
75-25-2	Bromoform	BRL	ug/Kg	7
98-82-8	Isopropylbenzene	BRL	ug/Kg	7
108-86-1	Bromobenzene	BRL	ug/Kg	7
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	7
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	7
103-65-1	n-Propylbenzene	BRL	ug/Kg	7
95-49-8	2-Chlorotoluene	BRL	ug/Kg	7
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	7
106-43-4	4-Chlorotoluene	BRL	ug/Kg	7
98-06-6	tert-Butylbenzene	BRL	ug/Kg	7
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	7
135-98-8	sec-Butylbenzene	BRL	ug/Kg	7
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	7
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	7
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	7
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	7
104-51-8	n-Butylbenzene	BRL	ug/Kg	7
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	7
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	7
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	7
91-20-3	Naphthalene	BRL	ug/Kg	7
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	7

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	102 %	80 - 120 %
1,2-Dichloroethane-d ₄	103 %	80 - 120 %
Toluene-d ₈	100 %	81 - 117 %
4-Bromofluorobenzene	109 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID:	HB-4A:6-9	Laboratory ID:	26181-07
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	2	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	12
74-87-3	Chloromethane	BRL	ug/Kg	12
75-01-4	Vinyl Chloride	BRL	ug/Kg	12
74-83-9	Bromomethane	BRL	ug/Kg	12
75-00-3	Chloroethane	BRL	ug/Kg	12
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	12
60-29-7	Diethyl Ether	BRL	ug/Kg	12
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	120
75-15-0	Carbon Disulfide	BRL	ug/Kg	59
75-09-2	Methylene Chloride	BRL	ug/Kg	12
156-60-5	trans-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl tert-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	cis-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	59
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	59
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	cis-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	59
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	trans-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	59
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID:	HB-4A:6-9	Laboratory ID:	26181-07
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-5
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	2	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	meta-Xylene and para-Xylene	BRL	ug/Kg	6
95-47-6	ortho-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	n-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	tert-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	sec-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	n-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	102 %	80 - 120 %
1,2-Dichloroethane-d ₄	106 %	80 - 120 %
Toluene-d ₈	100 %	81 - 117 %
4-Bromofluorobenzene	106 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

EPA Method 8260B Volatile Organics by GC/MS

Field ID:	HB-4B:10-15	Laboratory ID:	26181-08
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-5
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40ml Glass	Received:	04-08-99
Preservation:	NaHSO4 / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	3	Page:	1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	13
74-87-3	Chloromethane	BRL	ug/Kg	13
75-01-4	Vinyl Chloride	BRL	ug/Kg	13
74-83-9	Bromomethane	BRL	ug/Kg	13
75-00-3	Chloroethane	BRL	ug/Kg	13
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	13
60-29-7	Diethyl Ether	BRL	ug/Kg	13
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	6
67-64-1	Acetone	BRL	ug/Kg	130
75-15-0	Carbon Disulfide	BRL	ug/Kg	64
75-09-2	Methylene Chloride	BRL	ug/Kg	13
156-60-5	trans-1,2-Dichloroethene	BRL	ug/Kg	6
1634-04-4	Methyl tert-butyl Ether (MTBE)	BRL	ug/Kg	6
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	6
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	6
156-59-2	cis-1,2-Dichloroethene	BRL	ug/Kg	6
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	64
74-97-5	Bromochloromethane	BRL	ug/Kg	6
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	64
67-66-3	Chloroform	BRL	ug/Kg	6
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	6
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	6
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	6
71-43-2	Benzene	BRL	ug/Kg	6
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	6
79-01-6	Trichloroethene	BRL	ug/Kg	6
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	6
74-95-3	Dibromomethane	BRL	ug/Kg	6
75-27-4	Bromodichloromethane	BRL	ug/Kg	6
10061-01-5	cis-1,3-Dichloropropene	BRL	ug/Kg	6
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	64
108-88-3	Toluene	BRL	ug/Kg	6
10061-02-6	trans-1,3-Dichloropropene	BRL	ug/Kg	6
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	6
127-18-4	Tetrachloroethene	BRL	ug/Kg	6
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	6
591-78-6	2-Hexanone	BRL	ug/Kg	64
124-48-1	Dibromochloromethane	BRL	ug/Kg	6
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	6
108-90-7	Chlorobenzene	BRL	ug/Kg	6
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	6
100-41-4	Ethylbenzene	BRL	ug/Kg	6

GROUNDWATER ANALYTICAL

EPA Method 8260B (Continued) Volatile Organics by GC/MS

Field ID:	HB-4B:10-15	Laboratory ID:	26181-08
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	VM4-1084-S
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	40mL Glass	Received:	04-08-99
Preservation:	NaHSO ₄ / Cool	Analyzed:	04-21-99
Matrix:	Soil	Dilution Factor:	1
% Moisture:	3	Page:	2 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	meta-Xylene and para-Xylene	BRL	ug/Kg	6
95-47-6	ortho-Xylene	BRL	ug/Kg	6
100-42-5	Styrene	BRL	ug/Kg	6
75-25-2	Bromoform	BRL	ug/Kg	6
98-82-8	Isopropylbenzene	BRL	ug/Kg	6
108-86-1	Bromobenzene	BRL	ug/Kg	6
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	6
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	6
103-65-1	n-Propylbenzene	BRL	ug/Kg	6
95-49-8	2-Chlorotoluene	BRL	ug/Kg	6
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	6
106-43-4	4-Chlorotoluene	BRL	ug/Kg	6
98-06-6	tert-Butylbenzene	BRL	ug/Kg	6
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	6
135-98-8	sec-Butylbenzene	BRL	ug/Kg	6
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	6
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	6
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	6
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	6
104-51-8	n-Butylbenzene	BRL	ug/Kg	6
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	6
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	6
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	6
91-20-3	Naphthalene	BRL	ug/Kg	6
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	6

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	102 %	80 - 120 %
1,2-Dichloroethane-d ₄	106 %	80 - 120 %
Toluene-d ₈	99 %	81 - 117 %
4-Bromofluorobenzene	105 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-1:0-5**
 Project: **Chatham Municipal Airport/BO99-2262**
 Client: **Bennett & O'Reilly**
 Container: **120mL Glass**
 Preservation: **Cool**
 Matrix: **Soil**

Laboratory ID: **26181-09**
 Sampled: **04-07-99**
 Received: **04-08-99**
 % Solids **96**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	1.3	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	20	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.51	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	3.4	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.055	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.51	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.1	04-15-99	MM-0765-S	6010B

RCS-1
 S-1/GW-1
 30
 RCS-1
 S-1/GW-1
 1,000

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
 Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID:	HB-1:5-8	Laboratory ID:	26181-10
Project:	Chatham Municipal Airport/BO99-2262	Sampled:	04-07-99
Client:	Bennett & O'Reilly	Received:	04-08-99
Container:	120mL Glass	% Solids	96
Preservation:	Cool		
Matrix:	Soil		

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	BRL	mg/Kg	1.1	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	21	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.53	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	1.1	mg/Kg	1.1	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	11	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.055	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.53	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.3	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: HB-2:0-5

Project: Chatham Municipal Airport/BO99-2262

Client: Bennett & O'Reilly

Container: 120mL Glass

Preservation: Cool

Matrix: Soil

Laboratory ID: 26181-11

Sampled: 04-07-99

Received: 04-08-99

% Solids 93

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method	RCS-1
7440-38-2	Arsenic, Total	1.7	mg/Kg	1.0	04-15-99	MM-0765-S	6010B	S-1/GW-1 30
7440-39-3	Barium, Total	BRL	mg/Kg	21	04-15-99	MM-0765-S	6010B	
7440-43-9	Cadmium, Total	0.82	mg/Kg	0.52	04-15-99	MM-0765-S	6010B	30
7440-47-3	Chromium, Total	5.9	mg/Kg	1.0	04-15-99	MM-0765-S	6010B	1000
7439-92-1	Lead, Total	12	mg/Kg	10	04-15-99	MM-0765-S	6010B	300
7439-97-6	Mercury, Total	BRL	mg/Kg	0.053	04-16-99	MP-0598-S	7471A	
7782-49-2	Selenium, Total	BRL	mg/Kg	0.52	04-15-99	MM-0765-S	6010B	
7440-22-4	Silver, Total	BRL	mg/Kg	5.2	04-15-99	MM-0765-S	6010B	

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-2:5-8**
 Project: **Chatham Municipal Airport/BO99-2262**
 Client: **Bennett & O'Reilly**
 Container: **120ml Glass**
 Preservation: **Cool**
 Matrix: **Soil**

Laboratory ID: **26181-12**
 Sampled: **04-07-99**
 Received: **04-08-99**
 % Solids **96**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	1.6	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	21	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.52	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	2.6	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.050	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.52	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.2	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
 Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: HB-3:0-5
 Project: Chatham Municipal Airport/BO99-2262
 Client: Bennett & O'Reilly
 Container: 120mL Glass
 Preservation: Cool
 Matrix: Soil

Laboratory ID: 26181-13
 Sampled: 04-07-99
 Received: 04-08-99
 % Solids 96

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	1.3	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	20	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.51	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	4.9	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.051	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.51	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.1	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
 Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-3:5-8**
 Project: **Chatham Municipal Airport/BO99-2262**
 Client: **Bennett & O'Reilly**
 Container: **120mL Glass**
 Preservation: **Cool**
 Matrix: **Soil**

Laboratory ID: **26181-14**
 Sampled: **04-07-99**
 Received: **04-08-99**
 % Solids **98**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	BRL	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	20	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.50	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	3.1	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.050	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.5	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
 Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-4A:6-9**
Project: **Chatham Municipal Airport/BO99-2262**
Client: **Bennett & O'Reilly**
Container: **120mL Glass**
Preservation: **Cool**
Matrix: **Soil**

Laboratory ID: **26181-15**
Sampled: **04-07-99**
Received: **04-08-99**
% Solids **98**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	1.5	mg/Kg	1.1	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	21	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.53	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	1.3	mg/Kg	1.1	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	11	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.057	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.53	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.3	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

Trace Metals by ICP-AES and CVAA

Field ID: **HB-4B:10-15**
 Project: **Chatham Municipal Airport/BO99-2262**
 Client: **Bennett & O'Reilly**
 Container: **120mL Glass**
 Preservation: **Cool**
 Matrix: **Soil**

Laboratory ID: **26181-16**
 Sampled: **04-07-99**
 Received: **04-08-99**
 % Solids **97**

CAS Number	Analyte	Concentration	Units	Reporting Limit	Analyzed	QC Batch	Method
7440-38-2	Arsenic, Total	BRL	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7440-39-3	Barium, Total	BRL	mg/Kg	20	04-15-99	MM-0765-S	6010B
7440-43-9	Cadmium, Total	BRL	mg/Kg	0.50	04-15-99	MM-0765-S	6010B
7440-47-3	Chromium, Total	1.6	mg/Kg	1.0	04-15-99	MM-0765-S	6010B
7439-92-1	Lead, Total	BRL	mg/Kg	10	04-15-99	MM-0765-S	6010B
7439-97-6	Mercury, Total	BRL	mg/Kg	0.058	04-16-99	MP-0598-S	7471A
7782-49-2	Selenium, Total	BRL	mg/Kg	0.50	04-15-99	MM-0765-S	6010B
7440-22-4	Silver, Total	BRL	mg/Kg	5.0	04-15-99	MM-0765-S	6010B

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).
 Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified) Hydrocarbon Fingerprinting by GC/FID

Field ID:	HB-1:0-5	Laboratory ID:	26181-09
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	HF-1143-M
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	120mL Glass	Received:	04-08-99
Preservation:	Cool	Extracted:	04-12-99
Matrix:	Soil	Analyzed:	04-13-99
% Moisture:	4	Dilution Factor:	1

Qualitative Identification

This sample has GC/FID characteristics that are similar to:

1. Petroleum products in the Fuel Oil range.
2. Petroleum products in the Lubricating Oil (n-C20 to n-C36) range.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	120	mg/Kg	61

QC Surrogate Compound	Recovery	QC Limits
ortho-Terphenyl	62 %	60 - 140 %

RCS-1
S-1/GW-1
200

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

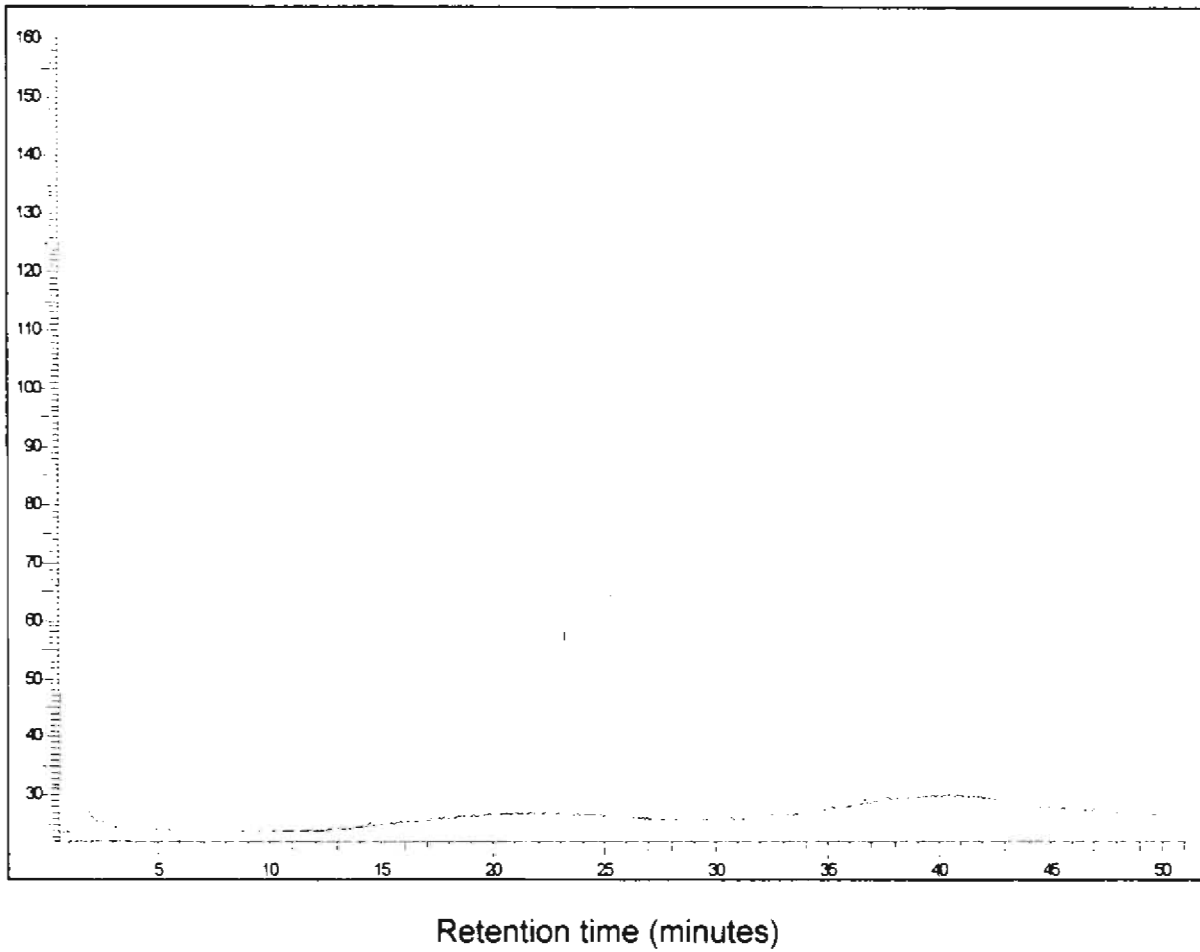
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

**GROUNDWATER
ANALYTICAL**

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-09

HYDROCARBONS LABORATORY



GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified) Hydrocarbon Fingerprinting by GC/FID

Field ID:	HB-1:5-8	Laboratory ID:	26181-10
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	HF-1143-M
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	120mL Glass	Received:	04-08-99
Preservation:	Cool	Extracted:	04-12-99
Matrix:	Soil	Analyzed:	04-13-99
% Moisture:	4	Dilution Factor:	1

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60
QC Surrogate Compound	Recovery	QC Limits	
<i>ortho</i> -Terphenyl	82 %	60 - 140 %	

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

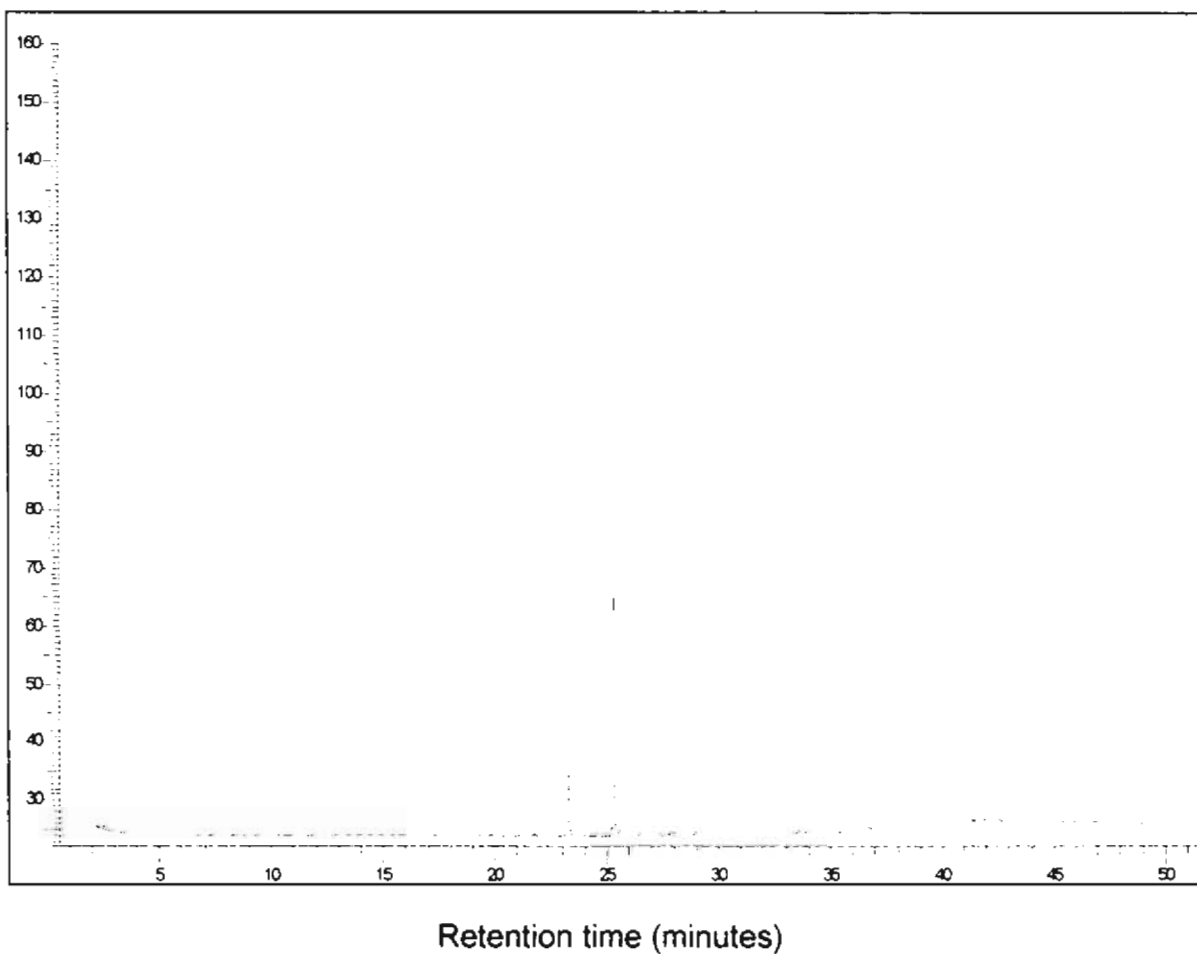
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

**GROUNDWATER
ANALYTICAL**

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-10

HYDROCARBONS LABORATORY



**ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID**

Field ID:	HB-2:0-5	Laboratory ID:	26181-11
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	HF-1143-M
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	120mL Glass	Received:	04-08-99
Preservation:	Cool	Extracted:	04-12-99
Matrix:	Soil	Analyzed:	04-14-99
% Moisture:	7	Dilution Factor:	1

Qualitative Identification

This sample has GC/FID characteristics that are similar to:

1. Petroleum products in the Lubricating Oil (n-C20 to n-C36) range.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	77	mg/Kg	62

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	75 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

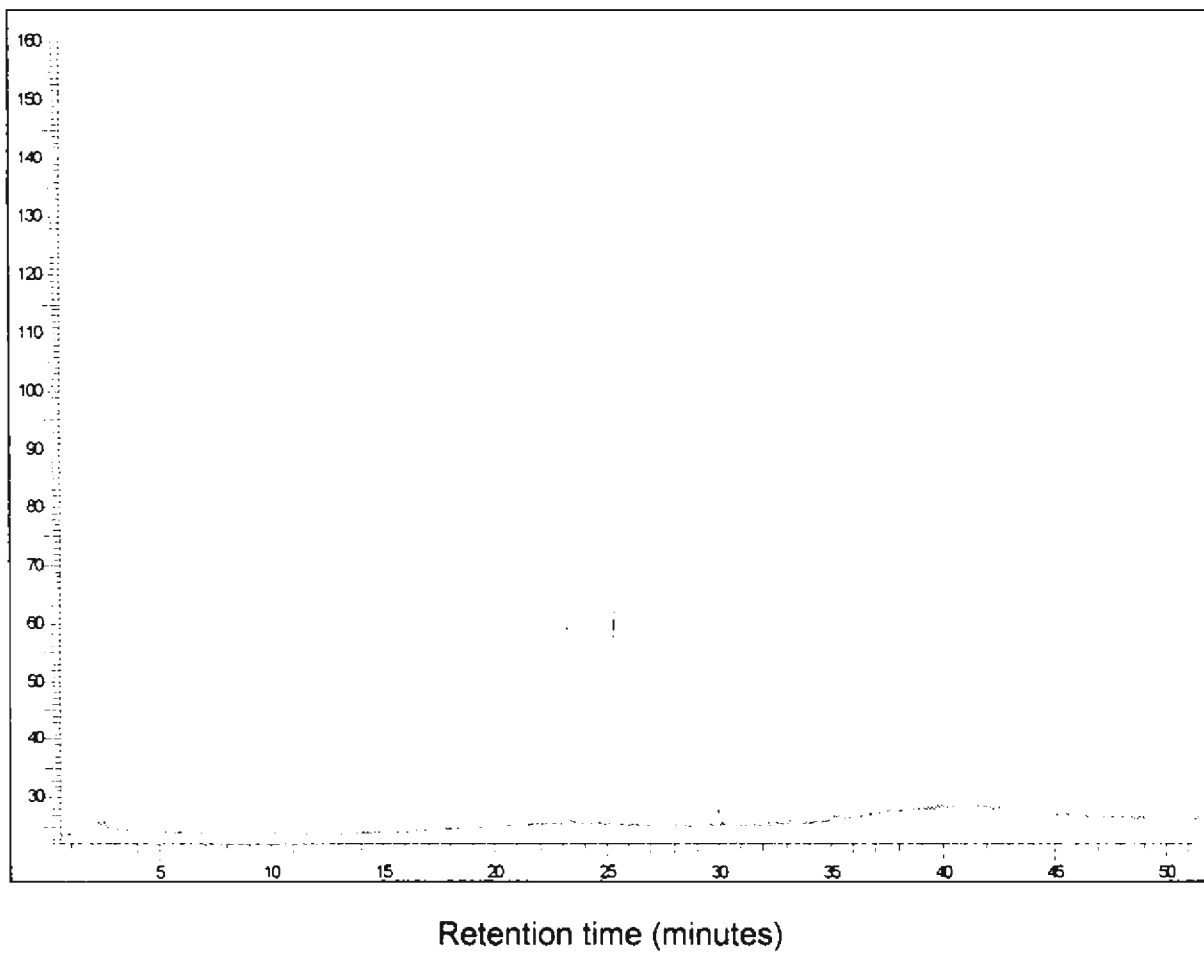
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

**GROUNDWATER
ANALYTICAL**

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-11

HYDROCARBONS LABORATORY



**ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID**

Field ID:	HB-2: 5-8	Laboratory ID:	26181-12
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	HF-1143-M
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	120mL Glass	Received:	04-08-99
Preservation:	Cool	Extracted:	04-12-99
Matrix:	Soil	Analyzed:	04-14-99
% Moisture:	4	Dilution Factor:	1

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	85 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

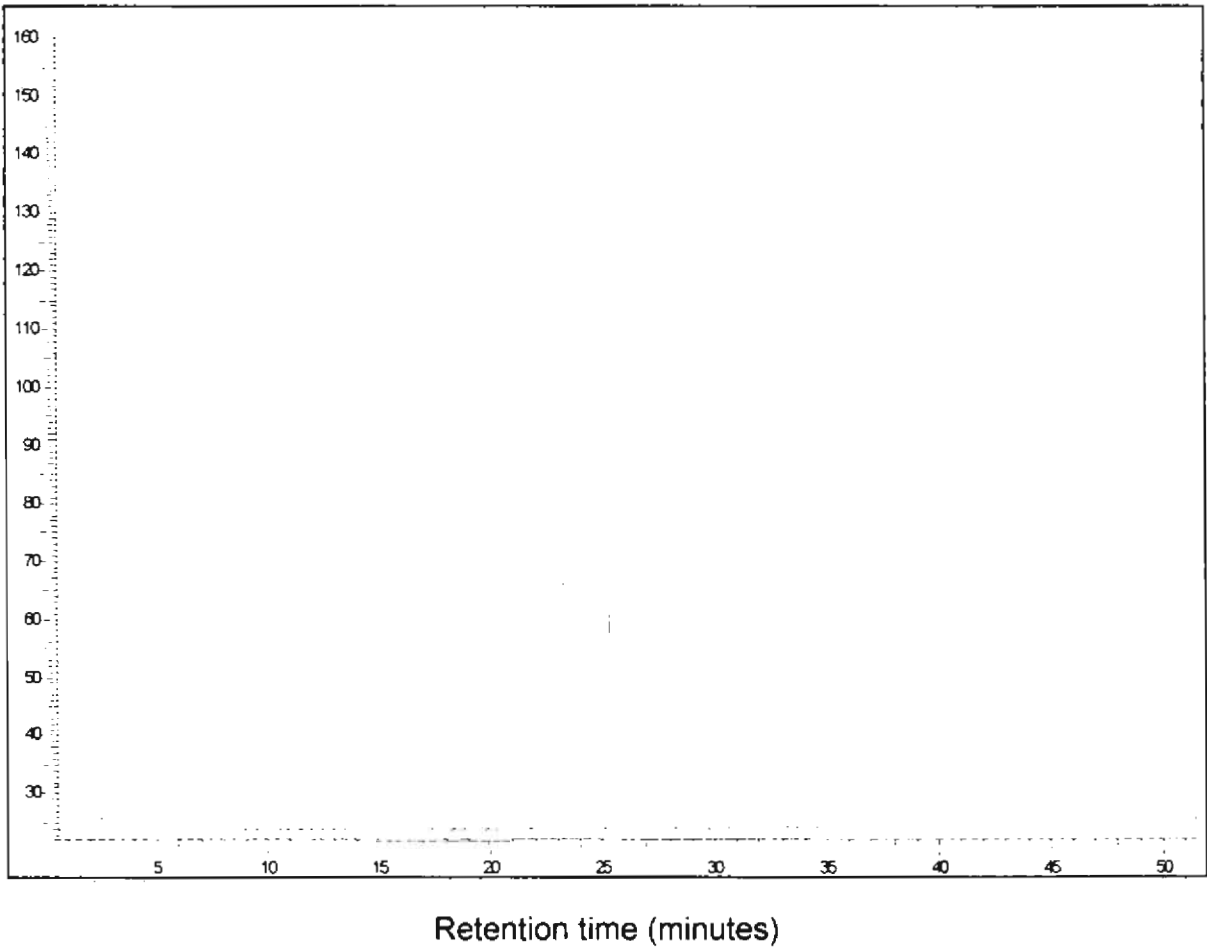
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

**GROUNDWATER
ANALYTICAL**

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-12

HYDROCARBONS LABORATORY



**ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID**

Field ID:	HB-3:0-5	Laboratory ID:	26181-13
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	HF-1143-M
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	120ml, Glass	Received:	04-08-99
Preservation:	Cool	Extracted:	04-12-99
Matrix:	Soil	Analyzed:	04-14-99
% Moisture:	4	Dilution Factor:	1

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	81 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

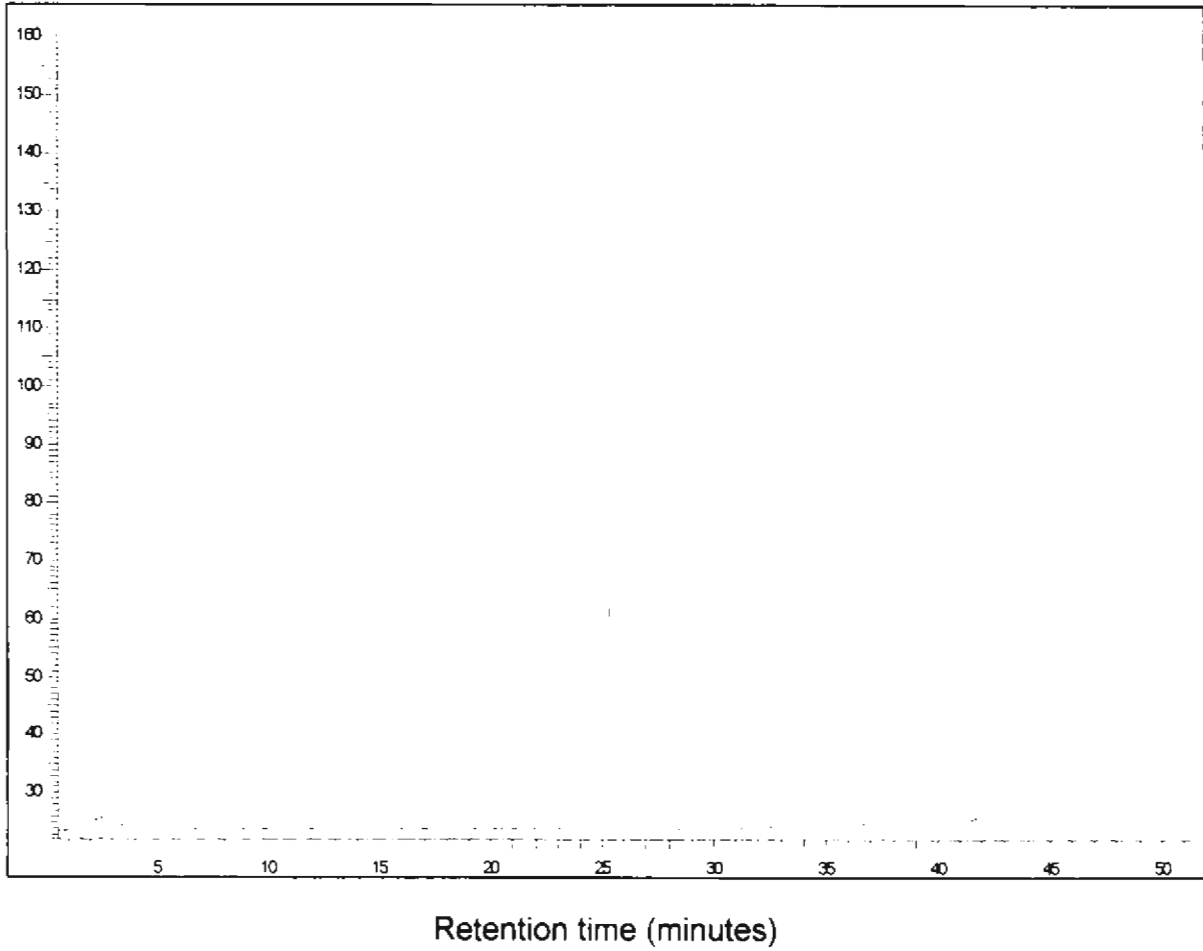
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

**GROUNDWATER
ANALYTICAL**

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-13

HYDROCARBONS LABORATORY



**ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID**

Field ID:	HB-3:5-8	Laboratory ID:	26181-14
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	HF-1143-M
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	120mL Glass	Received:	04-08-99
Preservation:	Cool	Extracted:	04-12-99
Matrix:	Soil	Analyzed:	04-14-99
% Moisture:	2	Dilution Factor:	1

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	61

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	75 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

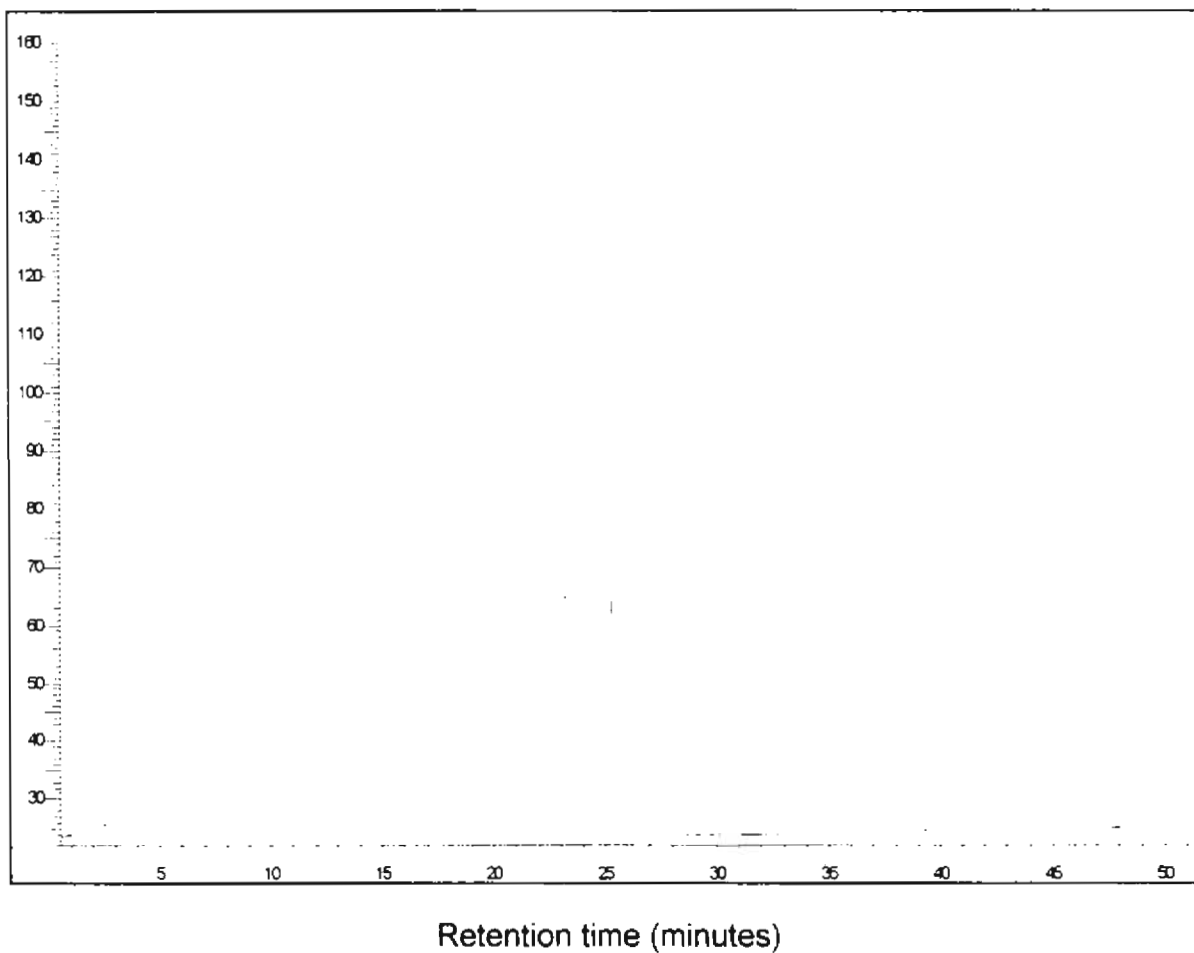
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

**GROUNDWATER
ANALYTICAL**

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-14

HYDROCARBONS LABORATORY



**ASTM Method D3328-90 (Modified)
Hydrocarbon Fingerprinting by GC/FID**

Field ID:	HB-4A:6-9	Laboratory ID:	26181-15
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	HF-1143-M
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	120mL Glass	Received:	04-08-99
Preservation:	Cool	Extracted:	04-12-99
Matrix:	Soil	Analyzed:	04-14-99
% Moisture:	2	Dilution Factor:	1

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	80 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

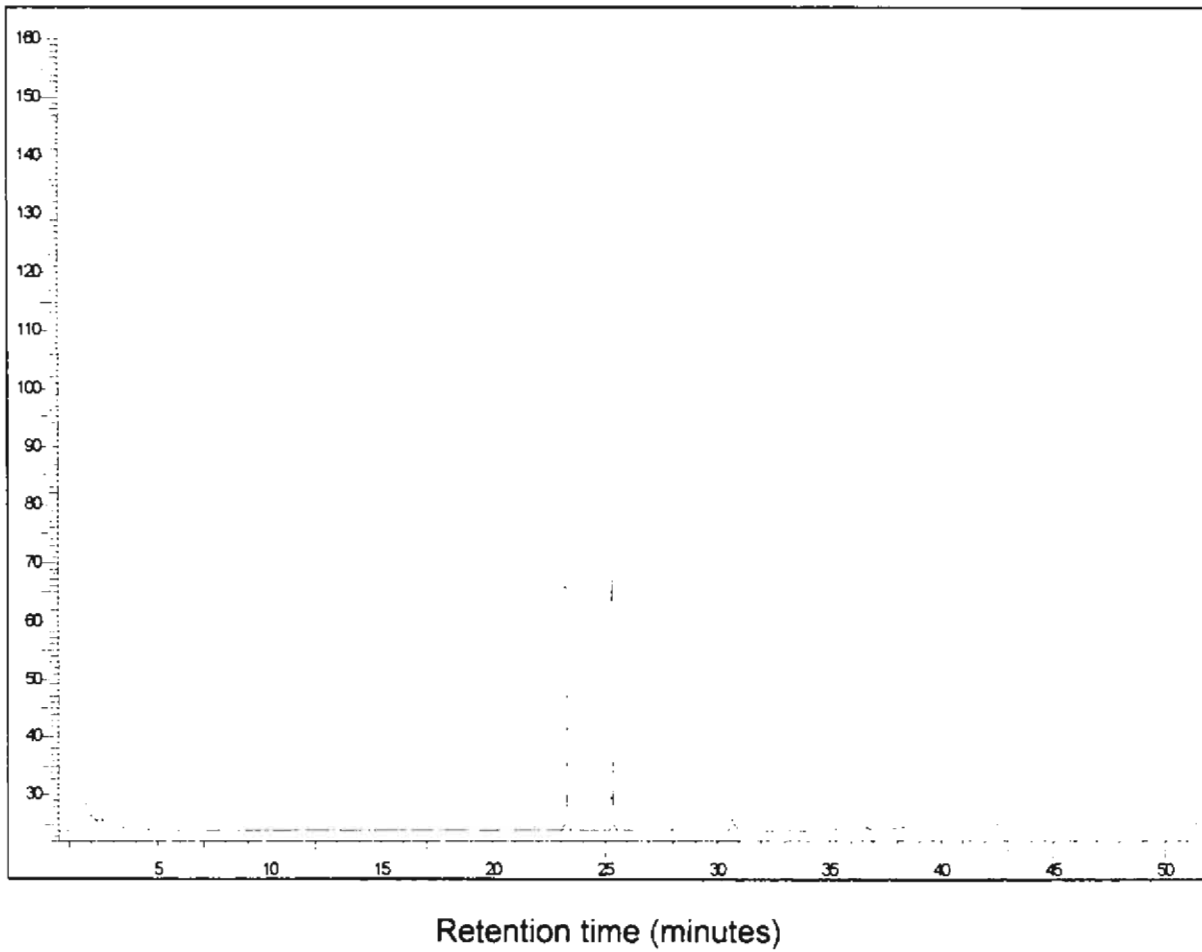
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

**GROUNDWATER
ANALYTICAL**

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-15

HYDROCARBONS LABORATORY



GROUNDWATER ANALYTICAL

ASTM Method D3328-90 (Modified) Hydrocarbon Fingerprinting by GC/FID

Field ID:	HB-48:10-15	Laboratory ID:	26181-16
Project:	Chatham Municipal Airport/BO99-2262	QC Batch ID:	HF-1143-M
Client:	Bennett & O'Reilly	Sampled:	04-07-99
Container:	120mL Glass	Received:	04-08-99
Preservation:	Cool	Extracted:	04-12-99
Matrix:	Soil	Analyzed:	04-14-99
% Moisture:	3	Dilution Factor:	1

Qualitative Identification

No petroleum product was identified for this sample.

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	61

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	78 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

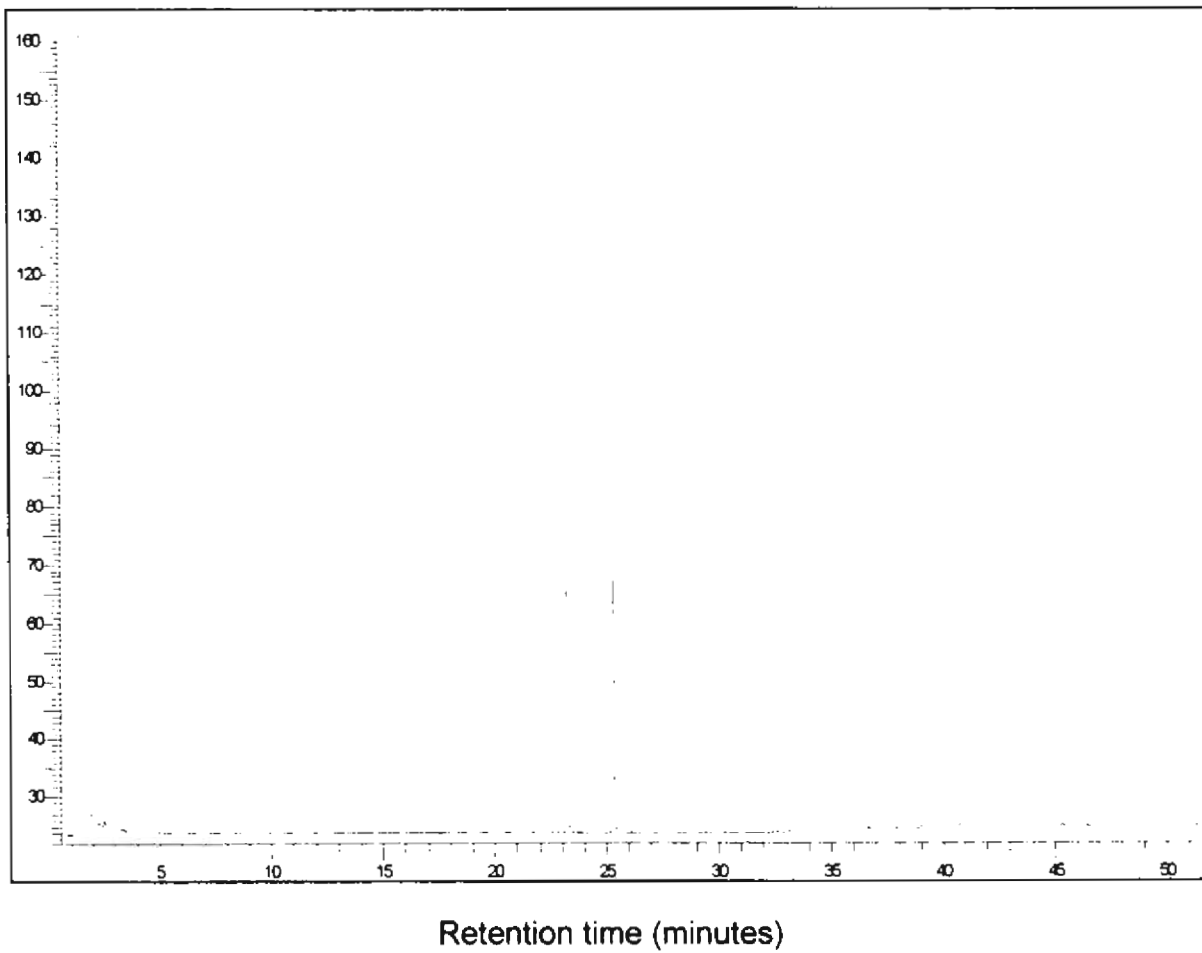
Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

**GROUNDWATER
ANALYTICAL**

ASTM METHOD D3328-90 (Modified)
Hydrocarbon Fingerprinting (GC/FID)

Lab ID: 26181-16

HYDROCARBONS LABORATORY



Project Narrative

Project: **Chatham Municipal Airport/BO99-2262**
Client: **Bennett & O'Reilly**

Lab ID: **26181**
Received: **04-08-99**

A. Physical Condition of Sample(s)

This project was received by the laboratory in satisfactory condition. The sample(s) were received undamaged in appropriate containers with the correct preservation.

B. Project Documentation

This project was accompanied by satisfactory Chain of Custody documentation. The sample container label(s) agreed with the Chain of Custody.

C. Analysis of Sample(s)

No analytical anomalies or non-conformances were noted by the laboratory during the processing of these sample(s). All data contained within this report are released without qualification.

GROUNDWATER ANALYTICAL

228 Main Street
Buzzards Bay, MA 02532
Telephone (508) 759-4441
FAX (508) 759-4475

CHAIN-OF-CUSTODY RECORD AND WORK ORDER

No. 33578

Project Name: Ch. Hous. Municipal Report
 Firm: BENNETT & CURRILL, INC.
 Project Number: BC99-2262
 Address: P.O. Box 1667
 City/State/Zip: Brewster, MA 02631
 Project Manager: David Pizzarello
 Telephone: 508 896 6630

TURNAROUND
 STANDARD (10 Business Days)
 PRIORITY (5 Business Days)
 RUSH (RAN-)
 (Rush requires Auth. Authorization Number)
 Please FAX YES NO
 FAX Number: 508 4157

BILLING
 Purchase Order No.: BC99-2262
 GWA Reference No.:

DATE	TIME	SAMPLE IDENTIFICATION	Matrix		Type	Containers (s)	Preservation		LABORATORY NUMBER (Lab Use Only)	Volatiles		Semi-volatiles		Pesticides/PCBs		Metals		Inorganic Hydrocarbon		General Chemistry		Other
			WATER	COMPOSITE			Filtered	Unfiltered		D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	
4/29/99	10:46	HR-1-1-5	X		X	1	MSO	X	26181	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	
11/10		HB-1-5-8	X		X	1	MSO	X	1-9	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	
11/4/99		HR-2-0-5	X		X	1	MSO	X	2-10	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	
11/5/99		HR-2-5-8	X		X	1	MSO	X	3-11	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	
12/25		HR-3-0-5	X		X	1	MSO	X	4-12	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	
1/05		HB-3-5-8	X		X	1	MSO	X	5-15	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	
2/10		HR-4-6-7	X		X	1	MSO	X	6-14	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	
2/30		HR-4B-10-15	X		X	1	MSO	X	7-15	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	D 829	

REMARKS / SPECIAL INSTRUCTIONS
 Note: B-1 to Town of Chatham
 X Ben Durrenson
 763 George P. Ryan Blvd
 Chatham, MA 02633
 (508) 495-5188
 w/ Ben and Curry's analysis notes
 6/25

DATA QUALITY OBJECTIVES
 Regulatory Program
 Safe Drinking Water Act
 NPDES/Clean Water Act
 RCRA-Haz. Waste Char.
 MA MCP (310 CMR 40)
 Reportable Concentrations
 RCGW-1 RGS-1
 RCOW-2 RGS-2
 Other: _____

Project Specific QC
 Many regulatory programs and EPA methods require project specific QC.
 Project specific QC includes Sample Duplicates, Matrix Spikes, and/or Matrix Spike Duplicates. Laboratory QC is not project specific unless prearranged. Project specific QC samples are charged on a per sample basis. For water samples, each MS, MSD and Sample Duplicate requires an additional sample aliquot.

Project Specific QC Required
 Sample Duplicate
 Matrix Spike
 Matrix Spike Duplicate

Selection of QC Sample
 Selected by laboratory
 Please use sample.

CHAIN-OF-CUSTODY RECORD

NOTE: All samples submitted subject to Standard Terms and Conditions on reverse hereof

Relinquished by Sampler: Ben Durrenson Date: 4/29/99 Time: 3:30
 Relinquished by: Ben Durrenson Date: 4/29/99 Time: 4:15
 Relinquished by: Ben Durrenson Date: 4/29/99 Time: 4:15
 Relinquished by: Ben Durrenson Date: 4/29/99 Time: 4:15

Shipping/Arbitl Number: _____
 Custody Seal Number: _____
 Cooler Seal Number: _____

ANALYSIS REQUEST

Method: D 829
 Matrix: Water
 Container: 1L Glass
 Preservation: MSO
 Laboratory Number: 26181

General Chemistry
 Ammonia Total Phosphorus
 Nitrate Total Nitrogen
 Chloride Sulfate Total Solids
 Conductivity Specific Conductivity
 pH Dissolved Oxygen Turbidity

Inorganic Hydrocarbon
 Benzene Toluene Ethylbenzene Xylenes Styrene
 Methyl Ethyl Ketone Methyl Isobutyl Ketone Methyl Tertiary Butyl Ether
 Diethyl Ether Diethylamine Diethylamine Diethylamine

Other
 Total Calcium
 Total Magnesium
 Total Hardness

Quality Assurance/Quality Control

A. Program Overview

Groundwater Analytical conducts an active Quality Assurance program to ensure the production of high quality, valid data. This program closely follows the guidance provided by *Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans*, US EPA QAMS-005/80 (1980), and *Test Methods for Evaluating Solid Waste*, US EPA, SW-846, Update III (1996).

Quality Control protocols include written Standard Operating Procedures (SOPs) developed for each analytical method. SOPs are derived from US EPA methodologies and other established references. Standards are prepared from commercially obtained reference materials of certified purity, and documented for traceability.

Quality Assessment protocols for most organic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. All samples, standards, blanks, laboratory control samples, matrix spikes and sample duplicates are spiked with internal standards and surrogate compounds. All instrument sequences begin with an initial calibration verification standard and a blank; and excepting GC/MS sequences, all sequences close with a continuing calibration standard. GC/MS systems are tuned to appropriate ion abundance criteria daily, or for each 12 hour operating period, whichever is more frequent.

Quality Assessment protocols for most inorganic analyses include a minimum of one laboratory control sample, one method blank, one matrix spike sample, and one sample duplicate for each sample preparation batch. Standard curves are derived from one reagent blank and four concentration levels. Curve validity is verified by standard recoveries within plus or minus ten percent of the curve.

B. Definitions

Batches are used as the basic unit for Quality Assessment. A Batch is defined as twenty or fewer samples of the same matrix which are prepared together for the same analysis, using the same lots of reagents and the same techniques or manipulations, all within the same continuum of time, up to but not exceeding 24 hours.

Laboratory Control Samples are used to assess the accuracy of the analytical method. A Laboratory Control Sample consists of reagent water or sodium sulfate spiked with a group of target analytes representative of the method analytes. Accuracy is defined as the degree of agreement of the measured value with the true or expected value. Percent Recoveries for the Laboratory Control Samples are calculated to assess accuracy.

Method Blanks are used to assess the level of contamination present in the analytical system. Method Blanks consist of reagent water or an aliquot of sodium sulfate. Method Blanks are taken through all the appropriate steps of an analytical method. Sample data reported is not corrected for blank contamination.

Surrogate Compounds are used to assess the effectiveness of an analytical method in dealing with each sample matrix. Surrogate Compounds are organic compounds which are similar to the target analytes of interest in chemical behavior, but which are not normally found in environmental samples. Percent Recoveries are calculated for each Surrogate Compound.

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Sample

Category: EPA Method 8260B
QC Batch ID: VM4-1084-SL
Matrix: Soil
Units: ug/Kg

CAS Number	Analyte	Spiked	Measured	Recovery	QC Limits
75-35-4	1,1-Dichloroethene	50	42	85 %	70 - 130 %
71-43-2	Benzene	50	51	102 %	70 - 130 %
79-01-6	Trichloroethene	50	52	105 %	70 - 130 %
108-88-3	Toluene	50	53	106 %	70 - 130 %
108-90-7	Chlorobenzene	50	51	102 %	70 - 130 %
QC Surrogate Compounds		Recovery		QC Limits	
Dibromofluoromethane		99 %		80 - 120 %	
1,2-Dichloroethane-d ₄		101 %		80 - 120 %	
Toluene-d ₈		102 %		81 - 117 %	
4-Bromofluorobenzene		105 %		74 - 121 %	

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996).

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report Method Blank

Category: EPA Method 8260B
 QC Batch ID: VM4-1084-SB
 Matrix: Soil
 Page: 1 of 2

CAS Number	Analyte	Concentration	Units	Reporting Limit
75-71-8	Dichlorodifluoromethane	BRL	ug/Kg	10
74-87-3	Chloromethane	BRL	ug/Kg	10
75-01-4	Vinyl Chloride	BRL	ug/Kg	10
74-83-9	Bromomethane	BRL	ug/Kg	10
75-00-3	Chloroethane	BRL	ug/Kg	10
75-69-4	Trichlorofluoromethane	BRL	ug/Kg	10
60-29-7	Diethyl Ether	BRL	ug/Kg	10
75-35-4	1,1-Dichloroethene	BRL	ug/Kg	5
67-64-1	Acetone	BRL	ug/Kg	50
75-15-0	Carbon Disulfide	BRL	ug/Kg	50
75-09-2	Methylene Chloride	BRL	ug/Kg	10
156-60-5	<i>trans</i> -1,2-Dichloroethene	BRL	ug/Kg	5
1634-04-4	Methyl <i>tert</i> -butyl Ether (MTBE)	BRL	ug/Kg	5
75-34-3	1,1-Dichloroethane	BRL	ug/Kg	5
590-20-7	2,2-Dichloropropane	BRL	ug/Kg	5
156-59-2	<i>cis</i> -1,2-Dichloroethene	BRL	ug/Kg	5
78-93-3	2-Butanone (MEK)	BRL	ug/Kg	50
74-97-5	Bromochloromethane	BRL	ug/Kg	5
109-99-9	Tetrahydrofuran (THF)	BRL	ug/Kg	50
67-66-3	Chloroform	BRL	ug/Kg	5
71-55-6	1,1,1-Trichloroethane	BRL	ug/Kg	5
56-23-5	Carbon Tetrachloride	BRL	ug/Kg	5
563-58-6	1,1-Dichloropropene	BRL	ug/Kg	5
71-43-2	Benzene	BRL	ug/Kg	5
107-06-2	1,2-Dichloroethane	BRL	ug/Kg	5
79-01-6	Trichloroethene	BRL	ug/Kg	5
78-87-5	1,2-Dichloropropane	BRL	ug/Kg	5
74-95-3	Dibromomethane	BRL	ug/Kg	5
75-27-4	Bromodichloromethane	BRL	ug/Kg	5
10061-01-5	<i>cis</i> -1,3-Dichloropropene	BRL	ug/Kg	5
108-10-1	4-Methyl-2-Pentanone (MIBK)	BRL	ug/Kg	50
108-88-3	Toluene	BRL	ug/Kg	5
10061-02-6	<i>trans</i> -1,3-Dichloropropene	BRL	ug/Kg	5
79-00-5	1,1,2-Trichloroethane	BRL	ug/Kg	5
127-18-4	Tetrachloroethene	BRL	ug/Kg	5
142-28-9	1,3-Dichloropropane	BRL	ug/Kg	5
591-78-6	2-Hexanone	BRL	ug/Kg	50
124-48-1	Dibromochloromethane	BRL	ug/Kg	5
106-93-4	1,2-Dibromoethane (EDB)	BRL	ug/Kg	5
108-90-7	Chlorobenzene	BRL	ug/Kg	5
630-20-6	1,1,1,2-Tetrachloroethane	BRL	ug/Kg	5
100-41-4	Ethylbenzene	BRL	ug/Kg	5

**Quality Control Report
Method Blank**

Category: **EPA Method 8260B**
 QC Batch ID: **VM4-1084-SB**
 Matrix: **Soil**
 Page: **2 of 2**

CAS Number	Analyte	Concentration	Units	Reporting Limit
108-38-3/106-42-3	<i>meta</i> -Xylene and <i>para</i> -Xylene	BRL	ug/Kg	5
95-47-6	<i>ortho</i> -Xylene	BRL	ug/Kg	5
100-42-5	Styrene	BRL	ug/Kg	5
75-25-2	Bromoform	BRL	ug/Kg	5
98-82-8	Isopropylbenzene	BRL	ug/Kg	5
108-86-1	Bromobenzene	BRL	ug/Kg	5
79-34-5	1,1,2,2-Tetrachloroethane	BRL	ug/Kg	5
96-18-4	1,2,3-Trichloropropane	BRL	ug/Kg	5
103-65-1	<i>n</i> -Propylbenzene	BRL	ug/Kg	5
95-49-8	2-Chlorotoluene	BRL	ug/Kg	5
108-67-8	1,3,5-Trimethylbenzene	BRL	ug/Kg	5
106-43-4	4-Chlorotoluene	BRL	ug/Kg	5
98-06-6	<i>tert</i> -Butylbenzene	BRL	ug/Kg	5
95-63-6	1,2,4-Trimethylbenzene	BRL	ug/Kg	5
135-98-8	<i>sec</i> -Butylbenzene	BRL	ug/Kg	5
541-73-1	1,3-Dichlorobenzene	BRL	ug/Kg	5
99-87-6	4-Isopropyltoluene	BRL	ug/Kg	5
106-46-7	1,4-Dichlorobenzene	BRL	ug/Kg	5
95-50-1	1,2-Dichlorobenzene	BRL	ug/Kg	5
104-51-8	<i>n</i> -Butylbenzene	BRL	ug/Kg	5
96-12-8	1,2-Dibromo-3-chloropropane	BRL	ug/Kg	5
120-82-1	1,2,4-Trichlorobenzene	BRL	ug/Kg	5
87-68-3	Hexachlorobutadiene	BRL	ug/Kg	5
91-20-3	Naphthalene	BRL	ug/Kg	5
87-61-6	1,2,3-Trichlorobenzene	BRL	ug/Kg	5

QC Surrogate Compounds	Recovery	QC Limits
Dibromofluoromethane	100 %	80 - 120 %
1,2-Dichloroethane-d ₂	96 %	80 - 120 %
Toluene-d ₈	101 %	81 - 117 %
4-Bromofluorobenzene	107 %	74 - 121 %

Method Reference: Test Methods for Evaluating Solid Waste, US EPA, SW-846, Third Edition, Update III (1996). Analyte list as specified in Tables 6 and 7 of the method, and additional analytes as specified by MA DEP Method 1 Standards (310 C.M.R. 40.0973) and recommended by NH DES for initial waste site investigations, effective 12/1/97. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution, percent moisture and sample size.

GROUNDWATER ANALYTICAL

QUALITY ASSURANCE Laboratory Control Sample Recovery

Category: Trace Metals
Matrix: Soil
Units: mg/Kg

Laboratory Control Sample

ANALYTE	BATCH ID	SPIKE ADDED	SPIKED RESULT	PERCENT RECOVERY	QC LIMITS
Barium	MM-0765-SLI	100	97	97 %	75-125
Cadmium	MM-0765-SLI	100	99	99 %	75-125
Chromium	MM-0765-SLI	100	100	100 %	75-125
Lead	MM-0765-SLI	100	96	96 %	75-125
Arsenic	MM-0765-SLF	5.0	5.1	102 %	75-125
Selenium	MM-0765-SLF	5.0	4.5	90 %	75-125
Silver	MM-0765-SLF	2.5	2.4	96 %	75-125
Mercury	MP-0598-SL	0.250	0.230	92 %	75-125

Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

QUALITY ASSURANCE
Method Blank

Category: Trace Metals
Matrix: Soil

PARAMETER	CONCENTRATION (mg/Kg)	REPORTING LIMIT (mg/Kg)	BATCH ID	EPA METHOD
Barium	BRL	20	MM-0765-SB	6010
Cadmium	BRL	0.50	MM-0765-SB	6010
Chromium	BRL	1.0	MM-0765-SB	6010
Lead	BRL	10	MM-0765-SB	6010
Arsenic	BRL	1.0	MM-0765-SB	6010
Selenium	BRL	0.50	MM-0765-SB	6010
Silver	BRL	5.0	MM-0765-SB	6010
Mercury	BRL	0.050	MP-0598-SB	7471

BRL = Below Reporting Limit. Method References: Test Methods for Evaluating Solid Waste, US EPA SW-846, Third Edition (1986). Graphite Furnace analyses performed with Zeeman background correction and L'vov platform technique.

GROUNDWATER ANALYTICAL

Quality Control Report Laboratory Control Sample

Category: ASTM Method D3328-90 (Modified)
QC Batch ID: HF-1143-M
Matrix: Soil
Units: mg/Kg

Analyte	Spiked	Measured	Recovery	QC Limits
Fuel Oil No. 2	130	110	80 %	60 - 140 %

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	72 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

Report Notations: All calculations performed prior to rounding. Quality Control Limits are defined by the methodology, or alternatively based upon the historical average recovery plus or minus three standard deviation units.

GROUNDWATER ANALYTICAL

Quality Control Report Method Blank

Category: ASTM Method D3328-90 (Modified)
QC Batch ID: HF-1143-M
Matrix: Soil

Analyte	Concentration	Units	Reporting Limit
Total Petroleum Hydrocarbons	BRL	mg/Kg	60

QC Surrogate Compound	Recovery	QC Limits
<i>ortho</i> -Terphenyl	87 %	60 - 140 %

Method Reference: Comparison of Waterborne Petroleum Oils by Gas Chromatography, Volume 11.02, Water, American Society for Testing and Materials (1990). Analytical protocol modified by use of an internal standard. Results are quantified on the basis of 5 α -androstane. Sample preparation protocol modified by use of microwave accelerated solvent extraction. Results are reported on a dry weight basis.

Report Notations: BRL Indicates concentration, if any, is below reporting limit for analyte. Reporting limit is the lowest concentration that can be reliably quantified under routine laboratory operating conditions. Reporting limits are adjusted for sample dilution and sample size.

Certifications and Approvals

CONNECTICUT, Department of Health Services, PH-0586

Potable Water, Wastewater/Trade Waste, Sewage/Effluent, and Soil

pH, Conductivity, Acidity, Alkalinity, Hardness, Chloride, Fluoride, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, Orthophosphate, Total Dissolved Solids, Cyanide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Total Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Titanium, Vanadium, Zinc, Purgeable Halocarbons, Purgeable Aromatics, Pesticides, PCBs, PCBs in Oil, Ethylene Dibromide, Phenols, Oil and Grease.

MAINE, Department of Human Services, MA103

Drinking Water

Reciprocal certification in accordance with Massachusetts certification for drinking water analytes.

Waste Water

Reciprocal certification in accordance with Massachusetts certification for waste water analytes.

MASSACHUSETTS, Department of Environmental Protection, M-MA-103

Potable Water

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Thallium, Nitrate-N, Nitrite-N, Fluoride, Sodium, Sulfate, Cyanide, Turbidity, Residual Free Chlorine, Calcium, Total Alkalinity, Total Dissolved Solids, pH, Trihalomethanes, Volatile Organic Compounds, 1,2-Dibromoethane, 1,2-Dibromo-3-chloropropane, Total Coliform, Fecal Coliform, Heterotrophic Plate Count, E-Coli

Non-Potable Water

Aluminum, Antimony, Arsenic, Beryllium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Strontium, Thallium, Titanium, Vanadium, Zinc, pH, Specific Conductance, Total Dissolved Solids, Total Hardness, Calcium, Magnesium, Sodium, Potassium, Total Alkalinity, Chloride, Fluoride, Sulfate, Ammonia-N, Nitrate-N, Kjeldahl-N, Orthophosphate, Total Phosphorus, Chemical Oxygen Demand, Biochemical Oxygen Demand, Total Cyanide, Non-Filterable Residue, Total Residual Chlorine, Oil and Grease, Total Phenolics, Volatile Halocarbons, Volatile Aromatics, Chlordane, Aldrin, Dieldrin, DDD, DDE, DDT, Heptachlor, Heptachlor Epoxide, Polychlorinated Biphenyls (water), Polychlorinated Biphenyls (oil).

MICHIGAN, Department of Environmental Quality

Drinking Water

Trihalomethanes, Regulated and Unregulated Volatile Organic Compounds by EPA Method 524.2; 1,2-Dibromoethane, 1,2-Dibromo-3-chloropropane by EPA Method 504.1

NEW HAMPSHIRE, Department of Environmental Services, 202798

Drinking Water

Metals by Graphite Furnace, Metals by ICP, Mercury, Nitrite-N, Orthophosphate, Residual Free Chlorine, Turbidity, Total Filterable Residue, Calcium Hardness, pH, Alkalinity, Sodium, Sulfate, Total Cyanide, Insecticides, Herbicides, Base/Neutrals, Trihalomethanes, Volatile Organics, Vinyl Chloride, DBCP, EDB, Nitrate-N.

Wastewater

Metals by Graphite Furnace, Metals by ICP, Mercury, pH, Specific Conductivity, TDS, Total Hardness, Calcium, Magnesium, Sodium, Potassium, Total Alkalinity, Chloride, Fluoride, Sulfate, Ammonia-N, Nitrate-N, Orthophosphate, TKN, Total Phosphorus, COD, BOD, Non-Filterable Residue, Oil & Grease, Total Phenolics, Total Residual Chlorine, PCBs in Water, PCBs in Oil, Pesticides, Volatile Organics, Total Cyanide.

RHODE ISLAND, Department of Health, 54

Surface Water, Air, Wastewater, Potable Water, Sewage

Chemistry: Organic and Inorganic

BENNETT & O'REILLY, Inc.

Engineering, Environmental & Surveying Services

Sanitary
Site Development
Waste Water Treatment
Water Supply

21E/Site Remediation
Hydrogeologic Survey
Water Quality Monitoring
Consulting

Property Line
Subdivision
Land Court
Trial Court Witness



1573 Main Street
PO Box 1667
Brewster, MA 02631
508-896-6630
508-896-4687 Fax

QUALITY ASSURANCE AND QUALITY CONTROL PLAN

Quality Assurance and Quality Control Program
For Soil and Groundwater Remediation Plan

INTRODUCTION

This Quality Assurance and Quality Control (QA/QC) Program outlines the purpose, policies, organization and operations to support sampling work conducted by BENNETT & O'REILLY, INC.

Implementation of this program will help ensure the validity of data used to provide professional engineering and environmental opinions to clients.

The following definitions are used in the QA/QC Program:

Quality Assurance refers to the concepts used in defining a system for verifying and maintaining a desired level of quality in a product or process.

Quality Control is a specific, step-by-step description of how the Quality Assurance Program will be carried out.

This QA/QC Program guides field sampling activities. Project-specific QA/QC Programs are adopted when warranted. Modifications to this QA/QC Program may be made only after specific approval by the QA/QC Officer (Project Manager).

The specific objectives of the QA/QC Program are to:

1. specify the level of quality of each field procedure used in collecting samples;
2. identify deficiencies in field procedures which might affect the quality of data; and
3. require sufficient documentation to verify the credibility of the sampling methods employed.

PROGRAM ORGANIZATION AND RESPONSIBILITY

The Project Manager of BENNETT & O'REILLY, INC. is responsible for the quality of work produced. The Project Manager directs the QA/QC Program to document the control of field efforts and resulting data.

In this capacity, the Project Manager is expected to do the following.

1. prepare detailed Quality Control Plans;
2. obtain analytical and sampling procedure reference materials;
3. ensure that all field test and measurement equipment is maintained and calibrated properly;
4. monitor quality assurance activities to ensure conformance with authorized policies, procedures, and sound practices, and recommend improvements as necessary;
5. ensure that all field sampling is conducted in accordance with guidelines contained herein;
6. oversee all field sampling efforts to detect conditions which might directly or indirectly jeopardize the utility of resulting analytical data, such as improper calibration of equipment or cross contamination through improper storage of samples;
7. ensure that sample handling procedures are adequate for the sample types received; and.
8. inspect the quality of purchased sampling materials.

SAMPLE MANAGEMENT, COLLECTION, AND PREPARATION

Introduction

The procedures in this section are designed to ensure collection of samples which truly represent the matrix being sampled by eliminating trace levels of contaminants from external sources. Sample management and stringent documentation are essential for successful quality assurance.

Sample Management

The management of samples, up to the point of delivery to the laboratory for analysis, is under the supervision of the Project Manager, who shall ensure that samples are collected, labeled, preserved, stored, and transported according to the prescribed methods. If significant deviations from the sampling protocol occur, resulting in a suspected compromise of the sample integrity, all samples taken during that sampling effort prior to correction of the procedure will be discarded and fresh samples taken.

In the field sampling effort, control samples (duplicates and blanks) are introduced into the sample set or batch. Random introduction of control samples is typically accomplished during the logging in process without leaving such clues as a sudden perturbation in the sequence of laboratory numbers or the appearance of a cleaned up extract in a round of soil samples.

Sample Collection

Ground water

Monitoring wells will be sampled in accordance with the following sampling procedures:

1. Identify the well and record the well number on the ground water sampling record.
2. Open the well cap and measure organic vapor levels at the wellhead with the use of a portable organic vapor analyzer. Record levels detected.
3. Measure ground water level to the nearest 0.01 foot from the top of the well riser pipe using an electric water level indicator. Record water level on a Monitoring Well Sampling Log (attached). Water level indicators will be decontaminated between wells.
4. The volume of standing water in the well casing will be calculated and recorded on the Monitoring Well Sampling Log. At least three well volumes will be purged by pump, separate pre-cleaned polyethylene tubing will be used in each well.

5. Samples will be collected using a bailer. Samples will be transferred from the bailer and poured into containers, taking care as to minimize agitation of the sample.
6. Sample containers will be properly labeled with tags provided by the laboratory. Samples will be logged in on a sample log sheet and a chain-of-custody form.
7. Samples taken for precipitate metal analysis will be acidified to a pH of less than 2.0 in the field.

When sampling water for volatile compounds, care must be exercised to prevent loss of compound through evaporation. Precautionary measures include:

1. preventing aeration of the sample with the atmosphere or any other gas;
2. filling bottles to capacity with sample and securing cap without entraining air bubbles;
3. placing samples on ice (approximately 4 C) immediately after collection; and.
4. analyzing sample as soon as possible within the specific holding times after collection.

Soils

When collecting and screening soil samples, the procedures to be used are:

1. Prior to sampling surficial locations, surface vegetation, rocks, leaves, and debris will be cleared from the sample point to allow collection of a clean soil sample.

Surface soil samples, if taken, will be taken with the use of a hand trowel or shovel and spatula. The sampling equipment will be decontaminated as outlined below.

2. Boring samples will be taken by drill rig-operated split spoon procedures. Soil samples collected from excavations or test pits will be collected directly with a hoe (if necessary) from grade to approximately four feet below grade. Samples collected at deeper depths will be obtained directly from the bucket of the backhoe. A stainless steel spatula will be used to remove soil from the backhoe bucket for placement in the appropriate sample containers.

Soil samples for HNU-101 volatile organic field screening will be placed in glass soil jars with aluminum foil placed under the screw cap. Samples will be allowed to warm to ambient temperature before screening or will be screened in a heated vehicle after warming. The jar will be shaken for fifteen seconds prior to warming and after warming to ensure proper headspace development.

3. Soil samples will be stored and shipped in appropriate sealed containers.
4. Sample containers will be marked to indicate sampling date, time, location, and depth. Samples will be logged in or chain-of-custody forms (copy attached).
5. The stratigraphy of each soil boring and test pit excavation, and the construction of each monitoring well will be recorded by the on-site geologist on the appropriate soil boring/monitoring well installation log or test pit field log (copies attached).

Soil sampling equipment (trowel, shovel, or spatula) will be decontaminated between each sampling location with a potable water rinse, alconox soap wash, potable water rinse, and final potable water rinse.

Drilling and excavating apparatus (augers, rods, casing, core barrels, backhoe bucket, and other equipment coming in contact with the borehole or excavation) will be decontaminated between each boring and excavation via steam cleaning. If necessary, an alconox soap wash followed by a steam cleaning will be included.

SAMPLE PRESERVATION

Procedures

To prevent or retard the degradation/modification of chemicals in water samples during transit and storage, the samples will be preserved by refrigeration at or below 4 C and stored in glass bottles with Teflon-lined lids. Samples containing inorganic compounds will be stored in plastic polyethylene containers. Samples will be delivered to the laboratory by courier or by overnight delivery service.

DATA MANAGEMENT

Logging of Samples

The accountability of a sample begins when the sample is taken from its natural environment. Sample handling (chain-of-custody) records must be completed at the time of sampling (refer to Figure 1). The following chain-of-custody procedure must be implemented by the Field Team Leader to assure sample integrity.

1. The samples are under custody of the Field Team Leader if:
 - a. they are in his (or her) possession;
 - b. they are in view after being in possession;
 - c. they are locked up or sealed securely to prevent tampering; or,
 - d. they are in a designated secure area.

2. The "original" of the sample handling form must accompany the samples at all times after collection. A copy of the sample handling form is kept by the Field Team Leader.
3. When samples are transferred in possession, the individuals relinquishing and receiving will sign, date, and note the time on the form.

The Sampling Handling Record will contain information to distinguish each sample from any other sample. This information will include:

1. the project for which sampling is being conducted;
2. the matrix being sampled (air, ground water, soil, etc.);
3. the sampling date and time;
4. field sample identification number and chain-of-custody identification number;
5. the number and type of containers and the type of preservative used (if any); and,
6. signature of the person performing the sampling.

Each sample will be assigned a unique identification number, which will be marked on the sample container. The sample handling record will be forwarded to the laboratory with the samples. As a precaution against this record being lost or altered, the sampling personnel will retain a copy of the sampling handling record documenting all information up until the first change of sample custody. This record will be filed by the Project Manager.

Sample Identification Numbers

Reporting of data to the data management system will require the assignment of a unique identification number to each sample collected (including quality control samples). A record will be maintained by the Project Manager to associate the field sample with the various identification numbers used to analyze the field sample. Specific sample identification procedures are developed for each field sampling effort by the Project Manager.

BENNETT & O'REILLY, Inc.

1573 Main Street
 PO Box 1667
 Brewster, MA 02631

Sheet of
 508-896-6630
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Sieve Analysis Data and Computation Sheet

Job Number: _____ Date: _____
 Job Name: _____
 Sample Number: _____
 Sample Collected By: _____
 Sample Tested By: _____
 Notes : _____

SIEVE OPENING MILLI- METERS	SIEVE MESH	WEIGHT RETAINED IN GRAMS (Cumulative)	PERCENT RETAINED (Cumulative)	CUMULATIVE PERCENT FINER	PROJECT MANUAL SPECIFICATION
PASSED MESH SIEVE TOTAL					

Sample Weight Wet: _____
 Sample Weight Dry: _____
 Percent Moisture: _____
 Sample Weight Passed Through Sieves: _____

BENNETT & O'REILLY, Inc.

1573 Main Street
 PO Box 1667
 Brewster, MA 02631

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<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Job Number:	Date:
SAND	GRAVEL	SILT SAND	Job Name:	
			Test Hole Number:	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Witness:	
PEAT	CLAY		Drilling Contractor:	
			Sampling Method:	

GEOLOGIC BOREHOLE LOG

Lithology	Depth	Type of Sample	Depth	Standard Penetration		Well Specification & Remarks	Lithology/Sediment Description
				Blows per 6" Drive	% of Recovery		
	5					PID Response (ppm)	
	10						
	15						
	20						
	25						
	30					SWL:	
	35						
	40						
	45						
	50						

BENNETT & O'REILLY, Inc.

REPORT NUMBER:

1573 Main Street
PO Box 1667
Brewster, MA 02631

508-896-6630
508-896-4687 Fax

INSPECTORS DAILY RECORD OF WORK PROGRESS

Job Number: _____ Date: _____
Job Name: _____
Feature: _____
Contractor: _____
Type of Work: _____
Weather Conditions: _____ Temperature: _____

Contractor's Work Force (Indicate classification, including Subcontractor personnel)

Equipment in use or idled (identify which)

Materials or equipment delivered, quantity or pay items placed

Non-conforming materials or work, field problems, inspections of previously reported deficiencies

Summary of construction activities

BENNETT & O'REILLY, Inc.

Engineering, Environmental & Surveying Services

Sanitary	21E/Site Remediation	Property Line
Site Development	Hydrogeologic Survey	Subdivision
Waste Water Treatment	Water Quality Monitoring	Land Court
Water Supply	Consulting	Trial Court Witness



1573 Main Street
PO Box 1667
Brewster, MA 02631
508-896-6630
508-896-4687 Fax

SOIL TEST REPORT

CLIENT: _____	ASSR'S MAP: _____	DATE OF TEST: _____
AGENT: _____	PCL: _____	TYPE OF TEST: _____
ENGINEER: _____	STREET: _____	DEEP HOLE: _____
HEALTH REP: _____	_____	PERC TEST: _____
EXCAVATOR: _____	TOWN: _____	BORING: _____

SOIL LOGS

SKETCH OF LOT (not to scale)

TEST _____	TEST _____
<div style="border: 1px solid black; height: 150px; width: 100%;"></div>	<div style="border: 1px solid black; height: 150px; width: 100%;"></div>

PROPERTY INFORMATION

DEPTH TO GROUNDWATER: _____	WATER SUPPLY: _____
PERCOLATION RATE: _____	SITE FEATURES: _____
TEST RESULTS: _____	PURPOSE OF TESTING: _____
_____	_____
_____	_____

CERTIFICATION:

WE HEREBY CERTIFY THAT THE ABOVE TESTS WERE PERFORMED
AND THE RESULTS ARE AS SHOWN ON THIS REPORT.

RECOMMENDED SAMPLE CONTAINERS, PRESERVATION and HOLDING TIMES

Pesticide and Herbicide Analyses

Category	Methods	Minimum Qty. ¹	Recommended Container(s) ²	Required Preservation	Holding Time ³
Aqueous Samples					
Carbamate Pesticides (Drinking Water)	531.1	60mL	2 x 125 Glass Bottle w/teflon liner ¹⁷	Cool to 4°C ³ Add Sodium Thiosulfate ²⁵ Adjust pH to 3 with Monochloroacetic Acid Buffer	28 Days
Organochlorine Pesticides & PCBs	608/8080	1 L	2 x 1L Amber Glass Bottle w/teflon liner ¹⁷	Cool to 4°C ³ Check pH; Adjust 5-9 ⁶ Remove Chlorine ⁷	7 Days ⁴
Organochlorine Pesticides & PCBs (Drinking Water)	508	1 L	2 x 1L Amber Glass Bottle w/teflon liner ¹⁷	Cool to 4°C ³ Add Sodium Thiosulfate ²⁵	7 Days ²¹
Polychlorinated Biphenyls by Perchlorination (Drinking Water)	508A	1 L	2 x 1L Amber Glass Bottle w/teflon liner ¹⁷	Cool to 4°C ³	14 Days ²²
Organohalide Pesticides & PCBs (Drinking Water)	505	40 mL	3 x 40 mL Glass Vials w/teflon septa caps ¹⁷	Cool to 4°C ³ Add Sodium Thiosulfate ²⁵	7 Days ²⁰
Organophosphorus Pesticides	614/8140	1 L	2 x 1L Amber Glass Bottle w/teflon liner ¹⁷	Cool to 4°C ³ Check pH; Adjust 6-8 ⁶ Remove Chlorine ⁷	7 Days ⁴
Chlorinated Herbicides	615/8150	1 L	2 x 1L Amber Glass Bottle w/teflon liner ¹⁷	Cool to 4°C ³ Remove Chlorine ⁷	7 Days ³
Chlorinated Herbicides (Drinking Water)	515.1	1 L	2 x 1L Amber Glass Bottle w/teflon liner ¹⁷	Cool to 4°C ³ Add Sodium Thiosulfate ²⁵	14 Days ²³
Glyphosate (Drinking Water)	547	40 mL	2 x 40 mL Glass Vial w/teflon liner	Cool to 4°C ³ Add Sodium Thiosulfate ²⁵	14 Days
Endothall (Drinking Water)	548.1	100 mL	2 x 125 mL Glass Bottle w/teflon liner ¹⁷	Cool to 4°C ³ HCl to pH <2 ⁴ Add Sodium Thiosulfate ²⁵	7 Days ²¹
Diquat and Paraquat (Drinking Water)	549.1	250 mL	1 x 1L Amber Glass Bottle w/teflon liner ¹⁷	Cool to 4°C ³ H ₂ SO ₄ to pH <2 ⁴ Add Sodium Thiosulfate ²⁵	7 Days ²⁷
EDB and DBCP (Drinking Water)	504.1	40 mL	3 x 40 mL Glass Vials w/teflon septa caps ^{12, 17}	Cool to 4°C ³ Add Sodium Thiosulfate ²⁵	14 Days
EDB and DBCP	8011	40 mL	3 x 40 mL Glass Vials w/teflon septa caps ^{12, 17}	Cool to 4°C ³ HCl to pH <2 ⁴ Remove Chlorine ⁷	14 Days
Solid Samples					
Organochlorine Pesticides & PCBs	8080	30 g	Glass Jar w/teflon liner ¹⁷	Cool to 4°C ³	14 Days ¹⁰
Organophosphorus Pesticides	8140	30 g	Glass Jar w/teflon liner ¹⁷	Cool to 4°C ³	14 Days ¹⁰
Herbicides	8150	30 g	Glass Jar w/teflon liner ¹⁷	Cool to 4°C ³	14 Days ¹⁰
EDB and DBCP	8260	10 g	1 x 125 mL Glass Vial w/teflon septa cap ^{12, 17} OR 2 x 40 mL Glass Vials w/teflon septa caps ^{12, 13, 17}	Cool to 4°C ³	14 Days

Draft Vegetation Management Plan



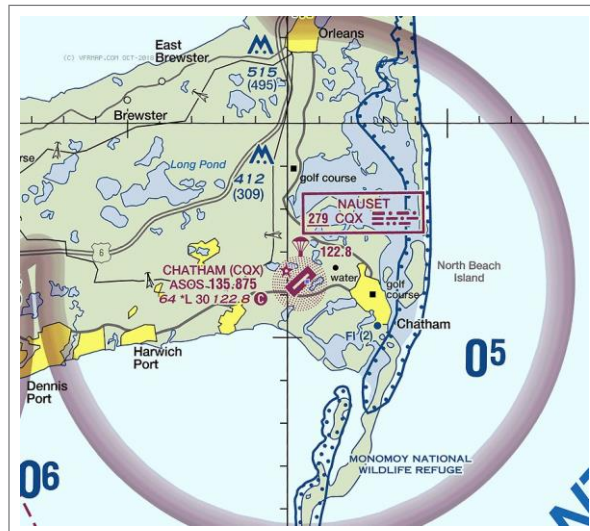
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VEGETATION MANAGEMENT PLAN CHATHAM AIRPORT, MASSACHUSETTS

Chatham Municipal Airport
240 George Ryder Road
Chatham, MA

May 2021

File No. 15.0166692.03



PREPARED FOR:

Chatham Municipal Airport
Chatham, MA

GZA GeoEnvironmental, Inc.

1350 Main Street, Suite 1400 | Springfield, MA 01103
413-726-2100

Offices Nationwide
www.gza.com

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1350 Main Street
Suite 1400
Springfield, MA 01103
T: 413.726.2100
F: 413.732.1249
www.gza.com



May 5, 2021
GZA File No. 15.0166692.03

Mr. Matthew Caron
Gale Associates
15 Constitution Drive
Bedford, NH 03110

**RE: Vegetation Management Plan
Chatham Municipal Airport
240 George Ryder Road
Chatham, MA**

Dear Matt:

GZA GeoEnvironmental, Inc. (GZA) is pleased to submit the enclosed Vegetation Management Plan (VMP) for Chatham Municipal Airport located at 240 George Ryder Road, Chatham, MA. This VMP is in response to the 2018 review of protected zone penetrations and presents a plan to comply with Federal Aviation Administration (FAA) regulations 14 CFR Part 77.

If you have any questions, please feel free to contact Steven Riberdy at 413-237-6860 or steve.riberdy@gza.com.

Very truly yours,
GZA GeoEnvironmental, Inc.

Steven Riberdy, MS, PWS, CWB, CE
Senior Ecologist/Senior Technical Specialist

Daniel M. Nitzsche, CPESC, CESSWI, SE
Consultant/Reviewer

Stephen Lecco, AICP, CEP
Principal-in-Charge



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1.0 INTRODUCTION

1.1 PROJECT OVERVIEW

Purpose of Document: This report sets forth a safety-mandated plan for vegetation management at Chatham Municipal Airport (FAA code KCQX, or the Airport). This VMP accounts for all protected surfaces, on- and off-airport and within or outside existing airport easements. It sets forth short- and long-term management plans for the VMP areas, which will include identification of Vegetation Management Areas (VMAs) where acquisition of easements may be necessary.

This VMP will identify wetland resources (approximating areas off Airport property, where access is currently restricted) and other environmental constraints. The VMP will: identify VMAs according to methodology for tree removal and other operational constraints that will affect vegetation management activities; evaluate alternative methods for tree removal; identify potential impacts to wetland resource areas and other natural resources; provide mitigation strategies and approaches; and provide a Yearly Operation Plan (YOP) for implementing the VMP.

Vegetation management is required of the Airport by the Federal Aviation Administration (FAA), in compliance with 14 CFR Part 77, better known as FAR Part 77 – Objects Affecting Navigable Airspace, which requires vegetation management in “protected airspace.” In general, if an airport accepts funding from the FAA, the airport must then make all reasonable efforts to comply with all FAA regulations including keeping the airspace clear of obstructions—including, but not limited to vegetation. These Part 77 surfaces are determined by the FAA and are based on the type of approach available or planned for that runway which are discussed more fully below.

The VMP will address each of these concerns while identifying the immediate and long-term vegetation management needs of the airport. The VMP also depicts the vegetation management needs for three areas:

- On-airport properties;
- Off-airport properties with existing owner permission to manage vegetation for safe airspace; and
- Off-airport areas potentially requiring avigation easements for vegetation management.

Short-term and long-term vegetation management plans and a five-year YOP are presented for each of these areas in a systematic manner. The vegetation management activities of on-airport areas or areas where access easements have been established are of highest priority. Off-airport areas lacking avigation easements are of lowest priority.

Statewide Airport Vegetation Management Planning: Massachusetts’ 37 public use airports are required by the Massachusetts Department of Transportation Aeronautics Division (MassDOT Aeronautics) and the Federal Aviation Administration (FAA) to maintain safe, navigable airspace. Removal of vegetative obstructions is vital to maintain aviation safety. [Note: the Massachusetts Aeronautics Commission (MAC) was reorganized as MassDOT Aeronautics in November 2009. For the remainder of this document, the current name will be used even when referring to actions taken under the former designation].

FAA regulations and standards require that airspace Protection Zones (PZ) be achieved and maintained to assure an appropriate level of safety at each airport, and to maintain eligibility for federal grant funds. The areas of Protection Zones that must be kept free from obstructions are defined by:

- FAA Regulation Part 77 (14 CFR 77);
- FAA Advisory Circular 150/5300-13 (Airport Design);



- FAA Order 6480.4 (Air Traffic Control Tower Siting Criteria); and
- MassDOT Aeronautics approved aeronautical rules and regulations for public use airports (pursuant to 702 CMR, as amended; for airports subject to MassDOT Aeronautics certification pursuant to M.G.L. c.90, Section 39B).

Additionally, to comply with FAA safety regulations and to remain eligible for federal funding of improvement projects, airports must prevent penetration of PZ by natural and man-made obstructions.

In 1992, MassDOT Aeronautics began a long-term vegetation management program to assist public-use airports in the Commonwealth in their efforts to enhance public safety and to comply fully with Federal and State laws, rules, regulations, advisories, and orders with regard to maintaining PZ free from obstructions. The initial action in MassDOT Aeronautics vegetation management program was to work with the MA Department of Environmental Protection (MA DEP) and Massachusetts Port Authority (Massport) to streamline the permit process for vegetation management in wetland resource areas. A Generic Environmental Impact Report (GEIR) for Vegetation Removal in Wetlands at Public Use Airports (EOEA #8979) was completed in 1993. The GEIR evaluated the probable environmental impacts of vegetation removal projects in wetland resources for the purpose of maintaining PZ free from vegetation obstructions at public-use airports throughout the Commonwealth. Regulations governing the limited project provision for airport vegetation removal projects in wetlands were promulgated (310 CMR 10.53 (3)(n)(1)), becoming effective January 1, 1994.

Since the completion of the GEIR, MassDOT Aeronautics and FAA have assisted in funding over 15 VMPs throughout the state at General Aviation (GA) airports, based on available funds and urgency of obstruction removal. These projects included the development of airport-specific VMPs that outline five-year plans for vegetation management, and implementation of the VMPs, including obtaining required permits for vegetation removal.

In November 1999, MassDOT Aeronautics submitted a GEIR update and Expanded Generic Environmental Notification Form (GENF) for Airport Vegetation Management to the MA Executive Office of Environmental Affairs (MEPA office). Annual status reports on the statewide airport VMPs were submitted to MEPA for the years 2000 through 2004, and a new GEIR Update and Expanded GENF for Statewide airport VMPS was submitted to MEPA, jointly with FAA and DEP, in August 2006.

The typical vegetation management process at airports follows a regular, predictable path. It starts with the comprehensive five-year capital improvement plans that are required of each airport for their capital budgeting process and must be prepared and submitted each year by each airport to be eligible for state (MassDOT Aeronautics) and federal (FAA) capital fund allocations. In each of the airports where vegetation management is a required safety measure, it is incorporated into the airport's Capital Improvement Plan (CIP) including the allocation of potential funding for conducting the vegetation management program. For airports with existing VMPs where there are proposed projects that will modify the airspace, the VMP is updated. These updates will accommodate the changes to the protected airspace, modifying the methodologies and Vegetation Management Areas (VMAs) where necessary in the VMP.

Once funding is available, the steps in the VMP process include:

1. Development of Draft VMP,
2. Public Presentation of Draft VMP and Outreach,
3. Preparation and Submittal of Notice of Intent and VMP,
4. Issuance of Orders of Conditions for VMPs that impact Wetland Resources.
5. Finalization of VMP,



6. Implementation of VMP under a continuously updated 5-Year, Yearly Operational Plan (YOP). The VMP/YOP describes and plans the following specific actions:
 - a. Short-term cutting plan
 - b. Long-term maintenance plan
 - c. Monitoring plan, and
7. VMP Update.

At several airports, the passage of time has prompted the need to create a more comprehensive VMP that incorporates a larger area than covered under the original VMP resulting in the development of a “VMP Update”. This VMP Update builds upon the original VMP, makes modifications of procedures if necessary, accommodates relevant modifications at the airport since the original VMP, and extends the VMP to off-airport areas, even if outside of the control of the airport. The incorporation of off-airport areas does not authorize any specific activities within these areas but allows for ready incorporation of these areas into future YOP activities should easements or other agreements for vegetation management be acquired.

Vegetation Management at Chatham Municipal Airport: This report sets forth the safety-mandated plan for vegetation management at the Airport. This is the first VMP developed for the Airport. As such, no related actions or permitting occurred in support of this comprehensive plan. The preparation and finalization of this VMP qualify as steps 1-5 above.

Gale Associates, Inc. (Gale) completed the identification of protection zones and performed an obstruction analysis for Chatham Airport in concurrence with the 2018 Master Plan project using photogrammetry and topographic information. Using this information, VMAs were identified and reviewed in the field for consistency and to assess potentially unusual local conditions. Removal methodologies were selected based upon the vegetation present, the landform and potential site access, and environmental and permitting constraints. The YOPs for Chatham are based upon the characterization of the VMAs, as well as safety, environmental, and financial considerations.

1.2 VEGETATION MANAGEMENT PLAN COMPONENTS

The VMP is a planning level document that outlines a strategy to be employed at the Airport for both prioritizing the removal of vegetation which currently penetrates PZs and for preventing other vegetation from penetrating PZs in the future. Specifically, the VMP identifies the following:

- **Protection Zones around the airport.** This airspace must be kept clear of obstructions to meet State and Federal aviation safety regulations.
- **Vegetative communities in the obstructed areas.** The primary communities identified at Chatham include forested uplands, scrub/shrub uplands, forested wetlands, scrub/shrub wetlands, and grasslands.
- **Vegetation Management Areas (VMAs).** VMAs are geographic areas with specific vegetation management needs based on location, topography, soils, plant species, environmental constraints, ownership, easement conditions, and other factors. Some areas are already in routine management. Other areas represent older woodland growth which has been managed only infrequently or needs new management to come into compliance.
- **Environmental resources.** These include, but are not limited to wetland resources, habitat for threatened and endangered species, and historical/archaeological resources.
- **Appropriate vegetation management techniques.** These measures are formulated by taking into consideration the vegetative communities, obstructions, and environmental constraints.



The starting point for a VMP is the identification of PZs around the airport that must be kept free of obstructions. Once the protection zones are identified, an obstruction analysis determines where vegetation currently penetrates or threatens to penetrate PZs. Areas are investigated using available topographic information, estimating existing and potential tree heights, and comparing these heights to the regulated heights of the protected surfaces. Once the areas of obstruction are identified, the vegetative communities and potential environmental constraints on vegetation management are evaluated. Based on the synthesis of this information, VMAs are developed. Some VMAs will require major work to remove woodland obstructions to move these areas to a desired vegetative growth pattern that can be maintained. Other areas are already in routine maintenance and will require less initial work. A variety of removal methods are considered for each VMA and a preferred removal method is selected.

Guiding the overall progression of a VMP are a series of YOPs covering a period of five years. YOPs provide strategies for scheduling and budgeting of vegetation management activities. Well-designed VMPs/YOPs protect aviation safety by:

- Removing naturally occurring obstructions within regulated protected airspace;
- Preventing future obstruction of protected airspace;
- Perpetuating and encouraging growth of herbaceous and low-growing vegetation;
- Minimizing adverse impacts to wetlands and wildlife habitat; and
- Minimizing adverse impacts to other sensitive resources.

Vegetation management at the Airport is designed to be a long-term practical strategy that promotes aviation and public safety while limiting impacts to environmental resources. Properly designed and executed, VMP/YOPs will both improve aviation and public safety and lessen the long-term financial burden of vegetation maintenance by providing a scheme that creates stable low-growing vegetative communities, thus eliminating continual, costly, and disruptive large-scale vegetation removal projects.

1.3 PURPOSE AND NEED FOR THE PROJECT

Removal of PZ obstructions is vital to aviation safety. FAA regulations, such as FAR Part 77, advisories, and orders delineate protection zones. To comply with FAA safety regulations and remain eligible for federal funding of improvement projects in the future, airports must prevent penetration of the protection zones by natural and man-made obstructions. In this case, some of the Airport's protection zones are currently, or have the potential to be obstructed and require management if the operational activity of the Airport is to be maintained. Chatham Municipal Airport currently does not have a formal VMP, and past VMP maintenance has been sporadic and not conducted under the formal program. To be in compliance with FAA regulations, a formal VMP must be established.

2.0 **GENERAL AIRPORT INFORMATION**

2.1 LOCATION OF AIRPORT

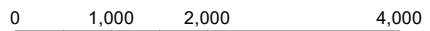
Chatham Municipal Airport (KCQX) is located at 240 George Ryder Road in the Town of Chatham, Massachusetts (Figure 2-1). It is southwest of Route 6 north of State Route 28. Table 2-1 summarizes current Airport information. Chatham Municipal Airport is a public-use facility owned by the Town of Chatham and serving the outer Cape Cod area of Massachusetts. Aircraft repair, charter, rental, and hangar facilities are available. Airport access is via George Ryder Road from Route 28 or Old Queen Anne Road from Route 6.

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SCALE IN FEET

CHATHAM AIRPORT VMP
CHATHAM, MA

LOCUS MAP

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PROJ MGR: SDR REVIEWED BY: GPD
 DESIGNED BY: ARD DRAWN BY: ARD
 DATE: 01/18/2021 PROJECT NO: 15.0166692.03

PREPARED FOR:
GALE ASSOCIATES INC
 163 LIBBEY PARKWAY
 WEYMOUTH, MA 02189

CHECKED BY: SLL FIG
 SCALE: 1 in = 2,000 ft
 REVISION NO:

2-1



2.2 CLASSIFICATION OF AIRPORT

Chatham Municipal Airport is listed in the Massachusetts Statewide Airport’s System Plan as a General Aviation, municipally owned, public use airport under the FAA National Plan of Integrated Airport Systems (NPIAS). The FAA uses an Airport Reference Code (ARC) to determine guidelines for airport planning and design. Two components are used to determine an airport’s ARC:

1. The aircraft approach category (depicted by the letters A through E); and
2. The airplane design group (depicted by roman numerals I through V).

The approach category refers to the aircraft approach speed, and the design group refers to the aircraft wingspan. The critical or design aircraft is defined as the most demanding aircraft that operates at the airport on a regular basis. Based on the Chatham Municipal Airport Master Plan Update completed in January 2021, the Airport’s design aircraft was identified as the Beech Baron B-58, classifying CQX as a B-I facility.

2.3 OPERATIONAL DESCRIPTION

The Airport has one paved runway: Runway 6-24, which is 3,001 feet long by 100 feet wide, marked as basic, and served by medium intensity runway lights and a two-light PAPI on each runway end. Runway 6-24 was last reconstructed in 2009 and does not have displaced thresholds. Currently, Chatham has only visual (circling) approaches and is served by a non-directional beacon (NDB).

Table 2-1: Airport General Information Summary Sheet	
AIRPORT NAME & ID NUMBER	Chatham Municipal Airport (KCQX)
AIRPORT LOCATION	Chatham, Massachusetts
AIRPORT OWNER INFORMATION	Town of Chatham Huntley Harrison, Airport Commission Chairman Chatham Municipal Airport 240 George Ryder Road Chatham, MA 02633 (508) 945-9000
AIRPORT COMMISSION INFORMATION	Huntley Harrison, Airport Commission Chairman Town of Chatham 549 Main Street Chatham, MA 02633 (508) 241-1947
AIRPORT MANAGEMENT INFORMATION	Tim Howard, Airport Manager Chatham Municipal Airport 240 George Ryder Road Chatham, MA 02633 (508) 945-5747
ADDITIONAL AIRPORT INFORMATION	
NUMBER OF RUNWAYS	1
CONTROL TOWER	No
COMMUNITIES AFFECTED	Chatham, MA
NAVAIDS	PAPI, REILS, NDB, Rotating Beacon, Windcone, Segmented Circle
APPROACH LIGHTS	No



3.0 VEGETATION MANAGEMENT PLAN OBJECTIVES AND STRATEGIES

The objectives and strategies for vegetation management at the Airport have been formulated based on the particular needs of the Airport and the guidelines jointly developed by MassDOT Aeronautics, FAA, Massport and MA DEP in the following documents:

1. *GEIR for Vegetation Removal in Wetlands at Public Use Airports (1993)*;
2. *GEIR Update and Expanded GENF for Airport Vegetation Management (1999)*;
3. *Vegetation Management at Airports, A Guidance Document to Conservation Commissions (2004)*; and
4. *GEIR Update and Expanded GENF for Airport Vegetation Management (2006)*.

Objective: To promote and maintain public and aviation safety by removing vegetative obstructions in the protected zones.

Strategy: Clear vegetation that presently obstructs or threatens to obstruct the primary, approach, transition, and other protected surfaces at the Airport.

Objective: To promote environmentally sound and practical removal techniques that successfully maintain public and aviation safety.

Strategy: Select appropriate short-term and long-term techniques and mitigation measures for each VMA, taking into consideration environmental issues, vegetative communities, and obstructions. Limit adverse impacts to environmental resources such as wetlands, water quality, and wildlife. Coordinate with the Chatham Conservation Commissions and MA DEP to meet these goals.

Objective: To provide feasible long-term vegetation management strategies that will preclude the need for future large-scale vegetation removal projects.

Strategy: Where feasible, formulate plans for each VMA to perpetuate and encourage growth of herbaceous and low-growing vegetation. Coordinate with Chatham Conservation Commissions and MA DEP to make on-going maintenance of the VMAs an expectation and condition of YOPs, minimizing the need for future large scale VMP activities.

Objective: To identify the most cost-effective maintenance activities that keep the cleared VMAs free from future obstructions.

Strategy: Evaluate the airport's ability to maintain cleared VMAs with their current equipment and personnel. Determine the long-term maintenance activities to facilitate obstruction prevention and limit the need for future large-scale vegetation removal activities.

Objective: To promote the full use of the proposed airport facilities.

Strategy: To maintain clear PZs around runways to increase public and aviation safety.



4.0 PROTECTION ZONE OBSTRUCTION ANALYSIS

4.1 PURPOSE

The PZs (sometimes called “imaginary surfaces”) that must be kept free from obstructions are defined by:

- FAA Regulation Part 77 (14 CFR 77);
- FAA Advisory Circular 150/5300-13 (Airport Design);
- FAA Order 6480.4 (Air Traffic Control Tower Siting Criteria);
- MassDOT Aeronautics approved aeronautical rules and regulations for public use airports (pursuant to 702 CMR, as amended; for airports subject to MassDOT Aeronautics certification pursuant to M.G.L. c.90, Section 39B); and
- Obstructions are defined in Part 77 as:

“any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment and materials used therein, and apparatus of a permanent or temporary character; and alteration of any permanent or temporary existing structure by a change in its height (including appurtenances), or lateral dimensions, including equipment or materials used therein.”

The FAA has developed regulations, orders, and advisory circulars specifying areas in and around airports that must remain free of obstructions. FAA regulations contained in 14 CFR Part 77, “Objects Affecting Navigable Airspace”, describe the dimensions of imaginary geometric surfaces centered on airport runways that must be maintained free from obstructions. These zones of protection are crucial elements of aviation and public safety because when maintained they ensure unobstructed flight paths and views for pilots, air traffic controllers, and ground crew, enabling safe takeoffs, landings, and ground movements.

Wherever vegetation is growing, or has the potential to grow, into the protected airspace, such areas become part of the VMP. For most airports, the critical airspace that affects most VMPs is the FAR Part 77 surfaces.

An airport agrees to make all reasonable efforts to keep its protected airspace free from vegetative penetrations and obstructions, as a condition of accepting FAA funding. The FAA may disallow use of a particular airspace if the airport owner fails to regulate potential obstructions. In addition, compliance with FAA regulations, orders, and advisories is necessary for eligibility for federal funding for airport projects. Part 77 also discusses the limited potential for special analysis and marking of obstructions in specific cases as an alternative to removal.

4.2 PROTECTION ZONE IDENTIFICATION

Removal of penetrating vegetation allows for visually unobstructed landings, takeoffs, and ground movements. Unobstructed views of crucial parts of the airport, as defined in the Part 77 regulations, enable pilots in the air and on the ground to maintain a margin of safety for aviation operations that reduces the possibility of aviation accidents and enhances public safety. Part 77 specifies the dimensions of imaginary surfaces for each individual airport based on the runway type (visual, non-precision instrument, or precision instrument runway), the runway surface treatment (grass or pavement), and approach visibility minimums.

Five imaginary surfaces are identified under Part 77: Primary Surface, Approach Surface, Transitional Surface, Horizontal Surface, and the Conical Surface. Typically, only the Primary, Approach, and Transitional surfaces are involved in VMPs. Dimensions for each of these surfaces are prescribed by Part 77, though surface dimensions may differ from runway to



runway depending upon the criteria outlined in Part 77. The various surfaces are defined as follows and depicted in Figure 4-1 below:

Primary Surface – A rectangular shaped surface longitudinally centered on the runway centerline with the same elevation as the nearest corresponding point on the runway centerline. The primary surface width will vary depending upon the runway approach type and the type of runway surface, but all primary surfaces extend 200 feet beyond a runway’s end.

Approach Surface - A trapezoidal shaped surface centered on the runway centerline and extending outward and upward from each end of the primary surface at a prescribed slope angle. Approach surface lengths, widths and slope angle vary according to the runway approach type (visual, non-precision instrument (NPI) or precision instrument).

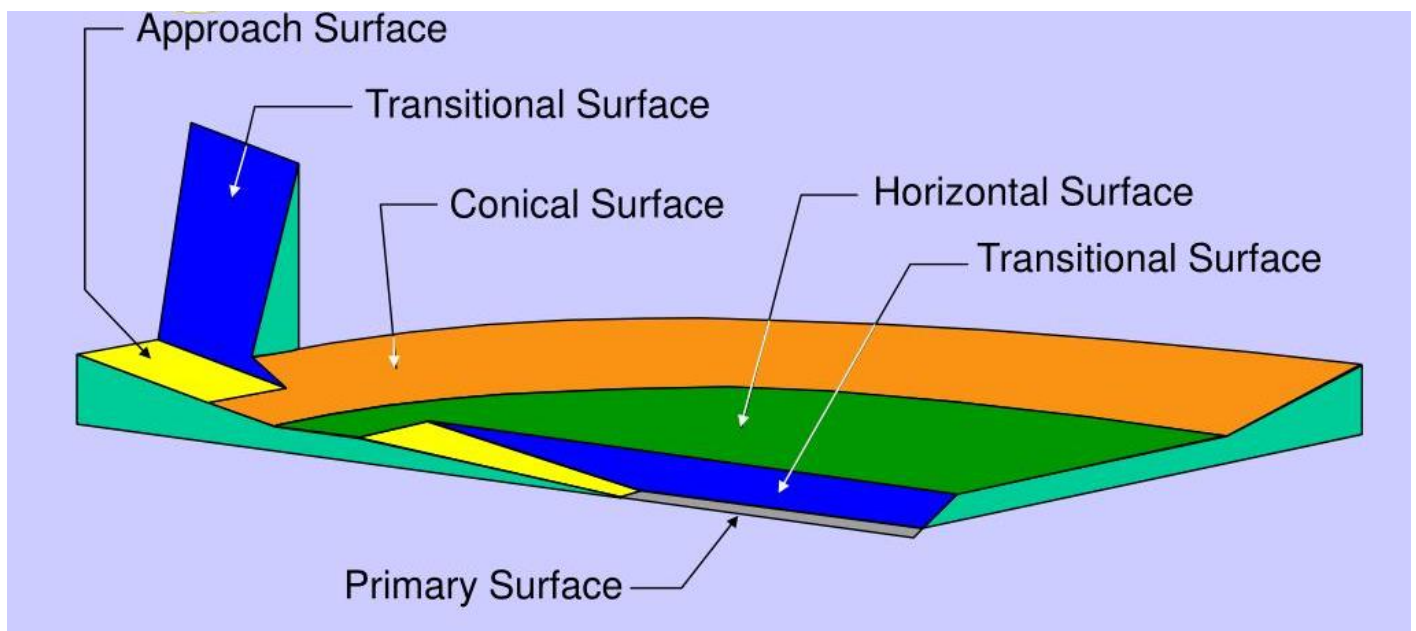
Transitional Surface – This surface is an inclined plane running parallel to the runway centerline beginning at the edges of the primary and approach surfaces. They then extend upward and outward at a slope of one-foot vertical for every seven-feet horizontal from the sides of the primary and approach surfaces to the horizontal surface (150 feet above the airport elevation).

Horizontal Surface – This surface is an oval shaped, horizontal plane established by Part 77 to be at 150 feet above the airport elevation. It is established by swinging arcs from the intersection of the extended runway centerline and primary surface at each end of the runway and then closing each area with tangent lines. In areas where the primary, approach, and transition surfaces may overlap, the surface with the lowest elevation is the controlling surface.

Conical Surface - A surface extending upward and outward from the edge of the horizontal surface at a slope of one-foot vertical for every 20-feet horizontal for 4,000 horizontal feet from the edge of the horizontal surface.

A way to visualize the shape of these surfaces is to imagine an oval football stadium closed at both ends. The **Primary Surface** is represented by the football field, sidelines, and end zones. The seats along the side lines and the stadium rows along the length of the field represent the **Transitional Surfaces**. The ends of the stadium, behind the goal posts, represent the **Approach Surfaces**.

Figure 4-1: Part 77 Imaginary Surfaces





4.3 OBSTRUCTION ANALYSIS METHODOLOGY AND RESULTS AT CHATHAM AIRPORT

For Chatham Municipal Airport, the Part 77 surfaces are the primary determinative factors for establishing the protected airspace in proximity to the runways. However, in addition to these Part 77 surfaces, the airport must also maintain the **safety areas** for the runways and taxiways. The safety areas often extend beyond the primary surface at the runway approaches and present a more conservative height limitation for vegetation in these areas.

Part 77 Analysis: The primary surface is essentially the runway surface and its immediately adjacent areas. The Airport has one runway, 6-24. The primary surface of Runway 6-24 is 500 feet wide and extends 200 feet beyond each runway end. The transitional surface slope is at a ratio of 7:1, meaning that it extends 7 feet horizontally for every 1-foot increase in elevation. The slope of the approach surface is a function of the instrument approach serving the runway and the type of aircraft using the runway. The runway dimensions and PZs are defined in Table 4-1.

If a structure or an object, such as vegetation, penetrates any of the Part 77 surfaces, it is considered an obstruction to air navigation [FAR Part 77 § 77.23(a)(5)]. When obstructions exist, an airport must either remove the obstruction, modify airport operations such as with a displaced threshold, or install lighting/markings on the obstruction and/or change the aircraft approach or departure minimums. When vegetation penetrates the approach surface to the runway, the threshold must be displaced (i.e., moved) away from the approach end of the runway shortening its available use to aircraft. Nevertheless, continued management of the penetrations to the airport's airspace will maintain the maximum space available for landing, avoid future displaced thresholds, provide pilots with the maximum landing space available, allow for more decision time and options for action should an emergency arise during a landing, and maintains the appropriate level of safety required for airports. Displacement of a threshold is never a desirable option for FAA, which views preservation of the full airport runway capabilities through vegetation management as a first priority in order to provide the highest margin of safety associated with required airport design standards.

Gale Associates performed an obstruction analysis in 2018 for the Airport using Part 77 surfaces, and other PZs, existing topography and photogrammetry of tree heights. Definitions of the Part 77 imaginary surfaces are presented in the following sections. The imaginary surfaces at the Airport are based on the runway characteristics summarized in Table 4.1. The obstruction analysis also identifies obstructions that penetrate these surfaces as well as those that threaten to penetrate PZs (i.e. within 10 feet), presuming that the tree vegetation can grow to this height within a relatively short period of time. Prudent maintenance requires removal to allow several years before maintenance is required again.

Runway 6-24 has Medium-Intensity Runway Lights (MIRL). Table 4-1 lists the dimensions for each Part 77 surface relevant to each runway. The compliance status for each applicable surface is briefly discussed below.

Runway 6-24 Primary Surface: This surface is centered laterally on the runway centerline with a 250-foot perpendicular width to each side of the runway. The primary surface extends 200 feet beyond each runway end. The elevations allowed for the primary surface are the same as the nearest point on the runway centerline.

Runway 6-24 Approach Surfaces: Approach surfaces begin at the end of the primary surface. The approach surface dimensions are as indicated in Table 4-1. The approach surface is trapezoidal shaped, centered on the runway centerline, and it extends outward and upward from the end of the primary surface. The approach surfaces currently require maintenance of vegetation due to obstruction.

Transitional Surfaces: A transitional surface starts at the edges of the primary and approach surfaces and extends outward and upward from these surfaces at a slope of 7:1 perpendicular to the Runway centerline. The end elevation of the transitional surface is 150 feet above the Airport elevation of 50 feet above mean sea level (msl). The transitional surface to Runway 6-24 is due for some maintenance on both sides of the runway.



Horizontal & Conical Surfaces: These surfaces do not have vegetative penetrations at the Airport at this time. The Horizontal Surface is established at 150 feet above airport elevation, or elevation 200 feet MSL. The Conical Surface extends upward and outward from the edge of the horizontal surface for 4,000 feet measured horizontally. The end elevation of this surface is 350 feet above the airport elevation or 400 feet above MSL.

Table 4-1: Part 77 Surface Dimensions¹										
Runway	Primary Surface Width	Primary Surface Length Beyond Runway End	Approach Surface Width at Inner End	Approach Surface Width at Outer End	Approach Surface Slope	Approach Surface Length	Transitional Surface Slope	Horizontal Surface Radius	Conical Surface Slope	Conical Surface Radius
RW 6	500	900	500	2,000	20:1	5,000	7:1	5,000	20:1	4,000
RW24	500	900	500	2,000	20:1	5,000	7:1	5,000	20:1	4,000

¹ All dimensions (except slopes) in feet

4.4 OBSTRUCTION ANALYSIS RESULTS

The areas with obstructions were identified by applying the FAR Part 77 Imaginary Surfaces criteria to the actual conditions at the Airport. The individual short-term VMAs are shown in Sheet 1 (Appendix A) and were identified based upon various factors related to the obstructions and their respective vegetation management. The conditions at the Airport were determined by comparing the projection of the protected surfaces on existing aerial photogrammetry, topographic mapping, and tree height mapping. The areas with obstructions identified, using this method, were used to develop the VMAs and assign appropriate methodologies for treatment and removal. Based on the analysis, there are 55.49± acres that contain either penetrations or objects which are within 10 feet of penetrating the protection zone. Of this area, 36.66± acres are located on airport property, 7.07± acres are located within areas where landowners have previously granted permission for vegetation management with an easement, and 11.81± acres are located on non-airport property where no aviation easements are held (Table 4-2). As a comprehensive plan, this VMP accounts for both on-airport and off-airport obstructions.

Table 4-2: Summary of Areas with Vegetative Penetrations¹	
Location	Area± (acres)
On-Airport (“-1” areas on Sheet 1)	36.66
Off-Airport with Easements (“-2” areas on Sheet 1)	7.07
Off-Airport without Easements* (“-3” areas on Sheet 1)	11.81
Total	55.54

¹ Current MassDOT Aeronautics plans for vegetation removal focus on areas within airport property or where current aviation easements or permissions exist.

4.5 PRIOR VMP CLEARING PROJECTS

Before the GEIR was accepted by MEPA and the wetland limited project regulation was adopted by the MA DEP, the FAA would not usually fund clearing projects more than once in a specific location at any airport. However, since the adoption of the wetland limited project regulation in 1994 for tree clearing in wetlands at public use airports, the FAA agreed to once again fund tree clearing projects where it had previously done so. This response is likely in recognition that attempts by airports to maintain previously cleared areas (particularly wetlands) was, in many cases, not practical due to the extensive and expensive permitting required before wetlands could be altered by tree clearing. There have been no formal



vegetation removal activities on the Airport. Table 4-3 presents a list of previous vegetation management efforts performed outside a VMP.

Table 4-3: vegetation Management Projects at Chatham Municipal Airport		
Year	Area Cleared	Current Status
Ongoing	Periodic mowing of airfield	Maintenance required
Annual	Brush hog clearing of grassy areas around NDB	Maintenance required
2010	Vegetation clearing around perimeter fence	Maintenance required

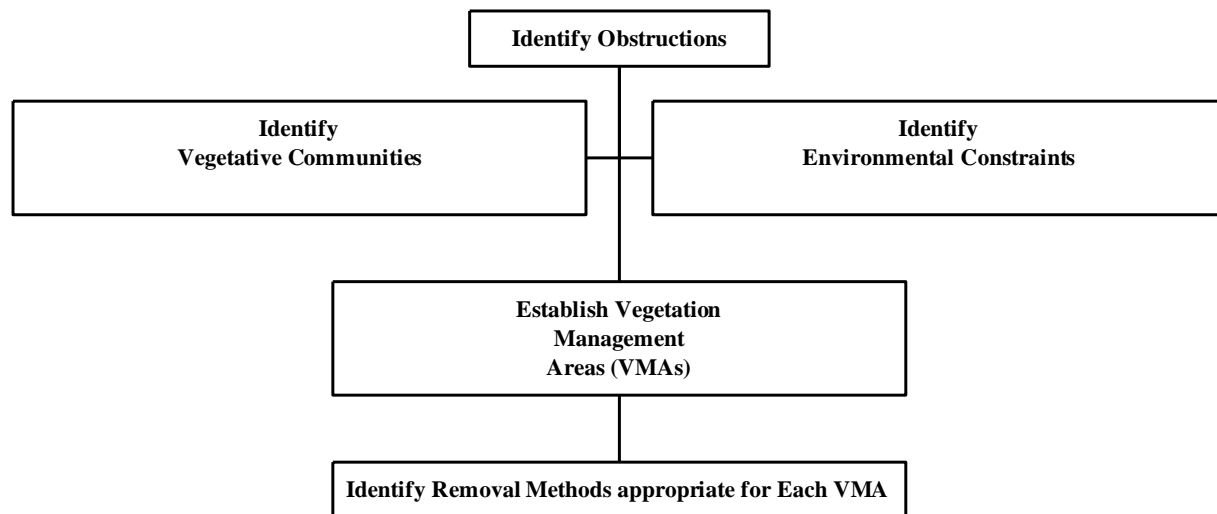
5.0 VEGETATION MANAGEMENT AREAS AND POTENTIAL ENVIRONMENTAL CONSTRAINTS

5.1 OVERVIEW

Vegetation Management Areas (VMAs) are distinct areas where a particular type or combination of vegetation management method(s) is recommended. The preferred methods of vegetation removal are a function of the obstructions present, the physical conditions of the site (soils, vegetation, topography, hydrology), and the presence of environmental constraints. Environmental constraints include, but are not limited to, the presence of wetland resources, water supplies, rare species, and/or steep or otherwise unstable soils.

The identification of VMAs in a VMP integrates information gathered from field investigations, computerized obstruction analysis, existing studies and mapping, and correspondence with federal, state, and local agencies. The process for VMA identification is shown schematically in Figure 5-1.

Figure 5-1: Schematic of VMP Process



This section presents the detailed approach to the VMP at the Airport in the following order:

- Section 5.2. Identification of Vegetative Communities;
- Section 5.3. Identification of Environmental Constraints;
- Section 5.4 Description of Vegetation Removal Methods;
- Section 5.5. Short-Term & Long-Term VMP Plans; and



- Section 5.6. Identification of Potential Environmental Impacts.

Section 6 will present the anticipated sequencing for implementation of the VMP at the Airport and present the YOP for the next 5-year period. The VMP plans and approach have been organized into “Short-Term” and “Long-Term” Plans, with the “Short-Term” Plan focusing on major areas of tree removal where the woodlands are relatively mature and have not been managed recently, and more aggressive treatment is required. The “Long-Term” Plan focuses on a scheduled maintenance approach to VMAs once the “Short-Term” Plan is implemented. While the titles imply a sequence of implementation, the time schedules are less clear, with some of the “Short-Term” activities not likely to occur within the near future. For example, some of the initial tree removal activities identified in the “Short-Term” Plan need to occur off-airport where no permissions or easements exist, likely extending implementation of this additional vegetation removal beyond the limits of the 5-year YOP.

5.2 IDENTIFICATION OF VEGETATIVE COMMUNITIES

Based upon the Part 77 surfaces and available ground topography, contours were developed surrounding the airfield at 10-foot intervals, depicting the permissible heights of vegetation. These contours extend through the Airport property but also extend onto adjacent properties. Tree top elevations depicted on the aerial photogrammetry provided the locations where vegetation removal is required. These areas were first evaluated using various data sources including:

- MA GIS aerial photographs;
- U.S. Soil Conservation Service, Soil Survey of Barnstable County, Massachusetts; and
- U.S. Geological Survey Topographic Map, (1:25,000).

Vegetative communities on and off the Airport were then field inspected within these contour intervals to evaluate and describe vegetative communities present. Field investigations of vegetative communities and delineation of the vegetation management areas on Airport property occurred in November 2020, based on the updated obstruction analysis. Areas outside of Airport property were also investigated to estimate potential resource areas and VMAs. For both wetland and upland areas, dominant vegetation types, general vegetative density, topography, ground cover, and soil types were used to characterize the VMAs.

As stated in Section 1.2, VMAs are geographic areas with specific vegetation management needs. At the Airport, VMA delineation included property ownership considerations in addition to the environmental constraints and other factors that might affect the methodology or progress of vegetation management.

The basic vegetative community types in the VMAs at the Airport are:

- Cultural Grasslands (both Frequently and Infrequently Mown),
- Vernal Pools,
- Pitch Pine Upland Forest,
- Mixed Oak-Pine Forest, and
- Landscaped Developed Upland.

Table 5-1 and Figure 5-2 summarize the vegetative communities within the VMAs, both on and off Airport property. The total acreage involved with the on-Airport or easement VMAs requiring tree removal is about 43.73 acres. The off-Airport areas in private or other ownership, where easements will need to be sought for tree removal and vegetation management, include about 11.81 acres.

Wetland areas within the VMAs are primarily coastal ponds along with limited areas containing small emergent areas or “potential vernal pool habitats” (as identified by MA NHESP GIS data layers). Detailed descriptions of these wetland communities are described in Section 5.3.12 of this document.



Upland wooded areas within the VMAs are best characterized as either monotypic stands of mature pitch pine (*Pinus rigida*) or mixed oak-pine forests. Within the stands of pitch/white pine, tree canopies reach 80-100 feet with tree diameters in the 18-24 inches class at breast height. Approximately 60% of the upland forest is composed of these monotypic stands of pine. The mixed upland forests are a mix of deciduous trees (mainly red oak (*Quercus rubra*), black oak (*Q. velutina*), white oak (*Q. alba*) and red maple (*Acer rubrum*)), with inclusion of white pine of varying age across the VMP area, with most of these communities being mature (60-70' oaks, with inclusions of 100' white pines). The composition of these vegetative associations is further described in sections 5.3.12 and 5.3.13 of this document.

The primary environmental constraints identified on and off Airport property for vegetation management would be associated with wetlands, with some areas of the wetlands having higher functions and values than others (e.g., vernal pool characteristics). These and other issues are discussed in Section 5.3. More detailed descriptions of the individual vegetative communities within vegetative management areas are presented in Section 5.4 and in Table 5-1.

Table 5-2: Summary of Vegetative Communities within Vegetation Management Areas

Location		Ownership or easement	Acres	Veg. height	Upland					Wetland
					Grassland	Scrub-Shrub	Mixed Pine-Oak	Pitch Pine	Deciduous Forest	Vernal Pool
Central Airport	On Airport	Yes	31.30	<1'	31.30	-	-	-	-	-
RW-6	On Airport	Yes	17.81	5-70'	-	1.41	8.14	2.84	4.91	0.51
	Off Airport	Yes	1.01	40-80'	-	-	-	-	1.01	-
	Off Airport	No	4.43	40-80'	-	-	0.55	-	3.88	-
	TOTAL		23.25		-	1.41	8.69	2.84	9.80	0.51
RW 24	On Airport	Yes	23.36	30-60'	-	2.34	7.05	8.22	5.75	-
	Off Airport	Yes	0.11	30-60'	-	0.11	-	-	-	-
	Off Airport	No	8.21	30-80'	-	-	3.91	-	4.30	-
	TOTAL		31.68		-	2.45	10.96	8.22	10.05	-
TOTAL		86.23		31.30	3.86	19.65	11.06	19.85	0.51	

LEGEND

-  Project Location
-  Airport Property
-  Cultural Grassland
-  Scrub-Shrub Upland
-  Deciduous Upland Forest
-  Pitch Pine
-  Mixed Pine - Oak
-  Vernal Pool



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MOSTLY DECIDUOUS, OAKS, AND MAPLE. MOSTLY SMALL DIAMETER TREES. RELATIVELY SHORT AND STEEP SLOPE AWAY FROM AP. TREES 8-24" DBH. 30-60'. RED OAK, RED MAPLE, WHITE PINE.

MIXED WHITE PINE-OAK. WHITE PINE TO 80'. OAKS TO 60'. LANDSCAPED TREES IN AREAS.

PITCH PINE AND WHITE PINE. 30-60'.

MIXED OAK-PINE ROUGHLY 50/50. SOME BIG TOOTH ASPEN, RED MAPLE, RED OAK, WHITE PINE, AND PITCH PINE. 40-60'.

MIXED PITCH PINE, WHITE PINE, AND RED OAK. 75% PINE. PINE TO 70', AND OAK TO 60'.

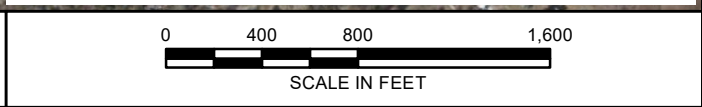
RED MAPLE, 16" DBH. UP TO 50'.

MOSTLY PITCH PINE. 12-20" DBH AND UP TO 70'.

MOSTLY RED OAK AND SOME DECIDUOUS. 12-24" DBH 40-60'. SOME PINE UP TO 80'.


MIXED PITCH PINE, WHITE PINE, RED OAK, PINES AND OAKS UP TO 50-60'.

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CHATHAM AIRPORT VMP
CHATHAM, MA

NATURAL COMMUNITIES

PREPARED BY:  GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR DESIGNED BY: ARD DATE: 03/03/2021	REVIEWED BY: GPD DRAWN BY: ARD PROJECT NO: 15.0166692.03	CHECKED BY: SLL SCALE: 1 in = 800 ft REVISION NO:	FIG <h1 style="font-size: 2em;">5-2</h1>



5.3 IDENTIFICATION OF ENVIRONMENTAL CONSTRAINTS

5.3.1 Overview

Various state and federal regulations protect natural and historical resources. For the purposes of this VMP, protected resources and their accompanying restrictions are defined as environmental constraints. A summary of the environmental constraints requiring review are summarized in Table 5-2 and discussed in more detail in the following sections.

Table 5-2: Summary of Environmental Issues and Regulatory Agencies		
Issue	Controlling Agency / Reference Material	Environmental Issues
Agricultural Land	MA Dept of Food and Agriculture	There are no prime farmland soils within VMAs nor is there active agriculture within the project area.
Areas of Critical Environmental Concern (ACECs)	DCR – ACEC Program	A small portion of some off-airport VMAs are within the Pleasant Bay ACEC
Hazardous Waste Sites	DEP – Bureau of Waste Site Cleanup	Reportable releases are outside of immediate project area or have had corrective action taken.
Historical and Archaeological Resources	Massachusetts Historical Commission	There are potential resources in the vicinity of the Airport; additional due diligence may be required based on the proposed work and methodology.
Land Ownership	Town Assessor’s Office	Easements required from public and private landowners.
Outstanding Resource Waters (ORW)	DEP – Office of Watershed Management	Lovers Lake is mapped as an ORW additionally, the certified vernal pool on the airport qualifies as ORW. Other “Potential Vernal Pools” are indicated on NHESP GIS data layers but would require field/seasonal verification.
Floodplains	FEMA	No vegetation management is proposed within surrounding floodplain areas.
State and National Forests and Parks	DCR - Division of Forests and Parks	None within project area.
	National Park Service	None within project area.
Water Quality and Water Supply	DEP –Water Supply & Wellhead Protection	The Airport is within EPA Sole Source aquifer and Zone II wellhead protection area.
	Local	Private wells may be in the vicinity of Chatham Airport.
Wetland Resources	Field delineation on-airport and preliminary reconnaissance and examination of soil surveys and aerial photos off-airport.	One vernal pool located on Airport. Coastal ponds and one cranberry bog located off property.
Endangered and Threatened Species	MA Division of Fisheries and Wildlife & Natural Heritage and Endangered Species Program	NHESP identifies priority habitat off-Airport but within some VMAs.
	U.S. Fish and Wildlife Service	Federally listed bats are identified on or near the Airport; therefore, compliance with the 4(d) rule will be required.
Wetland Restriction Orders	DEP –Wetland Restriction Program	No wetland restriction orders in project area.
Wild and Scenic Rivers	DCR – Department of Conservation and Recreation	No Wild and Scenic Rivers in vicinity.



5.3.2 Agricultural Land

Prime farmland soils, as defined by the U.S. Department of Agriculture (USDA), are characterized as soils having the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. In particular geographic regions, specific soil units are classified as prime farmland soils. However, if the land use is urban, then the soils will not be designated as prime farmland soils, even if they are among the soils generally classified as such. For example, prime farmland soils could be in areas where pastureland or forests are present, but prime farmland cannot exist in urban built-up land.

According to the Barnstable County Soil Surveys (USDA 1993), approximately 8.7% of the county is considered prime agricultural soils; however, these areas are mainly contained in the western portion of the county. No prime agricultural soils are mapped within or in the vicinity of the proposed VMA areas.

5.3.3 Areas of Critical Environmental Concern (ACECs)

ACECs are defined by 301 CMR 12.03 as "areas within the Commonwealth where unique clusters of natural and human resources exist and which are worthy of a high level of concern and protection." The ACEC program is managed within the Massachusetts Department of Conservation and Recreation (DCR), and areas must be nominated, reviewed, and approved through a defined regulatory process. ACECs must be either areas of regional, state, or national importance or contain significant ecological systems with critical interrelationships among a number of components.

ACECs must contain at least four of the following: fishery habitat, coastal features, estuarine or inland wetlands, surface waters, drinking water aquifer or watershed, floodplain or erosion area, habitat for rare plants or significant wildlife, or a natural, scenic or public recreation area. A review of the designated ACEC areas on MassGIS indicates that a small portion of some off-Airport VMAs are within the Pleasant Bay Coastal ACEC (Figure 5-3). The ACEC is limited to the areas within and adjacent to Lovers Lake, which is in the outer portions of the Protection Zone (PZ); therefore, required management will be minimal. For that minimal work, an ACEC designation does confer a higher degree of environmental sensitivity. Depending upon the degree of work required within this zone, additional MEPA and other permitting requirements could be triggered and additional mitigation required for impacts.

5.3.4 Hazardous Waste Sites

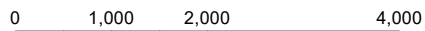
The MA DEP publishes a searchable online database identifying reported releases of hazardous materials for the previous 20 years within the Commonwealth. As of December 31, 2020, a total of 102 records exist for releases within the boundaries of the Town of Chatham. Of these records, one release (Tracking Number 4-0001147) occurred at the Airport. This release dates to 1990 and was closed in 1999 with the issuance of an Underground Injection Control Program Closure Assessment which was accepted MA DEP. The cause of the release was a non-compliant floor drain and four aboveground drums used as a leaching pit. The drain was filled, and the drums removed prior to the 1999 closure report.

GZA commissioned EDR, an environmental database search company, to produce a report for the Airport. To prepare this report, EDR searches multiple environmental databases at the local-, State-, and Federal-level within pre-determined search radii from the Airport. If there is a record, EDR provides summary details about the location and materials involved. According to the report performed for the Airport, there are six (6) records associated with the Airport which are not associated with the above RTN. None of the six records are associated with ongoing environmental concerns. Four (4) of the records are database listing due to permits such as NPDES and are not related to spills. The other two records are for underground storage tanks which have been removed and hazardous waste or oil generation. The six reviewed records do not indicate that hazardous waste sites impose a constraint on vegetation management at the Airport.

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CHATHAM AIRPORT VMP
CHATHAM, MA

ACEC MAP

PREPARED BY:



PREPARED FOR:

GALE ASSOCIATES INC
163 LIBBEY PARKWAY
WEYMOUTH, MA 02189

PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIG 5-3
DESIGNED BY: ARD	DRAWN BY: ARD	SCALE: 1 in = 2,000 ft	
DATE: 01/18/2021	PROJECT NO: 15.0166692.03	REVISION NO:	



5.3.5 Hazardous Materials, Pollution Prevention, and Solid Waste

The Airport's Stormwater Pollution Prevention Plan (SWPPP) is being updated and will be submitted for coverage under the 2021 MSGP dated March 2021. The Airport is also developing a new Spill Prevention Control and Countermeasure Plan (SPCC Plan) to meet EPA requirements which will be finalized shortly after the March 2021 SWPPP. Combined, these documents provide pollution prevention and spill prevention and response strategies for the Airport. Hazardous materials are not manufactured on-site. Airport and tenant facilities on the site may store and use some hazardous materials, but these are not within areas subject to vegetation management. All known hazardous materials spills in the project area have achieved a level of no significant risk according to the MA DEP database.

5.3.6 Historical, Architectural, Archeological, and Cultural Resources

In accordance with Section 106 of the National Historic Preservation Act of 1966 as amended (36 CFR 800 and Executive Order 11593) Massachusetts General Laws Ch.9, Sec. 26-27C (950 CMR 71), and MEPA (301 CMR 11.00), the Massachusetts Historical Commission (MHC) may need to be contacted regarding potential historic and archaeological resources at the Airport as part of airport improvement projects and/or when ground disturbance is proposed. Vegetation removal activities do not typically result in ground disturbance and therefore are unlikely to cause impacts to cultural resources. Nevertheless, MHC and the applicable Tribal Nations may need to be contacted during the permitting phase of the project.

5.3.7 Land Ownership

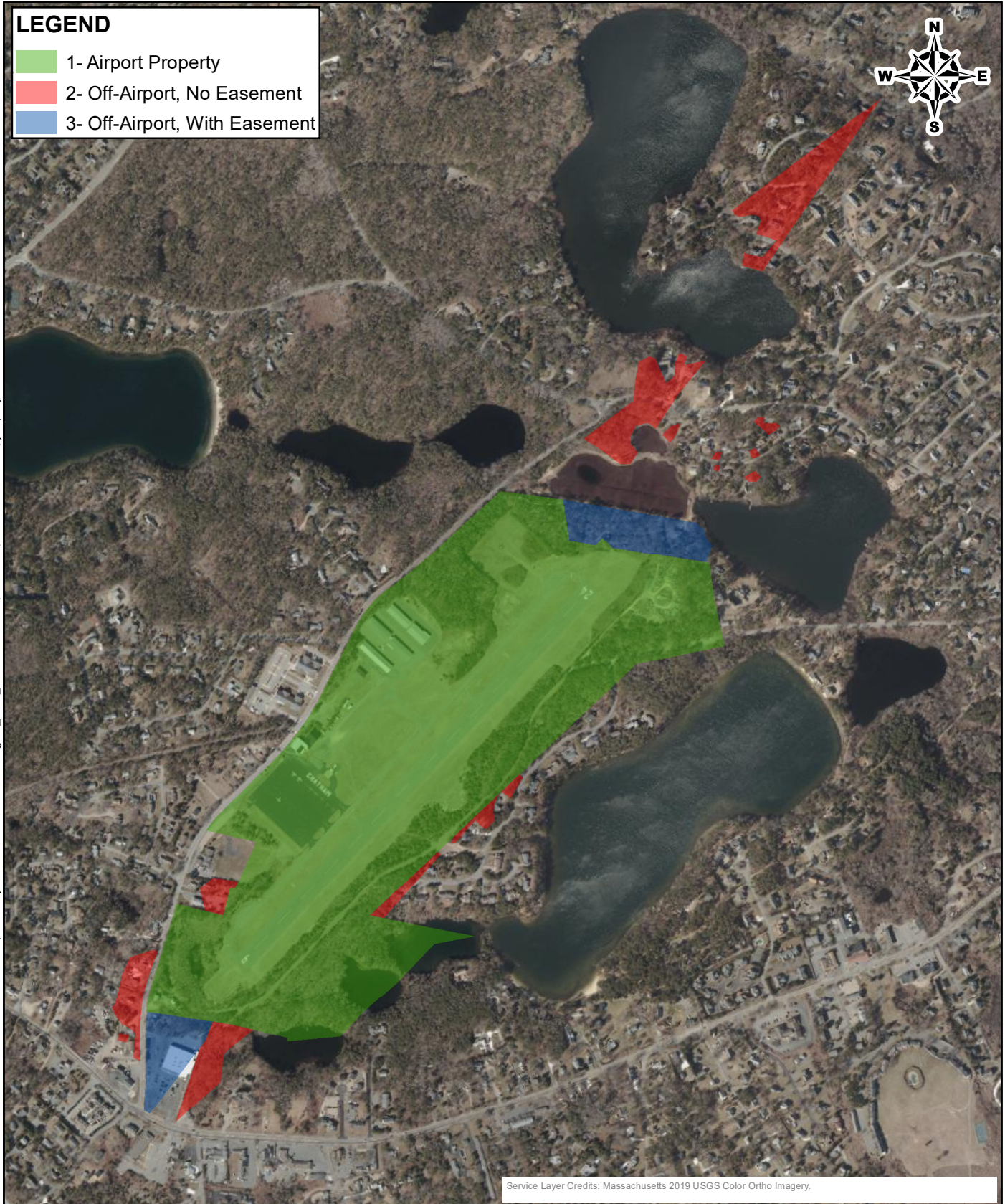
As discussed in Section 4.3, obstructions to PZs are located on-Airport property, within existing avigation easements and off-Airport property where no easements are held. Based upon the 2018 obstruction analysis, 7.07 acres of the area of obstruction is located on private property in Chatham where avigation easements are held (Figure 5-4 - associated VMAs have "2" in the name). Twenty one percent or 11.81 acres of the area of obstruction is located on private property in Chatham where no avigation easements are held (Figure 5-4 – associated VMAs have "3" in the name). Private land ownership may present a constraint to vegetation removal on off-Airport property. The Airport may request permission to remove vegetative obstructions on some private, off-airport property, as part of this VMP or seek avigation easements for these areas. A large portion of the off-airport property is considered "landscaped residential or commercial". Prior to vegetation removal in these areas, more accurate easement evaluations and assessment of access to these areas is required. Once the new avigation easements or permissions are obtained, the YOPs can be refined to incorporate the new easement areas.

5.3.8 Outstanding Resource Waters

Outstanding Resource Waters (ORWs) are defined under 314 CMR 4.04(3) as waters that constitute an outstanding resource as determined by their exemplary socio-economic, recreational, ecological, and/or aesthetic values. The quality of these waters is protected under the Massachusetts Surface Water Quality Standards (314 CMR 4.00). The MassGIS data layer for ORW indicates that Lovers Lake is an ORW. Lovers Lake is located adjacent to proposed VMAs; however, because there is no tall vegetation in the Lake that requires management, no work should be proposed within the limits of this ORW. Additionally, there is a certified vernal pool in the northwest corner of the Airport. All certified vernal pools are ORWs by definition, and VMP cutting within and in proximity to this vernal pool is designated as its own VMA with specific cutting methodologies to minimize impacts to these habitats.

LEGEND

- 1- Airport Property
- 2- Off-Airport, No Easement
- 3- Off-Airport, With Easement



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**CHATHAM AIRPORT VMP
CHATHAM, MA**

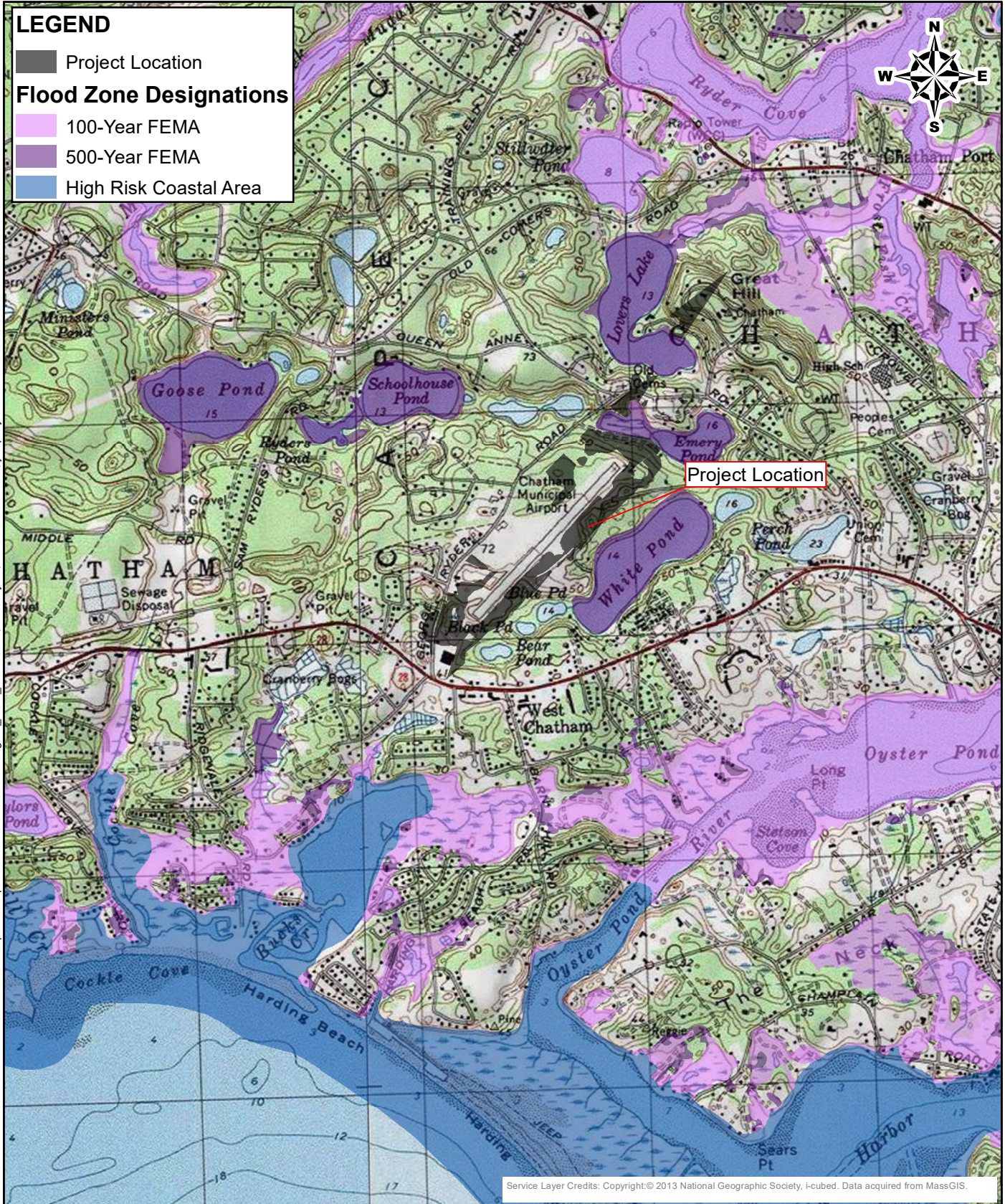
PROPERTY OWNERSHIP

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIG
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 800 ft	5-4
DATE: 03/03/2021	PROJECT NO: 15.0166692.03	REVISION NO:	

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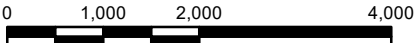
LEGEND

- Project Location
- Flood Zone Designations**
- 100-Year FEMA
- 500-Year FEMA
- High Risk Coastal Area



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SCALE IN FEET

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CHATHAM AIRPORT VMP
CHATHAM, MA

FEMA MAP

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 GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
GALE ASSOCIATES INC
163 LIBBEY PARKWAY
WEYMOUTH, MA 02189

PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIG
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 2,000 ft	
DATE: 01/26/2021	PROJECT NO: 15.0166692.03	REVISION NO:	

5-5



5.3.9 Floodplains

Floodplain exists within the runway approach; however, no floodway is mapped within the project area (Figure 5-5). According to the FEMA FIRM Map, the upper reaches of Bucks Creek and Frost Fish Creek are in the 100-year floodplain with undetermined flood elevation. White Pond, Emery Pond, and Lovers Lake are in the 500-year floodplain. No vegetation management is proposed within these floodplain areas; therefore, no impacts to floodplains will occur as a result of VMP implementation.

5.3.10 State and National Forests and Parks

There are no State or National Forests or Parks within the VMP areas (MassGIS Protected and Recreational Open Space Data Layer, December 2020). However, there are local conservation lands in the vicinity including White Pond Beach and multiple conservation parcels which are contiguous with the Airport. Although no management needs to occur within these areas at this time, the Airport may need to seek additional permissions or easements to maintain safe airspace on these publicly owned lands should penetrations occur.

5.3.11 Water Quality and Supply Resources

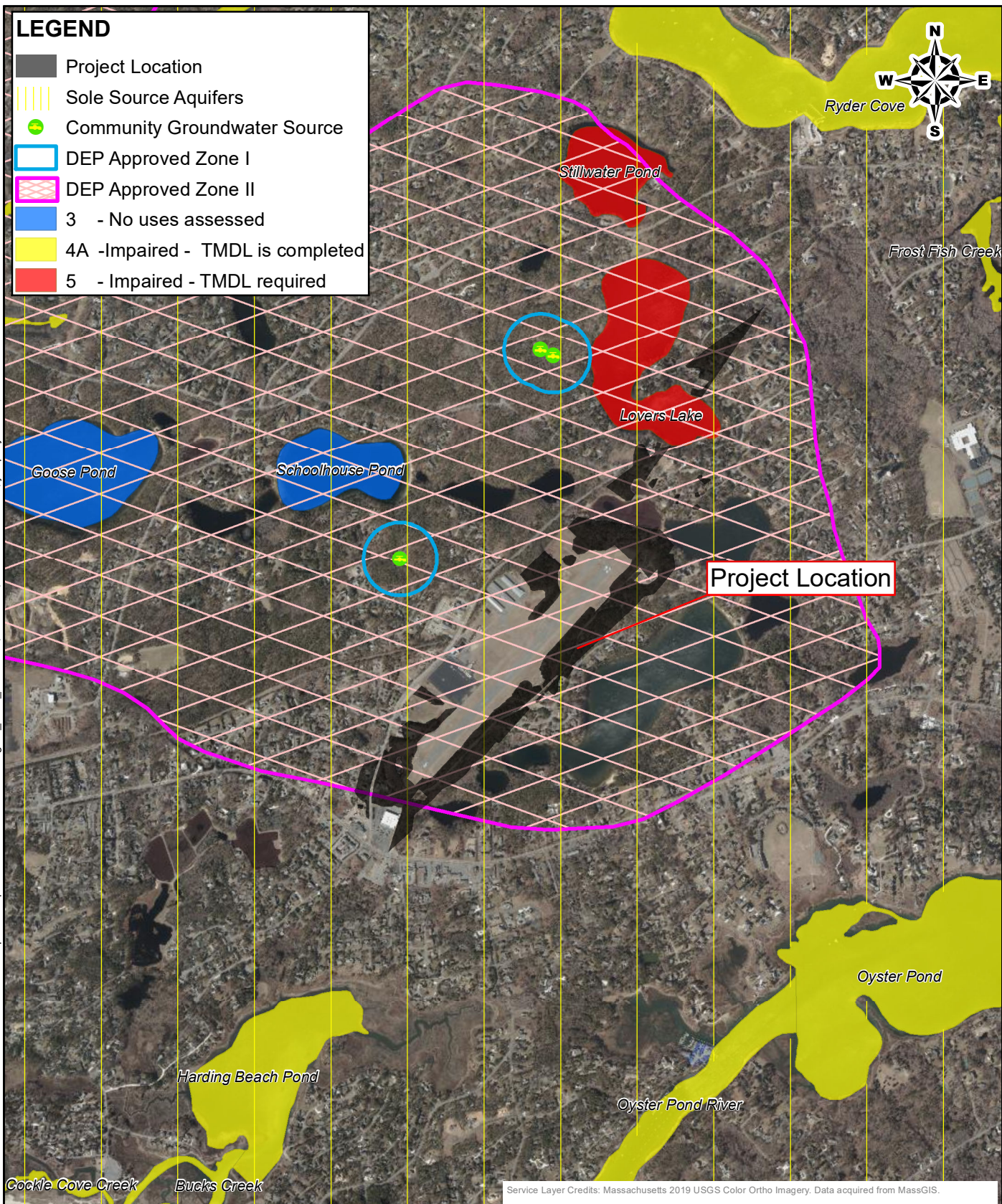
The Airport lies within the Cape Cod Watershed, and is surrounded by several coastal ponds, some of which also support wetlands. No streams or rivers are mapped in the immediate vicinity of the Airport; however, Ryder Cove, Frost Fish Creek, and Pleasant Bay ACEC which includes Lovers Lake, are classified as Outstanding Resource Waters under the Massachusetts Surface Water Quality Standards (314 CMR 4.00).

According to the Massachusetts Year 2016 Integrated List of Waters, Ryder Cove, Oyster Pond, and Harding Beach Pond are classified as 4A – impaired, and the Total Maximum Daily Load (TMDL) is completed for total nitrogen, fecal coliform, and estuarine bioassessments. Stillwater Pond and Lovers Lake are classified as Category 5 – Impaired and the TMDL has not been completed for turbidity. Given the use of suitable vegetation removal methodologies and necessary sediment and erosion controls, no impact to surface water resources is likely to result from the proposed vegetation management activities.

The Airport and vegetation management areas are located within an EPA-identified Sole Source Aquifer and MA DEP Approved Zone II Wellhead Protection Area (Figure 5-6). The Zone II area includes three wells—Indian Hill (0.2 miles east), Well 8 (0.35 miles north), Training Field (0.4 miles north). The wells and associated Zone I areas are located outside of vegetation maintenance areas. In addition to these community groundwater sources, there may be additional private irrigation and drinking water wells in the vicinity of the Airport. The proposed vegetation management should not affect the groundwater within the work areas.

LEGEND

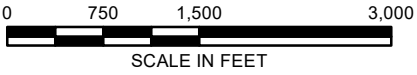
- Project Location
- Sole Source Aquifers
- Community Groundwater Source
- DEP Approved Zone I
- DEP Approved Zone II
- 3 - No uses assessed
- 4A -Impaired - TMDL is completed
- 5 - Impaired - TMDL required



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CHATHAM, MA**

PREPARED BY:
GZA GeoEnvironmental, Inc.
 Engineers and Scientists
www.gza.com

PREPARED FOR:
GALE ASSOCIATES INC
 163 LIBBEY PARKWAY
 WEYMOUTH, MA 02189

PUBLIC WATER SUPPLIES

PROJ MGR:	SDR	REVIEWED BY:	GPD
DESIGNED BY:	JRC	DRAWN BY:	JRC
DATE:	03/03/2021	PROJECT NO:	15.0166692.03

CHECKED BY:	SLL	FIG 5-6
SCALE:	1 in = 1,500 ft	
REVISION NO:		



5.3.12 Wetland Resources

Overview: The Chatham Municipal Airport is abutted by forests, scrub-shrub, and upland grasslands to the north, south, and west. White Pond, along with several smaller ponds, are located predominantly along the southeastern edge of the Airport. Wetlands in the area are limited to coastal ponds and a cranberry bog. The coastal ponds and cranberry bogs have well defined banks and limited fringing wetlands and are typical ponds found on Cape Cod. They have limited, if any, hydrologic connection with Pleasant Bay. Wetland resources are depicted on Figure 5-7.

Regulatory Status: On-airport wetland resource area boundaries have been delineated utilizing methods approved under the Massachusetts Wetlands Protection Act (MA WPA, 310 CMR 10.00) and Section 404 of the Clean Water Act (U.S. Army Corps of Engineers (ACOE) methodology), which include the evaluation of vegetation, soils, and hydrology. The VMP also covers some off-airport areas with wetland resources, whose boundaries have been determined by different means. The wetland boundaries can be assigned into two basic categories (see Figure 5-7) and are as follows:

1. On-airport wetland resource boundaries re-assessed and delineated in July 2018 by GZA.
2. Off-Airport unflagged and un-surveyed wetland boundaries, estimated based upon MA GIS wetland data layers, aerial photography, and site inspection.

The wetland resource boundaries for the VMP have not been approved by the Chatham Conservation Commission. The on-airport wetlands will be presented as part of future permitting efforts under the MA WPA. The off-airport properties lacking existing easements for vegetation management were not formally delineated and codified under the MA WPA and may require additional detailed delineation, survey, and filing of permit applications prior to VMP activities. Off-airport areas will also require the acquisition of easement rights through negotiations with landowners.

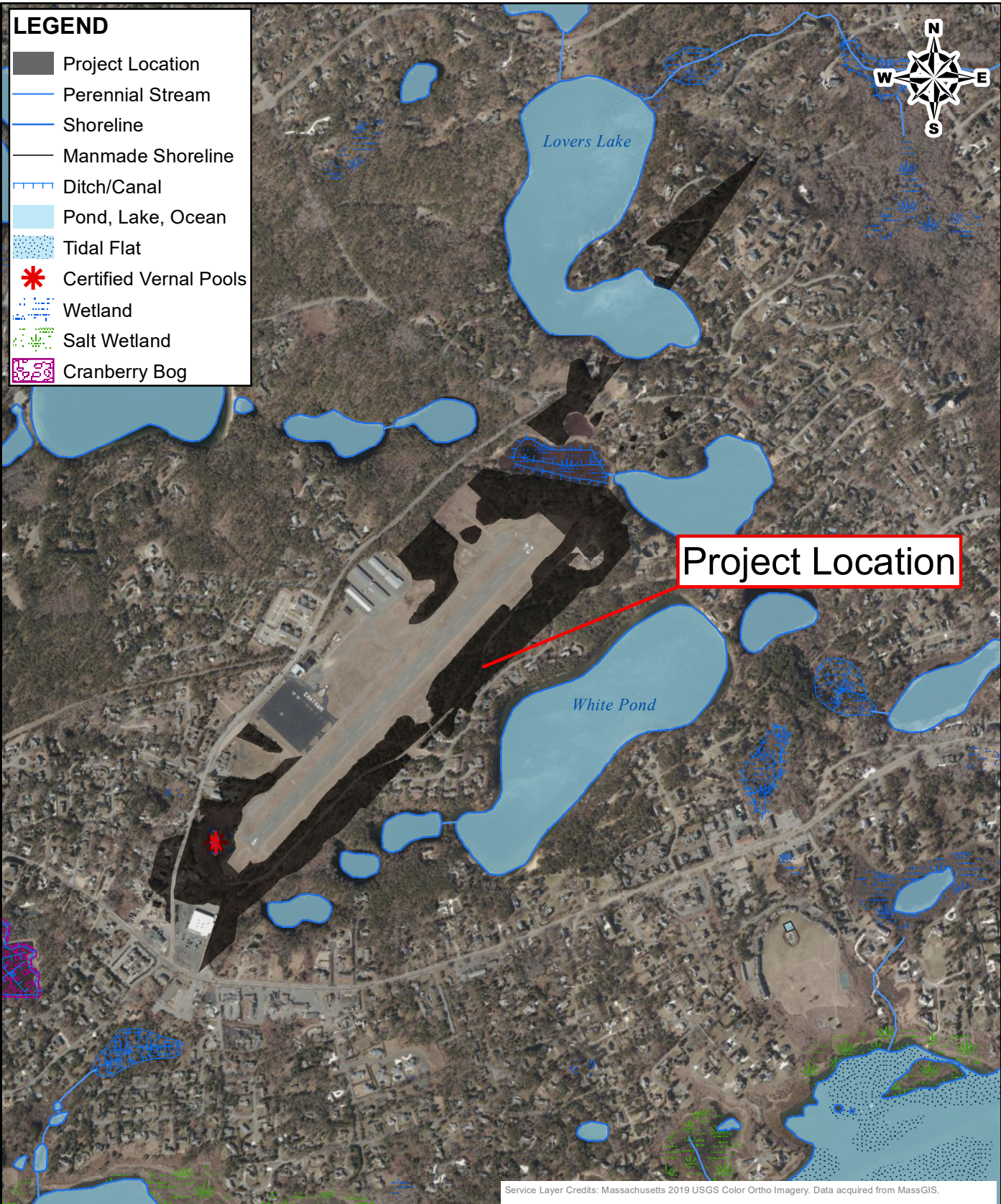
State-regulated wetland resource areas within the project area wetlands include Isolated Land Subject to Flooding (ILSF), Bank, and Land Under Waterbodies and Waterways (LUWW) (see Figure 5-7). Because access to areas off-property or outside of existing easements is limited, vegetation removal activities in these areas will require additional detailed delineation and survey of the identified wetland resource areas to a level appropriate for the filing of a Notice of Intent under the VMP. Off-site wetland boundaries as shown in Figure 5-7 were estimated from aerial photographs, limited on-site observation, and available GIS data. Descriptions of the wetland resources are given below.

Wetland Resource Areas: This VMP includes one wetland resource. The wetland is the vernal pool which is isolated land subject to flooding (ILSF) under the MA WPA and qualifies as an Isolated Vegetated Wetland regulated by the ACOE Section 404 and MA Section 401 Program (Figure 5-7). This wetland is also a Certified Vernal Pool and is protected by the Town of Chatham Wetlands Protection Bylaws. The wetland is located on Airport property approximately 250 northwest of the Runway 6 end. This wetland is a palustrine forested wetland (PFO) and is predominantly vegetated with red maple, sweet pepper bush, and highbush blueberry. The open water areas contain primarily emergent and some submerged aquatic, and floating vegetation.

Additional wetlands identified off-Airport include a cranberry bog to the northeast of the Airport as well as several coastal ponds located along the southern side of the bike trail. These wetland resources were identified by aerial interpretation, MassGIS Wetland data, and confirmed with a site visit. Given the type of wetlands, limited, if any, vegetation management will be required within the resource areas; however, vegetation management in the associated Buffer Zones may be required.

LEGEND

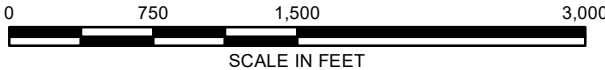
- Project Location
- Perennial Stream
- Shoreline
- Manmade Shoreline
- Ditch/Canal
- Pond, Lake, Ocean
- Tidal Flat
- * Certified Vernal Pools
- Wetland
- Salt Wetland
- Cranberry Bog



Project Location

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CHATHAM, MA

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
www.gza.com

PREPARED FOR:
GALE ASSOCIATES INC
163 LIBBEY PARKWAY
WEYMOUTH, MA 02189

WETLANDS MAP

PROJ MGR:	SDR	REVIEWED BY:	GPD	CHECKED BY:	SLL	FIG 5-7
DESIGNED BY:	ARD	DRAWN BY:	ARD	SCALE:	1 in = 1,000 ft	
DATE:	05/05/2021	PROJECT NO:	15.0166692.03	REVISION NO:		

REVISION NO:

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5.3.13 Wildlife Habitat

The wildlife habitats present within the VMAs at the Airport largely follow the vegetative communities discussed in Section 5.2. The natural communities within the VMP areas (Figure 5-2) can be characterized as:

- Cultural Grasslands (both Frequently and Infrequently Mown) (G)
- Scrub-Shrub Upland (SSU)
- Upland Forest (UF)
 - Pine Dominated Upland Forest (UF/C)
 - Mature Mixed Deciduous Dominated Upland Forest (UF/D)
 - Late Successional Mixed Deciduous Dominated Upland Forest (UF/M)
- Vernal Pools (VP)
- Landscaped Developed Upland

Each of these habitats is discussed in detail below. Anticipated wildlife species per habitat are listed in Table 5-3A-D.

Cultural Grassland: The cultural grassland areas are primarily associated with the runway and other maintained areas in proximity to the runway and airport infrastructure. This is a manmade and maintained habitat dominated by graminoids including little bluestem grass (*Andropogon gerardii*), spotted knapweed (*Centaurea maculosa*), clovers (*Trifolia spp.*), lance-leaved plantain (*Plantago lanceolata*), and various fescues (*Festuca spp.*). This community has less than 25 percent tree and shrub cover, and includes patches of open, mineral soil.

At the Airport, this community has less than 1 percent tree or shrub cover and occupies 31.30± acres. Most of that acreage is adjacent to paved surfaces and the grasses are maintained at less than 12 inches tall to comply with FAA safety standards. The cultural grassland provides nesting and foraging habitat for voles, meadow jumping mice and grassland birds. Sandy areas with sun exposure and limited vegetative cover may also provide nesting habitat for turtles.

Scrub Shrub Upland: Areas along the perimeter fence and in the transitional surface have scrub-shrub vegetation which can be dense and, in some cases, extends close (within 15 feet) to paved surfaces. In total, 3.86 acres of this community type is scattered around the Airport. Almost the entire length of the southern transitional surface is vegetated with woody vegetation ranging from a few feet to over 100 feet in width.

This community is in varying degrees of secondary succession to early seral forest stands and can vary widely in shrub density and vegetative assemblage because of factors such as management type, hydrology, soils, proximity to other natural areas, or size. Generally, these habitats are edge ecotones between the maintained grassland habitats and the more mature forested areas. Scrub-shrub communities also contain areas of open sand, grassland, with some small trees. These areas also have a significant presence of invasive shrub species with morrows honeysuckle (*Lonicera morrowii*), Russian olive (*Elaeagnus angustifolia*) and multiflora rose (*Rosa multiflora*) among the dominant shrub. Native species such as grey birch, quaking aspen, and blueberry are also common and provide a much higher value to the local wildlife population than the invasive species. The scrub shrub vegetation is up to 6 feet tall with potential for significant increased growth, interspersed with low shrub growth of 2-3 feet. Groundcover includes woody and herbaceous growth (white oak, highbush blueberry, little bluestem grass (*Schizachyrium scoparium*), cinnamon fern, sweet pepperbush, wintergreen, white pine, inkberry (*Ilex spp.*), goldenrod, sheep laurel (*Kalmia angustifolia*), bush clover (*Lespedeza spp.*), sheep fescue (*Festuca ovina*), black cherry (*Prunus serotina*), starflower (*Trientalis spp.*), dewberry, and clubmoss (*Lycopodiopsida spp.*).

These edge habitats provide relatively high wildlife habitat value and provide dense cover for both forest and field dwelling fauna. Species such as grey catbird, brown thrasher and urban or edge adapted species may also frequent these habitats. These edge ecotones are often used as cover and shelter for more field/open area wildlife and as forage habitat for some forest interior species, making this transitional ecotone relatively high in species richness and diversity.



Upland Forest: There are three primary upland forest cover types at the Airport, pitch pine dominant, deciduous dominant and mixed. Most upland forest stands are even aged and in mid- to late-succession, with only a small percentage in early succession stage. In general, the upland habitat mosaic around the airfield is patchy, occurring as small “islands” and semi-isolated areas of upland in a wider developed mosaic.

Pitch Pine: This forest matrix is dominated by greater than 70 percent cover of mature pitch pine (24-30” dbh, 60-80 feet tall) with significant white pine inclusions with lesser amounts of deciduous trees, mainly oaks. In this community, pitch and white pines form a mature closed canopy with little to no ground cover underneath the pines. Shrub layers vary with some areas having dense lowbush blueberry, huckleberry and greenbrier. The topography in these areas is generally flat or sloping away from the airfield.

This community provides some habitat for mammalian, avian, reptilian, and amphibian species. The major mast producing food within this community is pine with less mast offered by oaks and maples, thereby altering the overall species assemblage. White tailed deer are likely common, with the coniferous overstory more conducive to red squirrel and chipmunk than gray squirrel. Additional common mammalian and avian species that would be expected within this community include great horned owl and raccoon. The dry nature of this community type provides habitat to only a handful of herpetile species (toads, red back salamander, garter snake, red belly snake, brown snake, and in proximity to the vernal pool, yellow spotted salamander, wood frog and spring peeper).

Deciduous: These upland forested areas are similar in most respects to the Mixed Upland areas described below with the only notable difference being a lack of pine species. Overall, pines comprise less than 10% of the canopy in these areas, with species such as red oak, white oak and red maple being the primary constituent in the tree canopy. As a result, the overall canopy height is lower here as the deciduous trees do not top out as tall as the white pines (60-80 foot max vs. 80-100+ for pines). The understory is usually more developed as more light penetrates the canopy in deciduous situations. Wildlife use is similar to that of mixed upland forests.

Mixed Forest: This community has a mixed canopy of red oak, white oak, black oak (*Quercus velutina*), white pine and occasional birch, and red maple. The understory is comprised of upland blueberries, black huckleberry (*Gaylussacia baccata*), sweet pepperbush, green briar and other ericaceous shrubs forming a low shrub layer. The herbaceous layer is generally sparse, with bracken fern (*Pteridium spp.*), wild sarsaparilla (*Aralia nudicaulis*), wintergreen (*Gaultheria procumbens*), Pennsylvania sedge (*Carex pennsylvanica*), and, less commonly, pink lady's slipper (*Cypripedium acaule*). Occasional red maples, birches, aspen, and ash contribute to the canopy. This forest cover type is typical of sandy soils in southeastern MA and is present in most upland areas outside the mowed runway safety zones at the Airport.

The abundant mast producing trees (oaks and maple) create ample forage opportunities for mammals and birds. Species such as white-tailed deer, turkey, and grouse may be present to abundant through the larger habitats blocks and potentially present in all available habitats. The forest canopy also creates nesting, feeding, and breeding areas for common songbirds such as blue jay, eastern towhee, American crow, hairy woodpecker, downy woodpecker, pileated woodpecker, black capped chickadee, tufted titmouse, white breasted nuthatch, and song sparrow.

The dry nature of this habitat limits its usefulness to herpetiles. However, species that spend a portion of their lifecycle in uplands and may be encountered on site include wood frog, American toad, spotted salamander and red back salamander. These species likely find cover, shelter, forage, and overwintering locations in these forests, making them a particularly important habitats for species that need a combination of uplands and wetlands for their life cycle.

Vernal Pools: As previously mentioned, one isolated ponded area on the Airport property is a Certified Vernal Pool on the current MA NHESP mapping. Additionally, one potential vernal pool is identified off the Airport property to the northwest across George Ryder Road (see Figure 5-8). This certified vernal pool was described in more detail above in section 5.3.12.



Due to the sensitivity of this area, a special VMA and procedures have been established to cut within this area. No work is proposed in or near the off-Airport potential vernal pool.

Landscaped Developed Upland: This community is highly varied and consists of landscaped portions of residential and industrial properties in vicinity of the Airport. Canopy in this community can vary from mixed assemblages of the native communities above, including species such as oaks, cherry, red maple, pitch pine and white pine, to horticultural varieties that are typically used for landscaping such as Norway maple (*Acer platanoides*), crimson maple (*Acer platanoides* cv.), horse chestnut (*Aesculus hippocastanum*), crab apple (*Malus fusca*) and catalpa (*Catalpa speciosa*). The landscaped canopy cover varies widely, ranging from low percentage cover in lawn areas to more typical forested communities that sometimes exist in backyards. The understory of this community is typically limited to landscaped turf lawns, mulched areas, and/or ornamental shrub plantings.

This natural community offers typical backyard habitat similar to other landscaped areas. These habitats are ubiquitous throughout suburban areas. Typical species that utilize these habitats are generalist species that are well suited to human disturbance. Typical mammalian species that would utilize these habitats include grey squirrel, eastern chipmunk, moles, mice, raccoons, striped skunks, northern flying squirrel and opossum. Often loose and/or feral domestic animals (pets) such as cats and dogs are also common and have a significant impact on natural community dynamics. Occasional visitors from the adjacent natural areas would also be expected, including red fox, gray fox, white tailed deer and coyote. However, these more secretive species would not use these areas as their primary habitat. Expected include common feeder birds, both native and naturalized species, such as house sparrow, house finch, common grackle, blue jay, northern cardinal, mourning dove, rock dove, tufted titmouse, and American robin. Herpetiles would be encountered less frequently in these disturbed and manicured areas, with species such as American toad and common garter snake being most common in a suburban/residential setting.

Table 5-3A: Observed and Potential Amphibian Species within VMAs by Community Type					
Common Name	Scientific Name	Grassland	Shrubland	Upland Forest	Wetland Forest
Spotted Salamander	<i>Ambystoma maculatum</i>		✓	✓	✓
Eastern Red-backed Salamander	<i>Plethodon cinereus</i>		✓	✓	✓
American Toad	<i>Bufo americanus</i>		✓	✓	
Fowler's Toad	<i>Bufo fowleri</i>		✓	✓	
Spring Peeper	<i>Pseudacris crucifer</i>				✓
Gray Treefrog	<i>Hyla versicolor</i>				✓
American Bullfrog	<i>Rana catesbeiana</i>				✓
Green Frog	<i>Rana clamitans</i>				✓
Pickereel Frog	<i>Rana palustris</i>				✓
Wood Frog	<i>Rana sylvatica</i>			✓	✓



Table 5-3B: Observed and Potential Mammal Species within VMAs by Community Type

Common Name	Scientific Name	Grassland	Shrubland	Upland Forest	Wetland Forest
Opossum	<i>Didelphus virginiana</i>		✓	✓	✓
Common Water Shrew	<i>Sorex palustris</i>				✓
Northern Short-tailed Shrew	<i>Blarina brevicauda</i>				✓
Star-nosed Mole	<i>Condylura cristata</i>				✓
Little Brown Bat	<i>Myotis lucifugus</i>				✓
Big Brown Bat	<i>Eptesicus fuscus</i>			✓	✓
Eastern Cottontail	<i>Sylvilagus floridanus</i>		✓		
Eastern Chipmunk	<i>Tamias striatus</i>			✓	
Woodchuck	<i>Marmota monax</i>	✓			
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>			✓	
Red Squirrel	<i>Tamiasciurus hudsonicus</i>			✓	
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>			✓	
Southern Flying Squirrel	<i>Glaucomys volans</i>			✓	
Beaver	<i>Castor canadensis</i>				✓
White-footed Mouse	<i>Peromyscus leucopus</i>	✓	✓		
Deer Mouse	<i>Peromyscus maniculatus</i>	✓	✓		
Southern Red-backed Vole	<i>Clethrionomys gapperi</i>		✓	✓	
Meadow Vole	<i>Microtus pennsylvanicus</i>				
Muskrat	<i>Ondatra zibethicus</i>				✓
Meadow Jumping Mouse	<i>Zapus hudsonius</i>	✓			
Coyote	<i>Canis latrans</i>		✓	✓	✓
Red Fox	<i>Vulpes vulpes</i>	✓	✓		
Common Gray Fox	<i>Urocyon cinereoargenteus</i>		✓	✓	
Common Raccoon	<i>Procyon lotor</i>		✓	✓	✓
Long-tailed Weasel	<i>Mustela frenata</i>		✓		✓
Striped Skunk	<i>Mephitis mephitis</i>		✓	✓	
White-tailed Deer	<i>Odocoileus virginianus</i>		✓	✓	✓



Table 5-3C: Observed and Potential Avifauna Species within VMAs by Community Type

Common Name	Scientific Name	Grassland	Shrubland	Forest (Upland and Wetland)	Shore
Great Blue Heron	<i>Ardea herodias</i>			✓	
Canada Goose	<i>Branta canadensis</i>			✓	
Mallard	<i>Anas platyrhynchos</i>			✓	
Cooper's Hawk	<i>Accipiter cooperii</i>		✓		
Red-tailed Hawk	<i>Buteo jamaicensis</i>	✓	✓	✓	
American Kestrel	<i>Falco sparverius</i>	✓			
Ring-necked Pheasant	<i>Phasianus colchicus</i>		✓		
Northern Bobwhite	<i>Colinus virginianus</i>	✓	✓		
Killdeer	<i>Charadrius vociferus</i>	✓			
Spotted Sandpiper	<i>Actitis macularia</i>	✓			
American Woodcock	<i>Scolopax minor</i>		✓	✓	
Mourning Dove	<i>Zenaidura macroura</i>	✓			
Chimney Swift	<i>Chaetura pelagica</i>	✓			
Downy Woodpecker	<i>Picoides pubescens</i>			✓	
Hairy Woodpecker	<i>Picoides villosus</i>			✓	
Least Flycatcher	<i>Empidonax minimus</i>		✓	✓	
Eastern Phoebe	<i>Sayornis phoebe</i>		✓	✓	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	✓			
Red-eyed Vireo	<i>Vireo olivaceus</i>		✓	✓	
Blue Jay	<i>Cyanocitta cristata</i>		✓	✓	
American Crow	<i>Corvus brachyrhynchos</i>	✓	✓	✓	
Black-capped Chickadee	<i>Poecile atricapillus</i>		✓	✓	
Tufted Titmouse	<i>Baeolophus bicolor</i>		✓	✓	
Carolina Wren	<i>Thryothorus ludovicianus</i>			✓	
House Wren	<i>Troglodytes aedon</i>		✓		
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>		✓		
Eastern Bluebird	<i>Sialia sialis</i>	✓			
Veery	<i>Catharus fuscescens</i>		✓	✓	
American Robin	<i>Turdus migratorius</i>	✓			
Gray Catbird	<i>Dumetella carolinensis</i>			✓	
Northern Mockingbird	<i>Mimus polyglottos</i>		✓		
Brown Thrasher	<i>Toxostoma rufum</i>		✓		
European Starling	<i>Sturnus vulgaris</i>	✓	✓	✓	



Eastern Towhee	<i>Pipilo erythrophthalmus</i>		✓		
Chipping Sparrow	<i>Spizella passerina</i>	✓			
Field Sparrow	<i>Spizella pusilla</i>	✓			
Vesper Sparrow	<i>Poocetes gramineus</i>	✓			
Fox Sparrow	<i>Passerella iliaca</i>		✓		
Song Sparrow	<i>Melospiza melodia</i>		✓	✓	
Dark-eyed Junco	<i>Junco hyemalis</i>		✓	✓	
Northern Cardinal	<i>Cardinalis cardinalis</i>		✓	✓	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	✓			
Eastern Meadowlark	<i>Sturnella magna</i>	✓			
Common Grackle	<i>Quiscalus quiscula</i>	✓			
Brown-headed Cowbird	<i>Molothrus ater</i>	✓			
American Goldfinch	<i>Carduelis tristis</i>	✓			
House Sparrow	<i>Passer domesticus</i>	✓			
American Oystercatcher	<i>Haematopus palliatus</i>				✓
Belted Kingfisher	<i>Megasceryle alcyon</i>				✓
Black-crowned Night-Heron	<i>Nycticorax nycticora</i>				✓
Brant	<i>Branta bernicla</i>				✓
Common Merganser	<i>Mergus merganser</i>				✓
Common Loon	<i>Gavia immer</i>				✓
Common Tern	<i>Sterna hirundo</i>				✓
Double-crested Cormorant	<i>Phalacrocorax auritus</i>				✓
Great Black-backed Gull	<i>Larus marinus</i>				✓
Great Egret	<i>Ardea alba</i>				✓
Herring Gull	<i>Larus argentatus</i>				✓
Laughing Gull	<i>Leucophaeus atricilla</i>				✓
Least Tern	<i>Sternula antillarum</i>				✓
Northern Flicker	<i>Colaptes auratus</i>			✓	
Red Knot	<i>Calidris canutus</i>				✓
Ring-billed Gull	<i>Larus delawarensis</i>				✓
Ruby-throated Hummingbird	<i>Archilochus colubris</i>			✓	
Ruddy Turnstone	<i>Arenaria interpres</i>				✓
Rusty Blackbird	<i>Euphagus carolinus</i>			✓	
Sanderling	<i>Calidris alba</i>				✓
Semipalmated Plover	<i>Charadrius semipalmatus</i>				✓



Shearwater	<i>Rynchops niger</i>				✓
Tree Swallow	<i>Tachycineta bicolor</i>	✓			
Willet	<i>Tringa semipalmata</i>				✓

Table 5-3D: Observed and Potential Reptile Species within VMAs by Community Type

Common Name	Scientific Name	Grassland	Shrubland	Upland Forest	Wetland Forest
Snapping Turtle	<i>Chelydra serpentina</i>				✓
Painted Turtle	<i>Chrysemys picta</i>				✓
Eastern Racer	<i>Coluber constrictor</i>		✓	✓	
Spotted Turtle	<i>Clemmys guttata</i>				✓
Ring-necked Snake	<i>Diadophis punctatus</i>		✓	✓	
Northern Watersnake	<i>Nerodia sipedon</i>				✓
DeKay's Brownsnake	<i>Storeria dekayi</i>		✓	✓	
Red-bellied Snake	<i>Storeria occipitomaculata</i>		✓	✓	
Eastern Ribbonsnake	<i>Thamnophis sauritus</i>		✓	✓	
Common Gartersnake	<i>Thamnophis sirtalis</i>		✓	✓	

5.3.14 Rare or Protected Species

In compliance with FAA regulations (Order 5050.4a) and the Fish and Wildlife Coordination Act (16 U.S.C 661-667d) FAA-funded projects must consider state and local wildlife regulations. A review of the current (August 2017) Massachusetts Natural Heritage and Endangered Species Program Mapping of the airport and surrounding area indicates that portions of the VMAs on the southeast side of the Airport are within Priority Habitats for Rare Species. No Estimated Habitats for Rare Species are found on site (Figure 5-8). Additionally, one Certified Vernal Pool which was discussed in Section 5.3.8 is located on the Airport property and as discussed in Section 5.3.3 there is also an ACEC located near the Airport.

Based on a review of the Information for Planning and Consultation (IPaC) database hosted by US Fish & Wildlife Service (USFWS), the project area may have northern long-eared bat (NLEB) (*Myotis septentrionalis*). The Massachusetts NHESP NLEB map was reviewed and the project area is outside the protected areas around winter hibernacula and no occupied maternity roost trees are mapped in the vicinity of the Airport. Should the Airport pursue tree removal activities between June 1 and July 31, additional surveys maybe required to confirm absence of maternal roost trees.






5.3.15 Wetland Restriction Orders

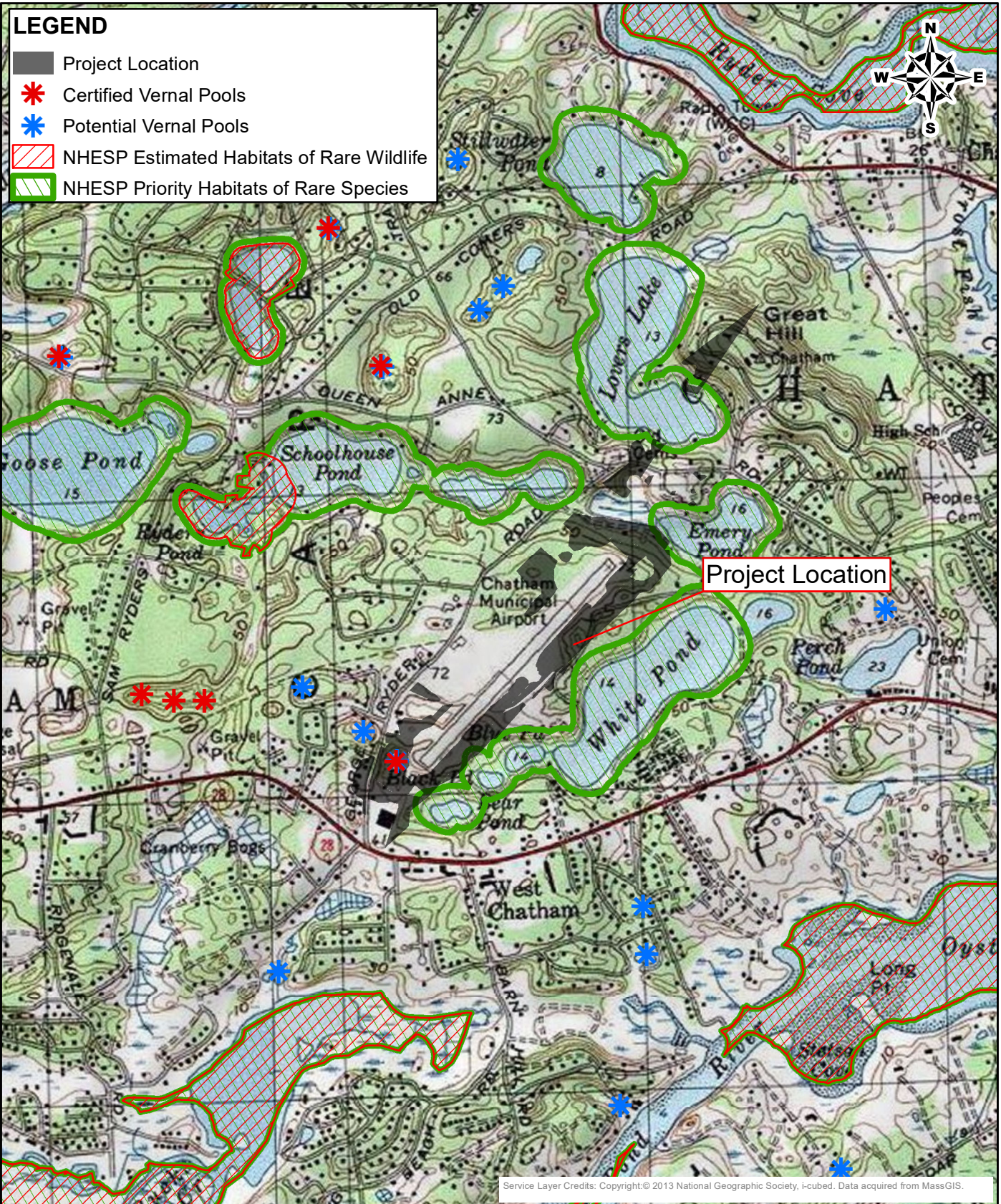
There are no Wetland Restriction Orders (WROs) in the areas identified for vegetation removal at the Airport. Thus, WROs do not present a constraint to the implementation of the VMP.

5.3.16 Wild and Scenic Rivers

Based on review of Mass GIS datalayers, there are no State or locally designated “Scenic Rivers” as defined by MGL Ch. 21, Sec17b in the project area. Consequently, this issue does not present a constraint to the implementation of the VMP.

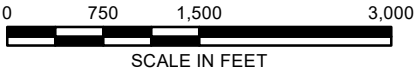
LEGEND

-  Project Location
-  Certified Vernal Pools
-  Potential Vernal Pools
-  NHESP Estimated Habitats of Rare Wildlife
-  NHESP Priority Habitats of Rare Species



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CHATHAM AIRPORT VMP
CHATHAM, MA

PREPARED BY:
 **GZA GeoEnvironmental, Inc.**
Engineers and Scientists
www.gza.com

PREPARED FOR:
GALE ASSOCIATES INC
163 LIBBEY PARKWAY
WEYMOUTH, MA 02189

NHESP MAP

PROJ MGR:	SDR	REVIEWED BY:	GPD	CHECKED BY:	SLL	FIG 5-8
DESIGNED BY:	JRC	DRAWN BY:	JRC	SCALE:	1 in = 1,500 ft	
DATE:	03/03/2021	PROJECT NO.:	15.0166692.03	REVISION NO.:		

FIG
5-8

© 2021 - GZA GeoEnvironmental, Inc. J:\0_166699\15.0166692.03 Chatham Airport Comprehensive VMP\GIS\mxd\Fig5-8_VMP_NHESP.mxd, January 26, 2021 - 2:17:46 PM, jacquelyn.claver



5.4 DESCRIPTION OF VEGETATION MANAGEMENT REMOVAL METHODS

5.4.1 General Physical Removal Methods

The 1993 GEIR outlines several vegetation removal methods and categorizes them based upon their potential environmental impacts. The removal methods recommended are a function of the vegetation type, environmental constraints, and access conditions in a particular VMA and are consistent with the GEIR, with some modifications proposed to address specific site conditions and best protect the environment. In addition, the wetlands regulations, Pleasant Bay ACEC, and vernal pools impose some methodological constraints. Physical removal methods are the preferred management technique as they completely remove the penetrations from the airspace. The methods section (Section 5.4.2) and the figures identify where techniques will occur.

Table 5-4 describes the relationship between the methodology names used in this VMP and those used in the GEIR. A comparison of the VMP and the GEIR indicates that the “Drop and Lop” and “Fell and Lop” are essentially the same methodologies. This VMP uses “Mechanical” to refer to the mechanized methodology. This VMP uses the term “hand cutting” for removal performed by chain saw. Regardless, although the names are different, all tree removal methodologies involve the cutting, dropping, or felling of trees and then the reduction in size of the remaining slash by chipping, mowing or lopping. Logs are either left in place and cut in 1-4 sections or are removed. The specific technique used to cut-up the slash is a function of the tree size, the soil conditions, and the future use of the VMA.

Table 5-4: Names of Tree Removal Methods	
Method Name in VMP	Method Name in GEIR
Logging Removal	Mechanized Felling
Mowing	Mechanized Felling
Stump Treatment	Cut-Surface Treatment

5.4.2 Description of Tree Removal Methods at the Airport

Vegetation management will be accomplished by several relatively consistent methodologies, although each technique is somewhat adapted to the unique conditions present at the Airport. All vegetation management falls into two broad categories: mowing or tree removal. These basic methods are discussed below. Specific techniques assigned to the Vegetation Management Areas (VMAs) are discussed in Section 5.5.

Mowing: Management of grass or existing shrub and low growth areas is accomplished by the following:

1. **Monthly Mowing (MM):** Frequent mowing throughout the growing season in the runway safety areas adjacent to the runway and taxiway (actual frequency may vary depending upon rate of regrowth);
2. **Annual Mowing (AM):** Typically, one late-season mowing of the grasslands outside the immediate runway safety areas, further from the active portions of the airfield, which minimizes potential wildlife disturbance. Some areas that are further from the runway i.e. the 10-30’ height zone, the mowing may occur less frequently – every 1-3 years. In those areas, a flail mower or other rough mowing may be used to cut woodier habitat.
3. **Rough Mowing (RM):** Mowing with a flail mower or Brontosaurus type of machinery which can mow shrubs and small saplings and occasional immature trees (typically < 5” diameter) within the areas peripheral to the airport grasslands, typically performed on a 3-5 year frequency.

In the vernal pool and immediate vicinity, mowing is not recommended. Mowing is not specified for any of the short term VMAs; however, it will be employed for long-term management.



Tree Removal: Tree removal is by one of the following methods:

1. **Logging Removal (LR):** Removal via mechanical equipment such as feller-bunchers, forwarders and skidders.
2. **Landscape Removal (LS):** Detailed tree removal, conducted with protective measures of structures and preservation of other landscape features. By its methodology, all LS removal is selective.

Technique Modifiers: The technique for each VMA may include one or more of modifier to describe the proposed management more specifically:

1. **Selective (s):** Canopy removal is limited to individual trees which exceed the local VMA height criteria. In the taller height zones at the Airport, selective cutting usually targets the tall pines that are the primary penetrating trees, particularly in the outer management zones. The exception to this is in areas closer to the airfield, where the VMA height criteria may also necessitate the removal of shorter, commonly deciduous species.
2. **Stump (t):** Treatment of remaining stumps with herbicides and/or removal by grinding or other methods to prepare the VMA for a long-term mowing management strategy.
3. **Leave Shrubs (h):** During tree removal, the shrub layer will be left as intact as feasible and will be allowed to regenerate. These VMAs contain species which, at maturity, are unlikely to penetrate the airspace.
4. **Vernal Pool (v):** Special management zone around the vernal pool which may include selectively leaving cut material and/or a tailored sequence of removal over several years to reduce the full effect of the loss of shading.



5.4.3 Selection of Vegetation Management Methodologies at Chatham Airport

Tree removal methodology in the VMAs depends on the land cover condition, the suitability of the method for each condition, and land ownership. At the Airport, two basic conditions apply where tree removal is needed:

1. Uplands with stable sandy soil conditions that would typically accommodate rubber-tire logging equipment in under normal site conditions; and
2. Vernal Pool and immediate area with predominantly stable surface soils that would support low or moderate pressure tracked or rubber tire logging equipment for much of the year.



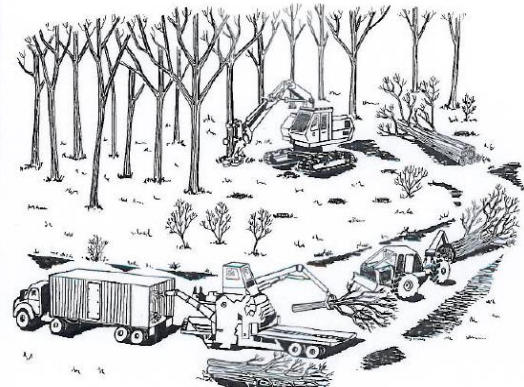
On Airport property, the most efficient mechanized removal is recommended because the soil conditions will readily support most logging equipment without excessive need for restoration of the soils following operations. Therefore, in uplands, typically **Logging Removal** is recommended. Specific equipment selection is largely left to the discretion of the contractor; however, contracts will include specifications regarding soil conditions and erosion and sedimentation control.

Within the vernal pool and immediately surrounding areas, mechanized logging is limited to feller-bunchers or forwarders, with loading to defined staging areas outside of wetlands, where logs can be directly removed on defined pathways or the entire tree chipped into waiting trucks. For example, in areas where it is desirable not to leave any slash (i.e., tree limbs,



etc.), chipping of the entire tree after removal by a feller-buncher unit may be preferred, if ground conditions and access are amenable to the use of this method. In areas around the vernal pool, some felled trees and/or slash may be left to minimize mechanical disturbance and topography change. No slash piles over two feet tall will be left.

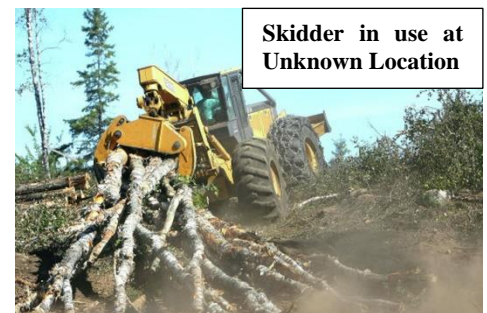
Logging Removal (LR) and Rough Mowing (RM) can be loosely grouped with mechanized felling as Tier 3 or moderate impact vegetation removal method. In recent vegetation removal at other airports, however, mechanical felling with adequate controls resulted in minimal soil or wetland impact, when activities are limited based upon soil conditions in the project specifications. The use of selective logging allows for the removal of only those trees that currently penetrate or threaten to penetrate PZs. This results in less impact to the understory while eliminating the obstructing vegetation.



Chip-harvesting system with feller-buncher, skidder, whole-tree chipper and chip truck (source: U.S. Forest Service)

Logging Equipment includes the feller-buncher, forwarder, and skidder. A chipper and chip truck may also be used if the contractor elects to remove the trees as chips. The following is a brief description of the various pieces of equipment.

- A **feller-buncher** is a type of harvester. It is a motorized vehicle with an attachment that can rapidly cut and gather several trees before felling them. A feller buncher consists of a standard tracked heavy equipment base with a tree-grabbing device furnished with a circular saw or a shear—a pinching device designed to cut small trees at the base. The machine then places the cut tree in a stack suitable for a skidder or forwarder, or other means of transport (yarding) for further processing (e.g., delimiting, bucking, loading, or chipping). There are also wheeled feller-bunchers with no articulated arm. Instead, this type of vehicle drives close and grabs the tree.
- A **skidder** is any type of heavy vehicle used for pulling cut trees out of a forest in a process called "skidding", in which the logs are transported from the cutting site to a landing. On a cable skidder, the cable is reeled out and attached to a pull of cut timber, and then the winch pulls the load toward the skidder. The winch or grapple holds the trees while the skidder drags them to a landing area. Alternately, some skidders have a hydraulic grapple bucket instead of a winch, and the bucket attached to the skidder by a boom grabs and lifts the timber.
- A **forwarder** is a forestry vehicle that carries felled logs from the stump to a roadside landing. Unlike a skidder, a forwarder carries logs clear of the ground, which can reduce soil impacts but tends to limit the size of the logs it can move. Forwarders are typically employed together with harvesters in land-clearing operations.



Landscaped Removal (LS) is recommended in residentially or commercially landscaped areas where individual trees are penetrating or threatening to penetrate the PZs. The equipment may be limited to chain saws and hand work, with dropping of the tree in sections by rope. Larger equipment may be used as the residential conditions safely allow.



5.4.4 Integrated Vegetation Management

Integrated Vegetation Management (IVM) is a holistic, conceptual approach, which examines the full range of short- and long-term measures necessary to efficiently manage vegetation in an environmentally sensitive manner. An IVM approach addresses the unique sensitivities of effected wetland and upland areas. The concept of IVM was developed after the completion of the 1993 GEIR, although the individual components used to create a comprehensive vegetation management program were individually discussed within the GEIR. The GEIR was primarily developed to address the impacts of airport vegetation management within wetlands. However, because an IVM approach is more comprehensive, it necessarily addresses the entirety of vegetative complexes surrounding an airport, and primarily takes a long-term management viewpoint, minimizing short-term, reactive/emergency vegetation management.

IVM combines various mechanical removal techniques, mechanical and/or chemical follow-up treatments, and the encouragement of natural processes to create “meta-stable vegetative communities” that are compatible with the protected airspace. In developing the VMP, an IVM approach naturally evolves as the unique geographic, physical, and biological aspects are considered in the context of creating an overall plan in an appropriately integrated, complementary program to enhance long term effectiveness in vegetation control, cost effectiveness, and minimization of environmental impacts.

Central to the concept of IVM, is the development of the “meta-stable vegetative zones” based upon encouraging species-groups of vegetation with growth habits compatible with the PZ. Generally, further from the runways taller vegetation can be permitted without causing safety concerns. The VMP identifies vegetation management zones or areas within which species that would become penetrations are discouraged by management such as selective cutting and herbicide use. As the remaining species which will not grow to penetration height become dominant, they competitively exclude the undesirable species, helping to maintain the zone and minimize future maintenance. By minimizing future maintenance activities, future wetland intrusion and operational costs are also minimized. Zonation, by its nature, encourages diversity in the vegetative mix and thereby enhances the opportunity for a greater diversity of wildlife habitat.

Integrated Vegetation Management combines sequential use of mechanical, chemical, and biological treatments. The typical approach is to mechanically remove the penetrating trees/shrubs, chemically treat fast growing re-sprouting stumps and/or invasive species and encourage the natural development of desirable species which suppress undesirable plants through shading and other biological means. Once the compatible vegetative structure is established, periodic herbicide treatment programs may be needed every two to five years to maintain the plant height zones and prevent succession to vegetative communities with taller species. The typical zones surrounding the airfield are as follows:

Zone 1: Areas closest to the runway which includes the primary surface, safety, and in-field areas. It is typically mown several times each year.

Zone 1A: Areas between the primary surface and safety areas and the shrub or forest edge. Non-woody species (i.e., grasses and herbaceous plants), three feet tall or shorter are permitted. This zone typically encompasses annual mowing and monthly mowing management areas.

Zone 2: Areas further from the primary and approach surface composed of low growing bushes (\leq 10 feet). This zone is typically called the short shrub zone and managed to remove all but short shrubs.



Pitch Pine Removal at Turners Falls Municipal Airport



Zone 3: Areas of tall growing shrubs and small trees (30 to 50 ft). This zone is called the tall shrub and/or short tree zone, with most shrubs allowed and smaller trees that will not reach penetration height.

Zone 4: Areas of tall trees with a maximum height of 90 feet. This zone is typically called the tall tree zone, where most trees can grow to maturity, only removing the tallest trees, typically white pine.

For the Airport, the IVM approach is reflected within Table 5-6 primarily under the Long-Term Plan and management approach. The zonation concepts are reflected within the individual Long-Term VMAs. For select locations, where the desired vegetative community is shrublands, short-term application of herbicides is recommended to control regrowth patterns as described below. The proposed areas of herbicide use are presented within the YOP.

For long-term management at the Airport, tree height management zones are shown in 30 foot height zones. However, in some of the transitional zones, the 7:1 slope creates such a narrow area for the 10-30 foot zone that it may not require different maintenance than the 3-10 foot zone. The Part 77 surfaces, somewhat adjusted relative to the ground contours, are shown on Sheet 2 with the long term maintenance areas (see Section 5.5.3).

5.5 SHORT-TERM & LONG-TERM VMP

5.5.1 Overview

Table 5-5 and Appendix 1 present the Short-Term VMP for the Airport. Likewise, Table 5-6 and Appendix 2 present the Long-Term VMP. The Short-Term Plan focuses on major areas of tree removal where the woodlands are relatively mature and have not been managed, whereas the Long-Term Plan focuses on a scheduled maintenance approach to the whole airport and VMAs once the Short-Term Plan has been implemented and the area requires maintenance. However, the Short-Term Plan will not be implemented all at once, and therefore, the implementation of both plans is anticipated to overlap to some extent. The anticipated general sequence is as follows:

1. Implementation of Short-Term VMP on-airport or where access permissions exist (anticipated start 2022);
2. Implementation of remaining on-airport and easement portions of Short-Term VMP;
3. Ongoing annual or other maintenance of areas treated in steps 1 and 2 in accordance with Long-Term VMP;
4. Prioritization and seeking of easement acquisition in critical non-airport lands;
5. Implementation of Short-Term VMP in new easement areas; and
6. Implementation of Long-Term VMP in new easement areas.

A more detailed YOP for the VMP is presented for the next 5 years in Section 6

5.5.2 Short-Term Plan

Techniques in VMAs: Operational considerations for VMP techniques are both general and site specific. Given the variable conditions at the Airport, the Short-Term VMP resulted in 40 VMAs, 23 of which are on Airport property and are categorized as Logging Removal (LR) with modifiers. In areas identified as LRs, a portion of the canopy will be left in place as a portion of the trees do not pose a near-term penetration risk. Under both LR and LRs, standard logging is performed, and cut trees are removed, where possible. Limited slash may be left with specifications (e.g., < 2 ft height above grade), but typically, slash is removed and chipped. Herbicide treatment of stumps should be done in LR areas where long-term height zones are <40 ft, to minimize the growth of stump suckers which can regrow at a rate of several feet per year and rapidly regain penetration height. A sub-category for Stump Removal (typically by grinding; “t”) is specified where the long-term management technique will be annual mowing. The area will be initially cleared using mechanized equipment such as a Brontosaurus or flail mowing. In addition to grinding stumps flush to the ground, other obstructions (e.g., rocks) that would inhibit routine maintenance by conventional rotary mower equipment (e.g., brush hog) in use by the Airport



may need to be removed. Understory shrubs are not removed, and though they may be damaged during operations, they tend to recover within one growing season, responding to the increased light availability.

Special treatment is required within and adjacent to the vernal pool. Therefore, while this area is identified as LR, applicable VMAs include the modifier “v”. This work will be phased over multiple years to limit the severity of tree removal within any given year and minimize shade loss while allowing for the regrowth of lower vegetation. This treatment will be coordinated with the Chatham Conservation Commission as part of the permitting under the Wetlands Protection Act.

Off Airport Areas: The off-airport areas (2 VMAs with easements and 15 without) are categorized as Landscape Removal (LS) with modifiers. In LS areas, it is necessary to minimize aesthetic impacts to residential and commercial properties, and take care during removal to avoid utilities, protect nearby structures, remove tree materials, and restore damaged portions of lawns and other landscaping features. Under LS, individual trees may be removed section by section using climbers, bucket trucks or other means. Brush will be chipped, logs removed, and stumps pulled, followed by regrading of the soil, and seeding/mulching as necessary. Work under LS is likely to be uniquely crafted to meet the landowners’ requirements to the extent required under the easements or other permissions yet to be obtained.

Table 5-5: Short-Term Vegetation Management Techniques									
RW	Treatment Type	On-Airport		Off-Airport, Easement		Off-Airport, No Easement		Future Maintenance	
		VMA	Area (ac)	VMA	Area (ac)	VMA	Area (ac)		
Runway 6	Logging Removal (LR)	6A-LRsv-1	2.21	--	--	--	--	Vernal Pool Management	
		6B-LRt-1	7.54	--	--	--	--	Annual Mowing	
		6C-LRt-1							
		6D-LRh-1	0.22	--	--	--	--	Annual Mowing and/or Selective Logging Removal	
		6H-LRs-1	0.47	--	--	--	--	Selective Logging Removal	
		6E-LRsh-1	5.21	6L-LSsh-2	2.86	--	--	--	Selective Logging Removal
		6F-LRsh-1							
		6G-LRsh-1							
	6H-LRsh-1								
	6K-LRsh-1								
6M-LRsh-1									
Landscape Removal (LS)	--	--	--	--	6I-LSst-3	2.41	Landscape Removal		
	--	--	--	--	6J-LSst-3				
Total		15.65		2.86		3.03			
Runway 24	Logging Removal (LR)	24A-LRt-1	9.41					Annual Mowing	
		24B-LRt-1							
		24C-LRh-1	7.58					Selective Logging Removal	
		24E-LRh-1							
	24F-LRh-1	4.03					Selective Logging Removal		
	24G-LRs-1								
Landscape Removal (LS)					24H-LSst-3	8.77	Landscape Removal		
					24J-LSst-3				
			24I-LSsh-2	4.21		8.77	Landscape Removal		
Total		21.02		4.21		11.8			
Grand Total		55.81							

Note: VMA's are grouped by type, for example, there may be more than one 32-LR-1, yet only one title is displayed for total area (ac). Modifiers include: (s) selective for penetrations; (t) Stump Treatment; (h) leave shrubs in place (v) cutting in Vernal and Buffer.



Utilization of Herbicides: Herbicides to control regrowth of vegetative obstructions and invasive species have been used in the past and are still considered for the Airport as follow-up treatments after initial major tree cutting as part of the IVM approach. The limited use of herbicides has been recommended for the first few years following the initial heavy cutting of woody growth, especially on tree stumps and roots. Mowing can be used to control regrowth in some areas, but herbicides are used to suppress rapid regrowth of suckers from stumps of cut trees, which often exceed 3-5 feet of new growth per year. The rapid regrowth of these species needs to be addressed to maintain the vegetation within the treatment zone. The rapid regrowth from the stumps occurs due to the large root mass of the still viable stump. By herbicide treating the stump regrowth, the entire stump can be killed, limiting the potential for future maintenance. Over time, the shrubs will tend to grow thick enough to shade out the tall tree seedlings. The herbicides are most often applied directly by hand, via treatment of the cut stumps or by direct spraying of the leafy foliage of the target plant.

The use of herbicides in or near wetlands can be performed in an environmentally sensitive manner, and such use is strictly regulated by the MA Department of Food and Agriculture (DFA). Airport VMPs follow the DFA guidelines, and are specifically reviewed by the DFA. All herbicides in MA must be registered and approved for a specific use by the U.S. EPA and the DFA. In addition, herbicide use in or near wetland resource areas requires additional levels of regulatory review. The DFA's VMP Advisory Panel has determined that herbicides, when applied under the guidance of an IVM program and other conditions, have less impact on wetlands than mechanical only techniques (Environmental Consultants, Inc. 1989).

In Massachusetts, the Rights of Way Management Regulations apply (333 CMR 11.00), which dictate special procedures or limitations on the frequency of application allowed within specified distances to "sensitive areas" such as public and private drinking water supplies, standing or flowing water, agricultural and inhabited areas. Additional permitting would be required for use in water, but this is not needed at KCQX to control vegetative penetrations. Other typical application guidelines include:

- A qualified, DFA-licensed applicator must apply the herbicide.
- Vegetation management crews must exercise care to ensure that low-growing desirable species and other non-target organisms are not unreasonably affected by the application of herbicides.
- Herbicides must be handled and applied only in accordance with labeled instructions.
- Herbicides must not be applied during the following adverse weather conditions: high wind, dense fog, moderate to heavy rainfall, high temperatures and low humidity for volatile herbicides, deep snow preventing adequate coverage of target plants.
- At least 21 days in advance of herbicide application, the DFA, the Town/City, the Board of Health, and Conservation Commission shall be notified of the appropriate date of the application.
- No foliar application of herbicides is used to control vegetation over 12 feet tall except for side trimming.

Experience with herbicide use at airports has proven that the controlled use of the appropriate herbicide usually is a viable method for vegetation management in PZs. While various formulations of herbicides are used at different airports, glyphosate is commonly used (brand name, Roundup® or Accord®), as well as imazapyr formulations (e.g., Arsenal®). Glyphosate works by inhibiting photosynthesis. At Beverly and Orange Airports, water and wells were tested for glyphosate before and after herbicide use. In all cases, no herbicide was observed present. Glyphosate is typically applied directly to stumps or leaves by hand spraying with a backpack sprayer to limit the amount of herbicide used or reaching non-target vegetation. Glyphosate that reaches the ground will stay in the soil and rapidly biodegrade.

In 2018, the Chatham Board of Selectmen voted to have Town staff voluntarily discontinue the use of Glyphosate on town-owned properties by all Town departments. Given this, Glyphosate, while it may be used at the Airport; is discouraged. Should Glyphosate treatment be used, it should be contractually restricted through the explicit inclusion of best management practices and mitigating conditions.



5.5.3 Long-Term Plan

Maintenance of Long-Term VMAs: Table 5-6 identifies the Long-Term maintenance to occur in the various VMAs (see Appendix 2). Monthly Mowing (MM) is identified in the primary surfaces of the Airport as part of the Long-Term plan, which is already ongoing. Under Annual Mowing (AM). Mechanized equipment will be used to “mow” all vegetation less than 3” in diameter, using a large rotary tow-behind mower, or side arm mower. This approach is often used in areas where the height zones are low and trees, saplings, and taller shrubs would not be allowed.

Within the long-term plan, there is a special management zone for the vernal pool on airport property. Within this area, only trees that are actual or potential (within 10’) penetrations will be removed, leaving shorter trees and shrubs intact. Methods of removal will vary and will likely be subject to an Order of Conditions issued by the Chatham Conservation Commission. Methods may include manual removal (climbers) or drop and lop methodology with leaving some cut trees for habitat purposes after cutting. Topping may also be used to remove the part of a tree that is the penetration while leaving lower portion for overstory cover of the ground and to shade the pool.

Long-Term maintenance tree removal will be within discrete height management zones, using conventional mechanized logging (LR) and landscape removal (LS) techniques on VMAs. Operational specifications will address variable microscale site conditions that may exist within the VMAs.

Table 5-6: Long Term Vegetation Management Techniques					
Treatment Types	Treatment Sub-Category	Area (ac)			Total Acreage
		On-Airport	Easement	Off-Airport	
Monthly Mow (MM)	-	38.17	-	-	38.17
Annual Mow (AM)	-	14.91	-	-	14.91
Logging Removal (LR##)	LR10	1.57	-	-	1.57
	LR20	9.37	0.14	-	9.51
	LR30	1.65	0.54	-	2.19
	LR40	9.12	0.39	-	9.51
	LR60	2.24	-	-	2.24
	LR80	5.70	-	-	5.70
Landscape Removal (LS##)	LS10	-	-	0.70	0.70
	LS20	-	1.87	1.09	2.96
	LS40	-	2.34	5.24	7.58
	LS60	-	-	4.22	4.22
	LS80	-	-	11.65	11.65
	LS120	-	-	3.10	3.10
Vernal Pool (v)	-	1.88	-	-	1.88
Total	-				115.88

Invasive Species Management: Invasive species management has not been a focus at the Airport because invasive species are not overly common. Currently, there is some growth of invasive species within the annual mow area. These may require additional cutting or herbicide treatment to effectively manage the growth

5.6 IDENTIFICATION OF POTENTIAL ENVIRONMENTAL IMPACTS

The removal of trees unavoidably alters the vegetative assemblage, with the intended objective of maintaining the vegetation within permissible height zones. Initially, woodlands are converted to grasslands, shrublands, or immature woodlands. As a result, the most significant habitat change from management activities will be alteration to the canopy.

Effects on Wetlands and Habitat: Based on site conditions and experience with VMP implementation in Massachusetts over the past two decades, the greatest potential environmental effect of this VMP is alteration of habitat. These changes



can have collateral effects on hydrology and invasive species, among other concerns, and measures have been taken in the development of the VMP to minimize short-term and long-term impacts to the extent practicable and compatible with achieving the removal of penetrations into protected airspace. At the Airport, one particular concern is impacts to vernal pool and associated upland habitat. To address this, specific VMAs have been developed in and around this sensitive area to minimize impacts. Any alteration of habitat will favor some wildlife species over others. While removal of canopy trees will result in loss of habitat for some forest-interior species, the encouragement of herbaceous ground cover and understory shrub vegetation will provide favorable habitat for other wildlife species.

One VMA is associated with the upland area within 100 feet of the on-Airport vernal pool. No other VMAs are associated with wetlands. The single vernal pool VMA is 2.21 acres and no change in topography, hydrology, or net loss in vegetated area is anticipated; however, the vegetation will be converted from a taller plant community to a shorter one. Shorter growing tree species and shrubs can provide equal soil stabilization, water quality protection, and improved air quality.

Effects on Hydrology: Concerns always exist relative to effects on local hydrology from canopy removal. It is well understood in forestry science that tree canopies intercept rainfall and have some storage capacity on the limbs, trunk and foliage (during the growing season) that can attenuate short term runoff. Excess runoff with damage from erosion has been noted in areas clear cut by aggressive forestry practices. However, based upon years of vegetative monitoring at multiple MA airports, there have been no obviously evident changes in local hydrology as may be evidenced by increased stream scour; erosion and sedimentation; or diminished or increased flood boundaries associated with streams or pools, including vernal pools (Vegetation Management at Airports, 2004). Therefore, to the extent that such changes occurred, they appear to have been absorbed by the local terrain without obvious adverse environmental impacts.

There are perhaps several logical reasons why such hydrologic changes are unlikely to be observed at the Airport, even though some theoretical difference might be expected. First, the Airport is located on a large, naturally flat expanse of terrain in a sandplain-outwash area. As such, much rainfall is retained in the microtopographic “puddles” and is infiltrated into groundwater without ever reaching the local streams. Therefore, it is highly likely that the natural landscape will absorb the rainfall that normally would have been caught temporarily within the canopy of the removed trees.

Regrowth of the shrub layers after initial VMP trees removal is extremely rapid such that dense coverage by low growth shrubs and herbaceous vegetation is achieved within one to two growing seasons (Vegetation Management at Airports, 2004). Following the initial physical removal of the tree canopy, the regrowth of the shrub layer occurs once the light reaches the former forest floor. This provides a dense, stem rich vegetative layer to intercept rainfall as well as dense, closely woven root structures to help stabilize the soils. In typical forest canopies, the canopy is at a uniform height such that the dense foliage does not carry into the lower forest strata. Therefore, once the dense shrub layer has become established, it tends to provide a near equivalent ability to temporarily intercept rainfall as does the existing “thin” canopy layer that was removed. Staged, multi-year cutting methodologies employed within the vernal pool areas would further minimize potential for hydrologic changes within this sensitive habitat.

The GENF (2007) for the Statewide VMP Program suggested that potential hydrological changes at airports might be greater if most or all of the following criteria for the VMP cutting area consisted of:

- a mature and contiguous woodland with continuous uninterrupted canopy;
- >20 acres within single sub-watershed;
- a relatively steep watershed (>10% slopes);
- slopes formed in low permeability soils (e.g., glacial till, glacio-lacustrine);
- drainage patterns primarily within small steep gradient, intermittent streams;
- streams are formed in erodible soils (e.g., outwash, pro-glacial outwash; noncompact glacial tills, or alluvial soils); and
- the VMP required total canopy removal.



While some of the above conditions are met by the Airport and significant areas of forest require removal under this VMP, the criteria of >10% slopes, poor soils, drainage patterns are not met, which likely provides significant mitigation of possible changes to hydrology, especially given the flat, pit and mound microtopography that typifies much of the areas. There is no reason to expect that the VMP practices will pose a significant risk of increased hydrology and associated impacts due to excess runoff.

Invasive Species: The removal of the tree canopy under a VMP can possibly create conditions that favor the expansion of invasive species into the exposed unoccupied niche, especially if such species are already living in the area. The VMP program will address these concerns, to prevent dominance in the vegetative regrowth by *Phragmites* or other invasive species. Follow-up work under the YOPs typically includes semi-annual or annual mowing of regrowth areas with the selective use of herbicides.

Permitted Impacts: The MA Wetlands Protection Act (WPA) makes allowances for vegetation management in wetlands under “Limited Project Status” (310 CMR 10.53) for several different types of projects, including airport VMPs for existing airfields. Actions taken within 350-feet of the vernal pool will require permitting under the WPA prior to VMA actions.

6.0 PROJECT IDENTIFICATION AND PRIORITIZATION

6.1 OVERVIEW

The progression of the VMP for the Airport is guided by successive, 5-year duration YOPs, which identify and prioritize vegetation management activities. Because this is the Airport’s first VMP, the YOP will be for the years 2022-2027. The VMP and associated YOPs can be reassessed and updated as needed to incorporate vegetation management required to maintain protected airspace as additional off-airport cutting becomes necessary in the future.

Project prioritization is driven by both the location and extent of obstructions and the reasonable projection of the timing of implementation of various tasks under the VMP. The VMP activities needed for the on-airport or permissible areas are scheduled to begin in 2022. However, about 21% (11.81 acres) of the airspace obstructions are located outside airport-owned property and outside of current aviation easements and are expected to occur over the next decade as funding dictates (Table 6-1).

Consequently, the YOP is structured to focus first upon areas of obstructions that are located on airport-owned property or within existing aviation easements. Vegetation removal in other areas is also necessary but is shifted to the later years of the YOP to allow additional time to examine other alternatives (such as obstruction lighting in areas furthest from the airfield), acquire easements, or obtain permission to perform vegetation management in these areas. The YOP is a planning tool for VMP activities over the 5-year period. However, the YOP does not preclude vegetation clearing on an as-needed basis to address immediate safety concerns.

Table 6-1: Summary of Removal Methods and Acreage Affected			
Removal Method	Upland (ac)	Wetland (ac)	Total (ac)
On-Airport Property			
Logging, Leave Shrubs (LRh)	7.79	0	7.79
Logging, Stump Treatment (LRt)	16.95	0	16.95
Selective Logging (LRs)	4.50	0	4.50
Selective Logging, Leave Shrubs (LRsh)	5.21	0	5.21
Selective Logging, Vernal Pool (LRsv)	0	2.21	2.21



Sub-Total	34.45	2.21	36.66
Within Easements			
Selective Landscape, Leave Shrubs (LSsh)	7.07	0	7.07
Sub-Total	7.07	0	7.07
Off-Airport Property			
Selective Landscape, Stump Treatment (LSst)	9.38	0	9.38
Landscape, Stump Treatment (LSt)	2.43	0	2.38
Sub-Total	11.81	0	11.81
Grand Total	53.33	2.21	55.54
On Airport = 66%, Easements = 13%, Off-Airport = 21%			

6.2 YEARLY OPERATIONAL PLANS

The YOP for the next 5 years is summarized in Table 6-2 and more specifically delineated in Tables 6-3 through 6-7 for each year to include the specific VMAs involved. Generally, the YOP is developed on the following principals and goals:

- The Monthly Mowing (MM) of the safety areas, and the Annual Mowing (AM) areas are cut each year.
- Logging removal of trees, according to the height zones and methods of the various VMAs in the Short Term Plan starts in 2023, and periodically thereafter to bring the airport into full VMP compliance. In stump treatment areas, following logging, the stumps will be ground to grade. The following year, herbicide treatments will be applied only to stumps which generate rapid growth and are in areas where this growth would result in frequent and intrusive mechanical maintenance. YOP years 1 through 3 will focus on areas within the Airport boundary fence.
- Easements and/or clearing permissions for off-airport parcels in Chatham have not yet been sought, and no permits exist to cut these areas. It is assumed that some acquisition will be completed within the 5-year YOP with initial implementation in Year 5 or extending into the next 5-year YOP Update.

Table 6-2: Summary of Proposed Five Year Yearly Operational Plan (YOP)

Year	Description of Area	Treatment Approach
1	Existing cleared airport areas	<ul style="list-style-type: none"> • Monthly Mowing (MM) of In-Field and Safety Areas. • Annual Mowing (AM) of Non-Directional beacon area. • Begin easement acquisitions. • Permitting or short-term VMP Implementation
2	Infield, and Safety Areas, Airport owned property on Runway 6 approach within boundary fence, including vernal pool area	<ul style="list-style-type: none"> • Monthly Mowing (MM) of In-Field and Safety Areas. • Annual Mowing (AM) of peripheral areas fringing MM areas. • Initial cutting of Vernal Pool “v” areas (Phase 1). • VMP Implementation on airport owned properties on Runway 6 approach. • Stump treatment (herbicide spray and/or stump grinding) as described in VMP. • Seek additional avigation easements.
3	Infield, and Safety Areas, All Airport owned property on Runway 24, Vernal Pool Area	<ul style="list-style-type: none"> • Monthly Mowing (MM) of In-Field and Safety Areas. • Annual Mowing (AM) of peripheral areas fringing MM areas. • Herbicide treatment of stumps in “t” areas cut in Year 2 to allow MM. • Annual Mowing of areas cut in Year 2 as described in Long Term Plan. • VMP implementation on airport owned properties on Runway 24 approach. • Easement acquisition of other off-airport parcels.



4	Infield, and Safety Areas, Easements, Vernal Pool Area	<ul style="list-style-type: none"> • Monthly Mowing (MM) of In-Field and Safety Areas. • Annual Mowing (AM) of peripheral areas fringing MM areas, this now includes mowable areas created in Years 2 and 3. • Herbicide treatment of stumps in “t” areas cut in Year 3 to allow MM. • Assessment of Vernal Pool Areas (v areas), and additional (Phase 2) cutting. • VMP implementation on off-Airport properties, as available. • Continue off-airport easement acquisition process.
5	Infield, and Safety Areas, Easements, Vernal Pool Area	<ul style="list-style-type: none"> • Monthly Mowing (MM) of In-Field and Safety Areas. • Annual Mowing (AM) of peripheral areas fringing MM areas. • VMP Implementation of any new off-airport easement obtained in Year 4. • Preparation and submission of YOP Update to Conservation Commission.

6.2.1 Year 1—Easement Acquisitions and Annual Mowing Operations

Table 6-3: Yearly Operation Plan – Year 1					
Treatment Type	On-Airport		Off-Airport		Activity & Future Maintenance Notes
	VMA	Area (ac)	VMA	Area (ac)	
Monthly Mowing	MM	38.17			Monthly
Annual Mowing	AM	1			Annual
Easement Acquisitions				11.81	

Based upon the 2018 obstruction analysis, the work to be performed in Year 1 will include the routine airport maintenance that is currently conducted, in addition to easement acquisition and permitting of the short term VMP implementation. The routine work on airport property totals 38.17 acres of monthly mowing of the existing grassland area (airfield) and approximately 1 acre of annual mowing in the grassland area around the nondirectional beacon at Runway 24 end.

6.2.2 Year 2—Easement Acquisitions, Annual Mowing Operations, and Short Term VMP Implementation on RW 6 Approach within Airport Fence

Table 6-4: Yearly Operation Plan – Year 2*					
Treatment Type	On-Airport		Off-Airport		Activity & Future Maintenance Notes
	VMA	Area (ac)	VMA	Area (ac)	
Monthly Mowing	MM	38.17			Monthly
Annual Mowing	AM	1			Annual
Logging**	6A-LRsv-1	0.63			Logging with specialized treatment (stump, vernal pool, shrub) as identified.
	6B-LRt-1	0.78			
	6C-LRt-1	2.96			
	6F-LR-sh-1	0.20			
	6G-LRsh-1	0.4			
Easement Acquisitions				11.81	

*work initiated in Year 2 may be completed in early Year 3.

**only portions of VMAs within the Airport boundary fence will be addressed in Year 2, except for the vernal pool area.

In addition to the existing annual mowing routines (AM and MM), the short term VMP implementation will commence for portions of on-Airport VMAs on the Runway 6 approach which are within the airport fence (labeled 6X-XX-1 on the short



term VMP) and within the vernal pool VMA, 6A-LRsv-1. Other portions of the Runway 6 VMAs outside of the fence are not included in Year 2.

Within the vernal pool VMA, approximately 50% of the penetrations or potential penetrations will be removed during Year 2. The trees selected for removal will be relatively equally spaced around the pool. Additional tree removal will not occur until Year 4 or 5 of the YOP. Once a portion of the trees are removed, the additional light penetration will spur shrub growth. This shrub growth will provide necessary shade to the vernal pool without reaching the penetration height.

As part of the Year 2 work, stump treatment will commence in areas depicted, this will require cutting stumps flush to allow the airport to mow in the future, and potentially late season follow-up herbicide treatment for stump regrowth. Typically, a localized herbicide foliar treatment provides good effectiveness for killing the stumps and preventing rapid regrowth. Many of the areas in the runway approach can be rough mowed, and accompanied with stump treatment, can be maintained via annual mowing going forward. Permitting is likely to be initiated in Year 1 for the initial cutting of the vernal pool VMA. If received, prior to Year 2, this work may be included in the Year 2 YOP. During this year, additional easements will be sought for cutting in Years 4 and 5. All VMAs managed in Year 2 will be monitored for regrowth and conformance with the standards established in the VMP and authorizing permits.

6.2.3 Year 3—Easement Acquisitions, Annual Mowing Operations, Follow-up Management of Tree Removal Areas, and Short Term VMP Implementation on RW 24 Approach within Airport Fence

Table 6-5: Yearly Operation Plan – Year 3*					
Treatment Type	On-Airport		Off-Airport		Activity & Future Maintenance Notes
	VMA	Area (ac)	VMA	Area (ac)	
Monthly Mowing	MM	38.17			Monthly
Annual Mowing	AM	1			Annual
Stump Herbicide Treatment	6B-LRt-1	0.78			Herbicide treatment of stumps to allow future mowing
	6C-LRt-1	2.96			
Logging**	24A-LRt-1	2.88			Logging with specialized treatment (stump, vernal pool, shrub) as identified.
	24B-LRt-1	4.01			
	24C-LRh-1	2.89			
	24E-LRh-1	0.37			
	24F-LRh-1	0.66			
Easement Acquisitions				11.81	

*work initiated in Year 3 may be completed in early Year 4.

**only portions of VMAs within the Airport boundary fence will be addressed in Year 3.

In addition to the annual mowing routines and follow-up treatment, if necessary, of the Year 2 VMA cuttings, new cuttings will be initiated for portions of on-Airport VMAs on the Runway 24 approach which are within the airport fence (labeled 24X-XX-1). Portions of the Runway 24 VMAs outside of the fence are not included in Year 3.

Follow-up cutting of some trees in the vernal pool may be required and will be subject to monitoring and approval from the Conservation Commission. Follow-up treatment of this area may not occur until Year 4. If herbicide treatment of the stump treatment areas did not occur in late season Year 2 YOP activities, it is proposed to occur in Year 3 to reduce future stump sprouts and convert these areas to Annual Mow maintenance. All VMAs managed in Year 2 will be monitored for regrowth and conformance with the standards established in the VMP and authorizing permits. Easements and permits will also be sought for short term VMP implementation off Airport.



6.2.4 Year 4—Easement Acquisitions, Annual Mowing Operations, Follow-up Management of Tree Removal areas, Short Term VMP Implementation on Runway 6 Approach Off-Airport

Table 6-6: Yearly Operation Plan – Year 4*					
Treatment Type	On-Airport		Off-Airport**		Activity & Future Maintenance Notes
	VMA	Area (ac)	VMA	Area (ac)	
Monthly Mowing	MM	38.17			Monthly
Annual Mowing	AM	4.74			Annual (includes converted Year 2 areas)
Stump Herbicide Treatment	24A-LRt-1	2.88			Herbicide treatment of the stumps to allow future mowing
	24B-LRt-1	4.01			
Logging	6A-LRsv-1	1.60			Logging on Airport property outside the boundary fence or off-Airport where easements have been acquired
	6B-LRt-1	0.73			
	6C-LRt-1	3.07			
	6D-LRh-1	0.22			
	6E-LRsh-1	0.38			
	6F-LRsh-1	1.70			
	6G-LRsh-1	1.71			
	6H-LRsh-1	0.95			
	6K-LRsh-1	0.41			
Landscape Removal			6I-LSt-3	0.68	Tree removal where easements have been acquired
			6J-LSt-3	1.67	
			6L-LSsh-2	2.86	
			6N-LSst-3	0.62	
Easement Acquisitions				<11.81	Seek additional easements as needed

*work initiated in Year 4 may be completed in early Year 5.

**areas may be within areas of permission or may require easement acquisition and permitting.

In addition to the previous maintenance and annual mowing routines, portions of areas logged in Year 2 and subsequently treated to remove stumps will begin being mowed annually as shown on the Long Term Management Plan (**Appendix B**). If herbicide treatment of the stump treatment areas on the Runway 24 Approach did not occur in late season Year 3 YOP activities, it is proposed to occur in Year 4 to reduce future stump sprouts and convert these areas to Annual Mow maintenance.

In addition to monitoring and continuing to treat on-Airport VMAs within the fence, in Year 4 logging and landscape removal will begin on Runway 6 VMAs located off-Airport and portions of on-Airport VMAs outside the boundary fence. Only off-Airport property where easements and permits (if applicable) have been obtained will be managed. During this year, additional easements will be sought for any remaining off-airport property with penetrations needing removal under the short term VMP, permits will be sought for removal of these penetrations if required.

Remaining penetrations or potential penetrations within the vernal pool VMA will be removed during Year 4. During removal, care will be taken to avoid the shrub layer. If necessary, only upper portions of trees may be removed to continue providing shade while protecting the approach surface. Further details will be documented in the appropriate permit and



in consultation with the Chatham Conservation Commission. All VMAs managed in Year 2 and 3 will be observed for regrowth and conformance with the standards established in the VMP and authorizing permits.

6.2.5 Year 5—Annual Mowing Operations, Follow-up Management of Tree Removal Areas, Short Term VMP Implementation on Runway 24 Approach Off-Airport

Table 6-7: Yearly Operation Plan – Year 5¹					
Treatment Type	On-Airport		Off-Airport²		Activity & Future Maintenance Notes
	VMA	Area (ac)	VMA	Area (ac)³	
Monthly Mowing	MM	38.17			Monthly
Annual Mowing	AM	11.63			Annual (includes converted Year 2 and 3 areas)
Stump Herbicide Treatment	6B-LRt-1	0.73	6I-LSt-3	0.68	Herbicide treatment of the stumps cut in Year 4
	6C-LRt-1	3.07	6J-LSt-3	1.64	
Logging	24A-LRt-1	2.55			Logging on Airport property outside the boundary fence and off-Airport where easements have been acquired
	24E-LRh-1	2.16			
	24F-LRh-1	1.49			
	24G-LRs-1	4.03			
Landscape Removal			24H-LSst-3	0.45	Tree removal where easements have been acquired
			24I-LSsh-2	4.21	
			24J-LSst-3	3.98	
			24K-LSst-3	4.35	

¹work initiated in Year 5 may be completed in early Year 6.

² areas may be within areas of permission or may require easement acquisition and permitting.

³ Areas depend on what remains after cutting during Year 4 is completed, which includes total acreages of potential clearing. Year 5 will include areas not addressed in Year 4.

In addition to the previous maintenance and annual mowing routines, portions of areas logged in Year 3 and subsequently treated to remove stumps will begin being mowed annually as shown on the Long Term Management Plan (**Appendix B**). If herbicide treatment of the stump treatment areas on the Runway 6 approach outside the Airport fence did not occur in late Year 4 YOP activities, it is proposed to occur in Year 5 to reduce future stump sprouts and convert these areas to Annual Mow maintenance.

During Year 5, in addition to monitoring and continuing to treat previously-addressed VMAs, logging and landscape removal will begin on Runway 24 VMAs located off-Airport and portions of on-Airport VMAs outside the boundary fence. Only off-Airport property where easements and permits (if applicable) have been obtained will be managed. During this year, additional easements will be sought for any remaining off-airport property with penetrations needing removal under the short term VMP. All VMAs managed in Years 3 and 4 will be observed for regrowth and conformance with the standards established in the VMP and authorizing permits.

6.3 PRELIMINARY COST ESTIMATE

The costs associated with the implementation of the VMP at Chatham Municipal Airport can be broken down into four categories: design and permitting, mechanical clearing costs, herbicide treatment, and environmental and construction monitoring. These costs are planning estimates only and should be reviewed and refined prior to the implementation of



each YOP. The yearly YOP breakdown is dependent on funding. If sufficient funding is available, work from the next consecutive year may be completed early.

Based upon past bid prices for vegetation removal at other public use airports in Massachusetts, preliminary costs were estimated for logging, stump treatment, and landscape removal techniques. These estimates only reflect removal effort and do not include permitting, design, or construction administration and oversight. Environmental constraints, site conditions and regulatory restrictions can lead to significantly higher costs depending upon the site. Table 6-8 summarizes the acreages for short-term vegetation management with the cost estimates of clearing type per acre. The costs have been adjusted based on the areas to account for potential mobilization costs, (i.e., a smaller area may have a higher cost per acre since the mobilization cost is relatively constant). Table 6-9 summarizes the cost associated with the YOPs.

Table 6-8: Short-Term Maintenance of Vegetation on Airport Property Costs					
Year	Maintenance Item	Cost Estimate per Acre¹	On Airport (ac)	Off Airport (ac)	Total (ac)
2022	Annual Mow	-	1	-	1
	Monthly Mow	-	38.17	-	38.17
2021	Annual Mowing	-	1	-	1
	Monthly Mowing	-	38.17	-	38.17
	Logging	\$4,500/ac	4.34	-	4.34
	Vernal Pool Tree Removal	\$9,000/ac	0.63	-	0.63
2024	Annual Mowing	-	1	-	1
	Monthly Mowing	-	38.17	-	38.17
	Herbicide Treatment of Stumps	\$1,500/ac	3.74	-	3.74
	Logging	\$4,500/ac	10.81	-	10.81
2025	Annual Mowing	-	4.74	-	4.74
	Monthly Mowing	-	38.17	-	38.17
	Herbicide Treatment of Stumps	\$1,500/ac	6.89	-	6.89
	Logging	\$5,000/ac	9.17	0.11	9.28
	Landscape Tree Removal	\$5,100/ac	-	5.83	5.83
	Vernal Pool Tree Removal	\$9,000/ac	1.60	-	1.60
2026	Annual Mowing	-	11.63	-	11.63
	Monthly Mowing	-	38.17	-	38.17
	Herbicide Treatment of Stumps	\$1,500/ac	3.8	2.32	6.12
	Logging	\$5,000/ac	10.23	-	10.23
	Landscape Tree Removal	\$5,100/ac	-	12.99	12.99

¹ These are estimates and should not be used to scope projects.

Table 6-9" Approximate Cost Estimates for Yearly Operational Plan Implementation¹					
Year	Logging Removal	Landscape Removal	Stump Treatment	Vernal Pool Tree Removal	Yearly Totals
Year 1	-	-	-	-	-
Year 2	\$19,530	-	-	\$5,670	\$25,200
Year 3	\$48,645	-	\$5,610	-	\$54,255
Year 4	\$46,400	\$29,733	\$10,335	\$14,400	\$100,868
Year 5	\$51,150	\$66,249	\$9,180	-	\$126,579
Total	\$165,725	\$95,982	\$25,125	\$20,070	\$306,902



¹ Costs associated with obtaining additional easements and associated mitigation measures are not included. Annual per acre costs from Year 1 to Year 5 are not adjusted for inflation.

Additional construction administration costs will occur throughout the duration of the VMP. These costs will vary depending upon the project duration and the complexity of the removal activities and include project and construction administration, bidding, and the presence of an environmental monitor and/or resident engineer on site during the construction process.

6.4 REGULATORY CONSIDERATIONS

Compliance with FAA and State regulations requires the implementation of the VMP to maintain protected airspace free from obstructions. To comply with these safety regulations, 43.73 acres within current Airport-owned or easement property must continue to be managed. In addition, 11.81 acres outside of Airport-owned property has vegetative penetrations into PZs and will require management.

The following discussion of required regulatory considerations specifically addresses vegetation management activities and permitting approvals required for work that will occur on Airport-owned property. Activities off Airport will require similar regulatory consideration but require the collection of additional field information and separate filing for review and approval.

6.4.1 MA Wetlands Protection Act

The Wetlands Protection Act (WPA) regulations (310 CMR 10.00) administer the Massachusetts Wetlands Protection Act (M.G.L. c. 131, §40), which controls VMP activities in and near wetlands. Portions of the vegetation management activities proposed at the Airport are regulated under the Limited Project provisions of the WPA. No WPA permitting for VMP activities has occurred at the Airport to date.

Under the WPA, the Limited Project provision of the regulations is designed to provide the issuing authority with the discretion to allow certain work to proceed although the work may not meet the performance standards set forth in the regulations. In addition to airport vegetation removal projects, examples of other activities which have limited project provisions under the WPA include maintenance of beaches and boat launching ramps, the development of public water supply wells or wellfields, the closure of landfills, and work on land used primarily for raising cranberries. Without the Limited Project provision, airport vegetation management activities conducted by the MassDOT Aeronautics Division would not be subject to regulation by local conservation commissions, but instead would be regulated by the MADEP under the Variance process. The Limited Project provision empowers local conservation commissions with the ability to impose conditions on vegetation management activities in wetlands at public use airports within their communities.

An airport vegetation removal project may be included in the Limited Project provision (310 CMR 10.53(3)(n)) if it meets the following criteria:

- the project is undertaken in order to comply with Federal or State regulations, advisories or orders regarding navigable or other airspace which must remain free of obstruction;
- the airport is managed by the Massachusetts Port Authority or subject to State certification by MassDOT Aeronautics;
- the need for compliance with State and Federal regulations, advisories or orders regarding navigable or other airspace which must remain free of obstruction is certified by MassDOT Aeronautics;
- the project does not include the construction of new airport facilities or the expansion or relocation of



- existing airport uses;
- Notices of Intent (NOIs) filed for the project contain a variety of information including the following:
 - delineation of the vegetation requiring removal
 - delineation of affected resource areas
 - identification of proposed removal methods and analysis of alternatives
 - quantification of likely impacts to wildlife habitat and water quality
 - evaluation of mitigation measures
 - presentation of a 5-year vegetation management plan;
 - when a project requires NOI filing in more than one municipality, the NOI filed in each municipality must describe total impacts to resource areas in the entire project area;
 - copies of the NOI for the project must also be filed with the Massachusetts Department of Food and Agriculture, the Massachusetts Historical Commission, the Massachusetts Department of Environmental Management, and the Massachusetts Department of Environmental Protection; and,
 - the project shall be designed, constructed implemented, operated, and maintained to avoid or minimize impacts to resource areas and to meet a variety of standards relative to issues such as temporary alterations of soils and topography, hydrology, the implementation of best management practices, working conditions, and the disposal of vegetation.

Based upon this VMP, we anticipate that the Airport would qualify for Limited Project Status.

In total, the short-term VMAS comprise 55.54± acres, of which 36.66 acres is on Airport property, 7.07 acres± is within easement areas, and 11.81± acres have no easement or agreement permitting the Airport to manage vegetation. The only delineated wetland within the VMA is the vernal pool. The VMA comprising the vernal pool and its associated 100-foot buffer zone is within Airport property and comprises 2.21± acres.

As part of this VMP, wetland resources off airport property have only been approximated within the proposed VMAs. Should easements be acquired, wetland delineation and a permit application to the Chatham Conservation Commissions will be a necessary first step in new vegetation management.

6.4.2 Massachusetts Natural Heritage and Endangered Species Program (NHESP) Approval

Activities that can affect State-listed rare species are regulated under the MA Endangered Species Act (MESA; M.G.L.c. 131A) and regulations (321 CMR 10.00). There are identified areas of rare or endangered species on the southeast side of the Airport, within proposed VMAs.

6.4.3 Massachusetts Department of Food and Agriculture (DFA) Right-of-Way Compliance

Herbicide application in Massachusetts is regulated by the DFA, which has established procedural and safety guidelines for herbicide applicators and application guidelines to limit impacts to natural resources. Although no formal permit or approval from DFA is required, the Airport will comply with DFA rules and regulations regarding the use and application of herbicides.

6.4.4 Massachusetts Historical Commission (MHC) Review

The disturbance of soils within or adjacent to historic or archaeological resources requires approval by the MHC. Based upon preliminary research, historical, architectural, archaeological, or cultural resources should not be affected by the VMP provided there is no stump removal or grubbing that would disturb soil. Stump grinding to existing grade provides a



method which allows conversion of the land to a mow-able condition without disturbance of soil or raising historical and archaeological concerns.

6.4.5 Permit from the Army Corps of Engineers under Section 404 of the Clean Water Act and Attendant Section 401 Water Quality Certification

Vegetation removal of the type typically done at public use airports does not involve fill or surface disturbance in wetlands. The VMP implementation would be considered a General Permit 8 under the Section 404/401 program as it is implemented in Massachusetts and does not require any individual filing with the Corps. However, the Corps requires the following to avoid submission of an individual 404 permit for VMP work:

- no mechanized moving of soil;
- no stumping of trees in wetlands;
- no building of roads in wetlands;
- keeping heavy ends of trees off the ground when winching trees out of wetlands; and
- Limiting work to outside the vernal pool boundary.

The recommended removal methods will accommodate the requirements prescribed by the Corps. Consequently, it is not anticipated that a formal filing with the Corps will be required.

6.5 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES ASSOCIATED WITH YEARLY OPERATIONAL PLAN IMPLEMENTATION

As described in Section 5, the Airport VMP for on-airport lands will directly affect the vernal pool and its associated buffer zone (2.21 acres±). There are additional, more typical concerns associated with soil erosion, water quality, and wildlife habitat in general. The following section contains a discussion of the potential impacts and mitigation measures to soils, vegetation, wildlife habitat, and water quality that may occur from implementation of the VMP. Protection of these parameters is of primary importance. If properly implemented, mitigation measures may avoid long-term impacts to these environmental parameters within the protected resources.

6.5.1 Wetland Mitigation

Wetland Alteration: Vegetation removal methods will impact the wetland resources through the change in canopy conservation, the alterations will not result in the *loss* of wetland area. As a requirement of typical wetland permits for VMP implementation, the project environmental scientist typically works directly with the contractor as part of the permit conditions to help minimize habitat disturbance.

Soils Disturbance: The selected methods of vegetation removal, including the timing of removal and limited use of machinery, are designed to provide a high level of protection of the soils and a correspondingly low potential for sedimentation into wetland resources. Two aspects of this VMP may have the potential to cause soil erosion: the use of heavy machinery, and the exposure of soils in some VMAs to direct precipitation by the removal of the canopy and shrub layers. The proposed mitigation of these potential erosion impacts shall include a combination of construction methodology, construction specifications, erosion control barriers, construction timing, monitoring, and some revegetation. In addition, heavy equipment will not be used within the vernal pool.

Within the vernal pool, work is limited to hand work method, except where feller-buncher equipment can “reach” into the wetlands from the adjoining uplands to cut and remove individual trees without damage to the wetlands. As previously



discussed, slash and logs to some extent can enhance wetland wildlife habitat characteristics, but in excess can be viewed as a temporary impact. Therefore, the choice between the different methods is often at the discretion of the regulatory agent and wetland scientist based upon perspective and/or site-specific conditions.

The construction specifications, which will be included in the work contract, will direct the contractor to repair soils disturbed by machinery by restoring each area to grade, and then covering the area with seed and/or mulch. On slopes, an erosion control barrier will be included in the mitigation as directed by the on-site inspector. Other specifications will include staging areas, log removal methods, slash maintenance and a detail of areas to be avoided with machinery. There will be a general soil erosion specification authorizing the on-site inspector to direct the contractor to repair damaged areas on a case-by-case basis.

The placement of erosion control barriers will be determined by the on-site inspector on an as-needed basis. It is difficult to assess exactly which areas will need the barriers due to certain unknowns including the exact track the clearing machines will use, the reaction of the soils to the weight of the machines, and which slopes will need to be traversed by machines. Due to these unknowns, an item in the bid documents will state that the use and placement of erosion control barriers will be directed by the on-site inspector and shall include all areas which may be subject to either direct precipitation and/or surface flow during severe storm events. A detail of the correct installation of haybale and silt fence barriers, as well as depicted locations of erosion and sedimentation controls along defined haul roads and staging areas, will be included in the contract plans and documents. Based on previous vegetation removal projects conducted by the MassDOT Aeronautics Division, in many areas erosion control measures are often unnecessary because little soil is disturbed, as is typical for standard forestry work.

Construction timing is perhaps the most important tool in controlling the disturbance of soils during the implementation of the VMP. The removal of vegetation when the soil is frozen, relatively dry, or otherwise stable will significantly reduce the potential for widespread soil disturbance. The bid documents and/or the Order of Conditions and Variance will emphasize that suitable soil conditions are required for vegetation removal in wetland areas.

The monitoring of the project by an engineer/environmental scientist who is responsible for the correct implementation of the plan and the Orders of Conditions is an important feature of the project. This individual (or team) will be authorized to request the contractor to repair soils, install erosion control measures, use specific access routes, avoid sensitive areas, and comply with the construction specifications and applicable permits.

Revegetation: Revegetation is an additional mitigation measure that can be used to ensure the control of erosion due to the project activities. The GEIR includes several forms of revegetation ranging from seeding to planting of specific low-growing shrubs that are not likely to penetrate protected air space. Because the clearing method to be implemented on the Airport is logging, revegetation of wetland areas will be largely unnecessary since this technique leaves the existing understory intact. The natural regrowth of trees is usually more vigorous than seed growth. Therefore, the VMP proposes no specific revegetation activities, but does recommend control of invasive species to limit their incursion and competition with the regrowth of native, endemic species.

6.5.2 Wildlife Habitat Mitigation

Habitat Alteration: Because the management of certain VMAs will result in a significant change in the plant community, the GEIR has placed particular emphasis on the potential effect of vegetation management on wildlife habitat. There is a direct correlation between plant community structure (species diversity, density, size, and interspersion) and the use of an area as habitat by most wildlife species. Food sources, such as red maple seeds may be eliminated, and replaced by a higher density of shrub forage due to increased light penetration and subsequent higher shrub density. Where the upper



shrub layer is to be removed, the forage base may change from seeds and berries to insects. Nesting sites will also be impacted as canopy nesting habitat will be reduced or eliminated. Shrub and ground nesters may find an increase in suitable habitat.

The tree clearing operations proposed under the VMP have some potential positive effects on wildlife. Maintained early successional areas (old field communities) have become scarce in recent years, resulting in a documented decrease in certain wildlife species. Many of these species are shrubland specialists, which are becoming increasingly uncommon and rare. The change in habitat afforded by this project will result in an increase in this habitat type, at the expense of habitat that is relatively common in the area (forested upland). For those VMAs where a significant change in the plant community structure is to occur, similar habitat exists immediately adjacent to the VMA. If these adjacent areas are already at the carrying capacity for the individual species, the impact will be a decrease in the number of individuals, as opposed to the loss of the species from the area. Overall, a change in habitat types will occur due to the project. A positive effect of this change is an increase in habitat types that are less common in the area.

Vernal Pools: Because of the sensitivity of vernal pool and their supporting upland habitats, a special VMA subcategory has been established to add additional protections to this resource from tree removal activities. The biggest concern in removal of vegetation around the vernal pool is direct impact to the pool and upland habitats from the physical removal process. During the permitting process, mitigation measures are typically stipulated in the tree removal methodologies in these VMAs to lessen both direct and secondary impacts. A potentially important secondary impact from tree removal in these areas is the change in light regime to the pool below. To mitigate this, a phased approach to the tree removal in and around the vernal pool habitat can be implemented with an initial cutting that removes the tallest trees but leaves several trees of lesser height to provide shade cover and time between phases to allow for the understory to respond with increased growth and provide shade to the pool. Final removal of vegetative penetrations of the height zones can be performed later after lower growth has increased and can provide shade, thus lessening the change of an excessive abrupt change in the light regime for the pool.

Water Quality: To protect other water resources (e.g., ponds, streams, etc.), sedimentation and erosion controls will be placed upgradient of these resource areas if erosion or sedimentation is likely to occur. These controls trap sediment before it enters the resource area.

Glyphosate herbicides for foliar treatment have been proposed for use limited solely to treatment of stump sprouts during some years of the YOP and only in those areas where rapid regrowth from stumps would be problematic for vegetation maintenance. Glyphosate is not included on the Groundwater Protection List, which is a list of pesticide active ingredients that could potentially impact groundwater due to their chemical characteristics and toxicological profile (<http://www.mass.gov/eea/agencies/agr/pesticides/groundwater-protection-list.html> accessed 2021). Since glyphosate herbicides do not persist in the environment, instead they adhere to soil particles, they do not contaminate surface water through run-off or groundwater supplies through infiltration. The specified herbicides have low toxicity to wildlife and are biodegradable. There will be no herbicide use within 100 feet of a dwelling, in accordance with Massachusetts state laws and regulations. The Town of Chatham Board of Selectmen passed a voluntary ban on the use of glyphosate on Town-owned property in 2018. The Airport should consider alternative vegetation management techniques and herbicide compounds prior to specifying glyphosate application. If glyphosate is the selected herbicide, contract specifications should include best management practices.

6.6 PUBLIC PARTICIPATION PLAN

A Public Participation Plan is available as part of the VMP development and permitting with public meetings associated with wetland permitting and monthly Airport Commission meetings.



Public Review of VMP: The Draft VMP will be made available for public review and comment in Chatham. A notice of the report availability will be announced in *The Environmental Monitor* and a newspaper that services the Chatham area.

Public Meetings: The VMP will require new permitting under the WPA and associated with that process is at least one public meeting where the project's potential wetland impacts are discussed. Comments on the VMP throughout this public process will be considered in the development of the Final VMP.

7.0 RECOMMENDATION AND CONCLUSIONS

7.1 RECOMMENDATIONS

The VMP and YOPs guide the progress and implementation of vegetation removal at the Airport. Additional recommendations relevant to implementation were identified:

- A continuing long-term commitment to vegetation management is required. The scheduled removal activities minimize the need for repeated large-scale removal projects by allowing more frequent, small-scale activities and/or maintenance to maintain the PZ free from obstructions. If the small-scale routine maintenance is not performed, the need for more frequent, large-scale clearing projects will eventually occur. Airport operational budgeting should continue to include allocation of funds for vegetation management maintenance as possible. Should additional equipment be necessary, i.e., for areas of rough mowing, continued efforts to obtain equipment through grants may be needed.
- More than 22% of the obstructions are outside either airport-owned property or property with current aviation easements. The Airport should endeavor to obtain permission to remove vegetative obstructions on these properties. Where permission is not granted, the Airport should pursue aviation easements to enhance safe operation of the Airport.
- The cutting proposed within the vernal pool VMA will require the filing of a Notice of Intent (NOI) with the Chatham Conservation Commission (Commission). The Commission will have the opportunity to provide input and specify permit conditions during the permitting process. The VMP and the NOI specify a phased tree removal approach in the area around the vernal pool to limit light penetrations which could lead to increased water temperatures within the pool.

7.2 CONCLUSIONS

This VMP includes both a comprehensive approach to long-term management of the vegetation near the Airport and a more specific five-year implementation strategy, prioritizing the removal of vegetation that currently penetrates protected airspace and preventing future penetrations. The identification of the PZs and an obstruction analysis were completed in 2018 by Gale. Based upon the obstruction analysis, a total of 55.49± acres require action. Of this, 43.73± acres are located on-airport property or under an easement, and 11.81± acres are off-airport where no aviation easement is held. At this time, vegetation management for areas outside of airport-owned property or current aviation easements is proposed where property owners grant permission. The process of obtaining easements will be undertaken as part of the VMPs, YOPs and airport master planning process. As a comprehensive plan, the VMP considers both on- and off-airport clearing.

Environmental constraints include the vernal pool within the Airport, and additional protected areas which may project a Buffer Zone onto VMAs. These elements were identified in the planning stage and accounted for in the formulation of the VMAs and the selection of removal methodologies. These environmental concerns will need to be addressed in



coordination with the Chatham Conservation Commission and MA Department of Environmental Protection through the obtainment of an Order of Conditions. Land ownership can also be a major potential constraint associated with vegetation management outside of airport-owned property. Master planning activities addressing the status and need for additional aviation easements will largely define the extent and scope of vegetation management in areas outside of Airport property.

8.0 VEGETATION MANAGEMENT PLAN PREPARER INFORMATION

The team assembled for this project consisted of:

- Gale, Inc. (Gale) and
- GZA GeoEnvironmental, Inc. (GZA).

Gale, Inc: Gale Associates Inc., with its expertise in aviation engineering and planning, was the prime consultant, responsible for overall project organization and management of the Chatham Municipal Airport Vegetation Management Plan. Gale provided aviation engineering services for the preparation of the Vegetation Management Plan, relative to the Part 77 surface analyses and document development.

GZA GeoEnvironmental, Inc.: GZA GeoEnvironmental, Inc. (GZA) performed the environmental science and civil/engineering support services required for the VMP preparation, including wetland delineation (State and Federal), assessment, impact mitigation, vegetation management, permitting, biological surveying, and AutoCAD/GIS plan development. GZA's areas of expertise include botany, wildlife ecology, soil science, hydrology, and civil engineering.



9.0 AIRSPACE OBSTRUCTION CERTIFICATION



Certification Page

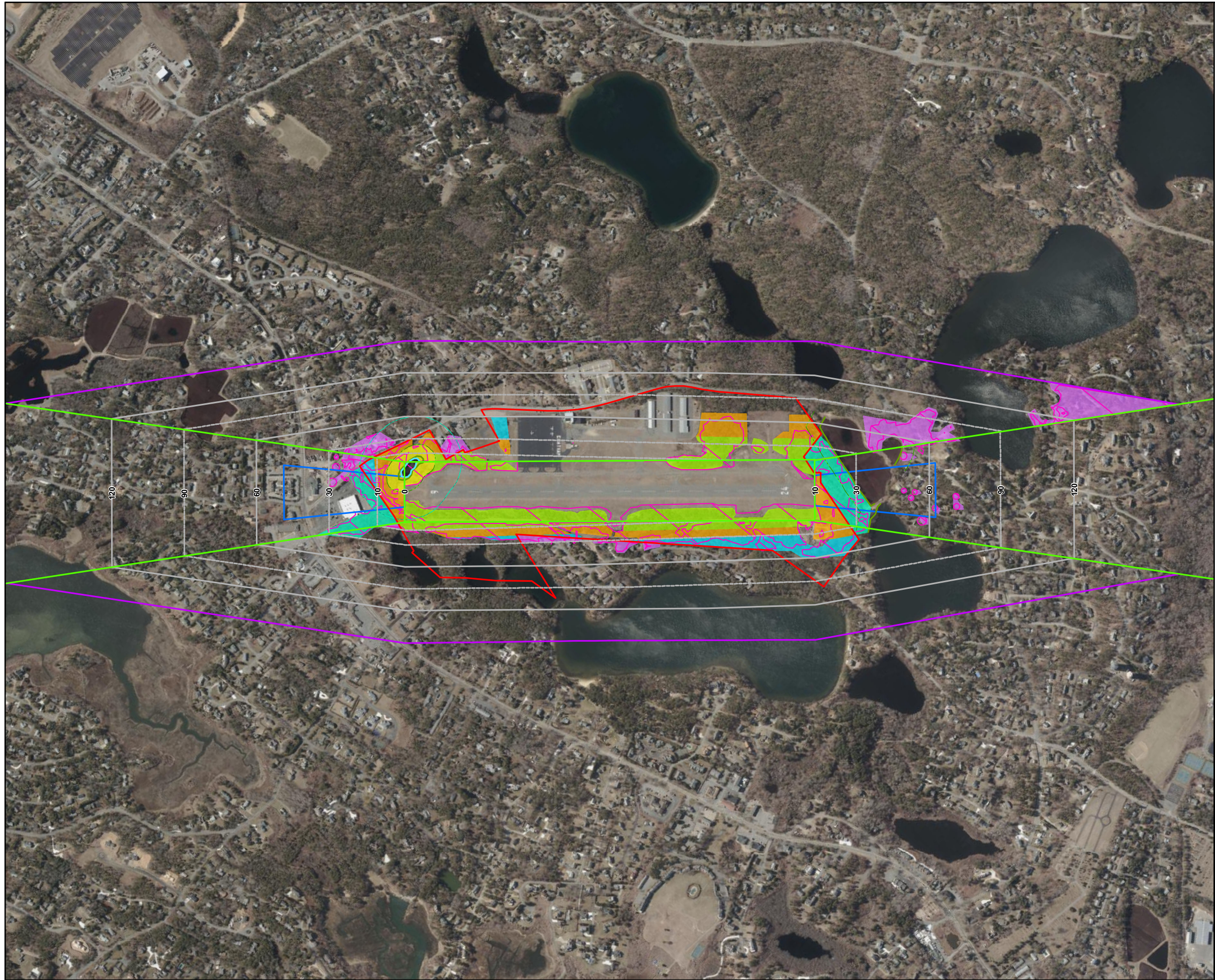


10.0 BIBLIOGRAPHY

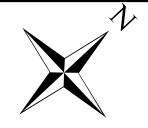
- Draft Generic Environmental Impact Report for Tree Clearing in Wetlands at Public Use Airports (EOEA # 8978). 1993. Massachusetts Aeronautics Commission and the Massachusetts Port Authority. March 1993.
- Environmental Data Resources, Inc Report, 2021. Prepared for GZA GeoEnvironmental, Inc. by Environmental Data Resources, Inc. January 2021.
- Final Generic Environmental Impact Report for Tree Clearing in Wetlands at Public Use Airports (EOEA # 8978). 1993. Massachusetts Aeronautics Commission and the Massachusetts Port Authority. August 1993.
- GEIR Update/Expanded Generic Environmental Notification Form (EOEA #12092). 1999. Massachusetts Aeronautics Commission, Massachusetts Port Authority, and the Department of Environmental Protection. November 1999.
- GEIR Update/Expanded Generic Environmental Notification Form (EOEA #13866). 2006. Massachusetts Aeronautics Commission, Massachusetts Port Authority, and the Department of Environmental Protection. June 2006.
- MEPA Status Report(s) Years 2000 through 2004, Statewide Vegetation Management Program. 2001. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants (GZA GeoEnvironmental Inc.). March 2001. February 2002. March 2003. February 2004.
- MEPA Status Report 2004, Statewide Vegetation Management Program. 2004. Prepared for the Massachusetts Aeronautics Commission by Baystate Environmental Consultants (GZA GeoEnvironmental Inc.). December 2004.
- Vegetation Management at Airports: A Guidance Document to Conservation Commissions. 2004. Massachusetts Aeronautics Commission, Massachusetts Port Authority, the Federal Aviation Administration, the Department of Environmental Protection, and Baystate Environmental Consultants, Inc. (GZA GeoEnvironmental Inc.).



APPENDIX 1
SHORT TERM PLAN



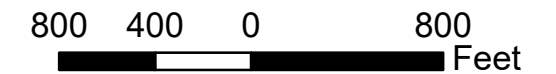
LEGEND



- APPROACH SURFACE
- WETLAND BOUNDARY
- VERNAL POOL
- 100 FT BUFFER
- 350 VP BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY
- EXISTING SURFACE OBSTRUCTIONS
- ON-AIRPORT TREE AND STUMP REMOVAL.
- ON-AIRPORT TREE REMOVAL, LEAVE STUMPS AND SHRUBS.
- ON-AIRPORT SELECTIVE TREE REMOVAL.
- ON-AIRPORT SELECTIVE TREE REMOVAL (VERNAL POOL ZONE).
- OFF AIRPORT LANDSCAPE TREE REMOVAL OF PENETRATIONS AND NEAR PENETRATIONS.
- OFF AIRPORT SELECTIVE TREE REMOVAL.

NOTES:

1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.



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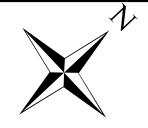
**CHATHAM AIRPORT VMP
CHATHAM, MA**

SHORT TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 1
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 800 ft	
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



LEGEND



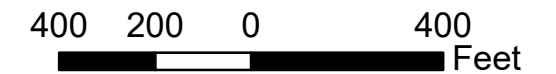
- APPROACH SURFACE
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- ON-AIRPORT SELECTIVE TREE REMOVAL (VERNAL POOL ZONE).
- OFF AIRPORT LANDSCAPE TREE REMOVAL OF PENETRATIONS AND NEAR PENETRATIONS.
- OFF AIRPORT SELECTIVE TREE REMOVAL.

CODE

- | | |
|------------------------|------------------------------|
| LR: LOGGING REMOVAL | h: LEAVE SHRUBS |
| LS: LANDSCAPED REMOVAL | v: VERNAL POOL |
| r: REMOVE LOGS | 1: AIRPORT |
| / FELLED TREES | 2: OFF AIRPORT (EASEMENT) |
| s: SELECTIVE REMOVAL | 3: OFF AIRPORT (NO EASEMENT) |
| t: REMOVE STUMPS | |

NOTES:

1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.

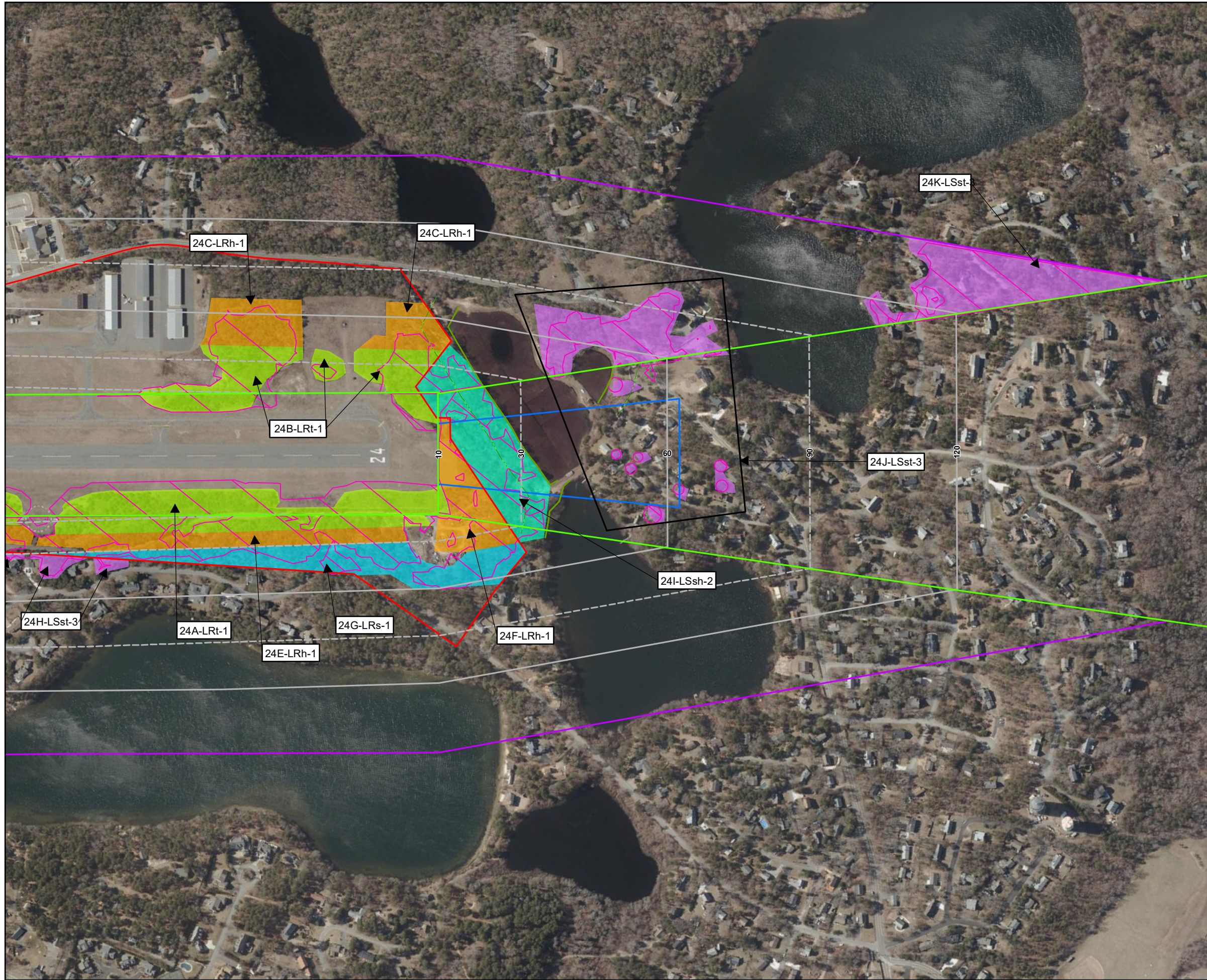


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**CHATHAM AIRPORT VMP
CHATHAM, MA**

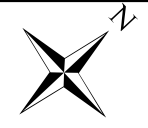
SHORT TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 2
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 400 ft	
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



LEGEND

- APPROACH SURFACE
- WETLAND BOUNDARY
- - - 100 FT BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY
- EXISTING SURFACE OBSTRUCTIONS
- ON-AIRPORT TREE AND STUMP REMOVAL.
- ON-AIRPORT TREE REMOVAL, LEAVE STUMPS AND SHRUBS.
- ON-AIRPORT SELECTIVE TREE REMOVAL.
- ON-AIRPORT SELECTIVE TREE REMOVAL (VERNAL POOL ZONE).
- OFF AIRPORT LANDSCAPE TREE REMOVAL OF PENETRATIONS AND NEAR PENETRATIONS.
- OFF AIRPORT SELECTIVE TREE REMOVAL.

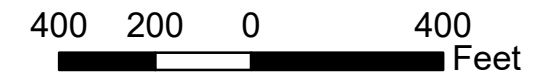


CODE

- | | |
|------------------------|------------------------------|
| LR: LOGGING REMOVAL | h: LEAVE SHRUBS |
| LS: LANDSCAPED REMOVAL | v: VERNAL POOL |
| r: REMOVE LOGS | 1: AIRPORT |
| / FELLED TREES | 2: OFF AIRPORT (EASEMENT) |
| s: SELECTIVE REMOVAL | 3: OFF AIRPORT (NO EASEMENT) |
| t: REMOVE STUMPS | |

NOTES:

1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.

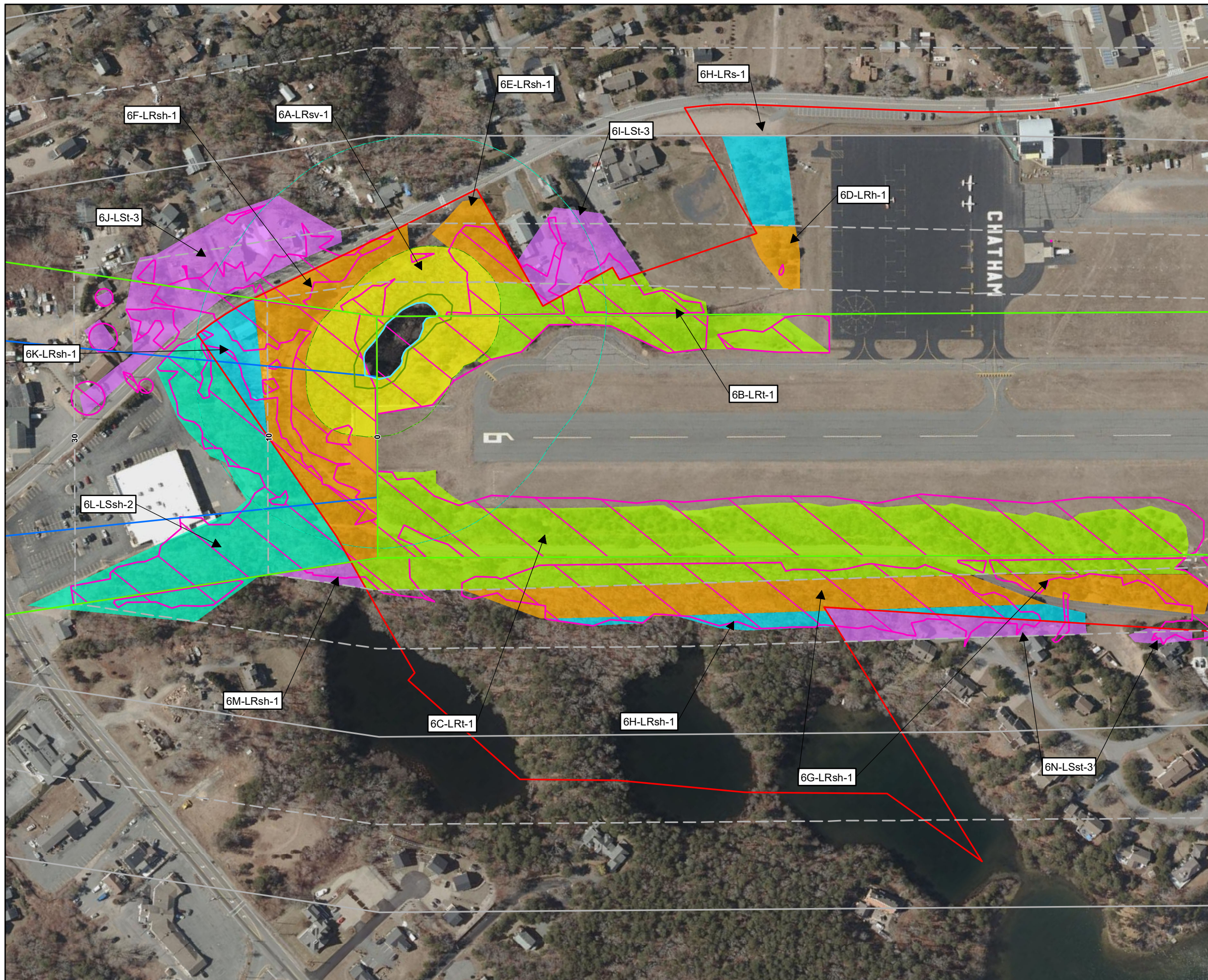


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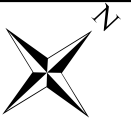
**CHATHAM AIRPORT VMP
CHATHAM, MA**

SHORT TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 3
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 400 ft	
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



LEGEND



- APPROACH SURFACE
- WETLAND BOUNDARY
- VERNAL POOL
- 100 FT BUFFER
- 350 VP BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY
- EXISTING SURFACE OBSTRUCTIONS
- ON-AIRPORT TREE AND STUMP REMOVAL.
- ON-AIRPORT TREE REMOVAL, LEAVE STUMPS AND SHRUBS.
- ON-AIRPORT SELECTIVE TREE REMOVAL.
- ON-AIRPORT SELECTIVE TREE REMOVAL (VERNAL POOL ZONE).
- OFF AIRPORT LANDSCAPE TREE REMOVAL OF PENETRATIONS AND NEAR PENETRATIONS.
- OFF AIRPORT SELECTIVE TREE REMOVAL.

CODE

- | | |
|------------------------|------------------------------|
| LR: LOGGING REMOVAL | h: LEAVE SHRUBS |
| LS: LANDSCAPED REMOVAL | v: VERNAL POOL |
| r: REMOVE LOGS | 1: AIRPORT |
| / FELLED TREES | 2: OFF AIRPORT (EASEMENT) |
| s: SELECTIVE REMOVAL | 3: OFF AIRPORT (NO EASEMENT) |
| t: REMOVE STUMPS | |

NOTES:

1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.

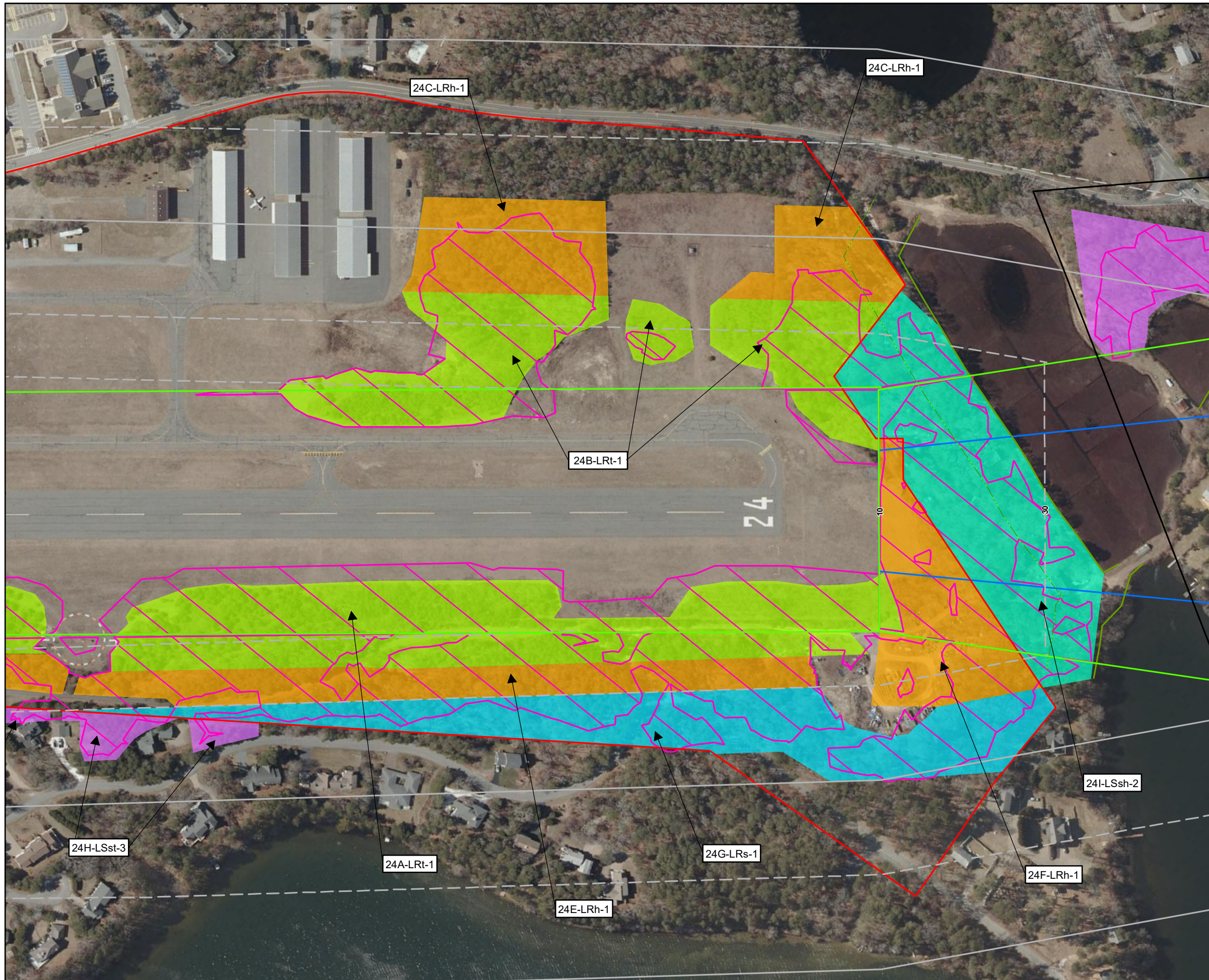


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**CHATHAM AIRPORT VMP
CHATHAM, MA**

SHORT TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 4
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 200 ft	
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



LEGEND

- APPROACH SURFACE
- WETLAND BOUNDARY
- 100 FT BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY
- EXISTING SURFACE OBSTRUCTIONS
- ON-AIRPORT TREE AND STUMP REMOVAL.
- ON-AIRPORT TREE REMOVAL, LEAVE STUMPS AND SHRUBS.
- ON-AIRPORT SELECTIVE TREE REMOVAL.
- OFF AIRPORT LANDSCAPE TREE REMOVAL OF PENETRATIONS AND NEAR PENETRATIONS.
- OFF AIRPORT SELECTIVE TREE REMOVAL.

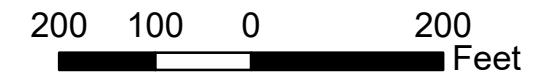


CODE

- | | |
|------------------------|------------------------------|
| LR: LOGGING REMOVAL | h: LEAVE SHRUBS |
| LS: LANDSCAPED REMOVAL | v: VERNAL POOL |
| r: REMOVE LOGS | 1: AIRPORT |
| / FELLED TREES | 2: OFF AIRPORT (EASEMENT) |
| s: SELECTIVE REMOVAL | 3: OFF AIRPORT (NO EASEMENT) |
| t: REMOVE STUMPS | |

NOTES:

1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.



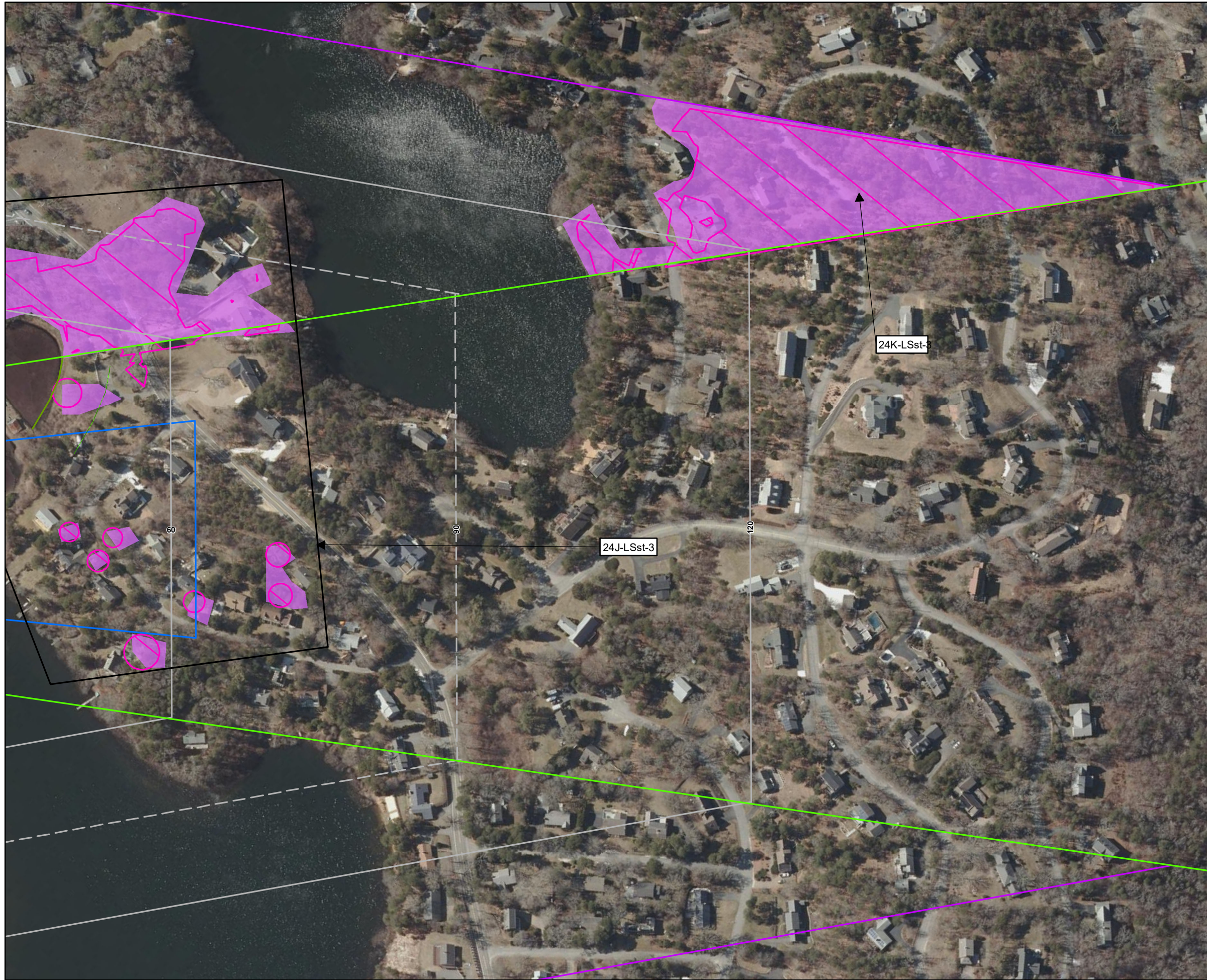
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CHATHAM AIRPORT VMP
CHATHAM, MA

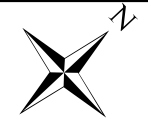
SHORT TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com	PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189
---	---

PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 5
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 200 ft	
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



LEGEND



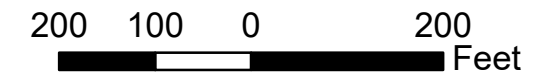
- APPROACH SURFACE
- WETLAND BOUNDARY
- 100 FT BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY
- EXISTING SURFACE OBSTRUCTIONS
- ON-AIRPORT TREE AND STUMP REMOVAL.
- ON-AIRPORT TREE REMOVAL, LEAVE STUMPS AND SHRUBS.
- ON-AIRPORT SELECTIVE TREE REMOVAL.
- OFF AIRPORT LANDSCAPE TREE REMOVAL OF PENETRATIONS AND NEAR PENETRATIONS.
- OFF AIRPORT SELECTIVE TREE REMOVAL.

CODE

- | | |
|------------------------|------------------------------|
| LR: LOGGING REMOVAL | h: LEAVE SHRUBS |
| LS: LANDSCAPED REMOVAL | v: VERNAL POOL |
| r: REMOVE LOGS | 1: AIRPORT |
| / FELLED TREES | 2: OFF AIRPORT (EASEMENT) |
| s: SELECTIVE REMOVAL | 3: OFF AIRPORT (NO EASEMENT) |
| t: REMOVE STUMPS | |

NOTES:

1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.



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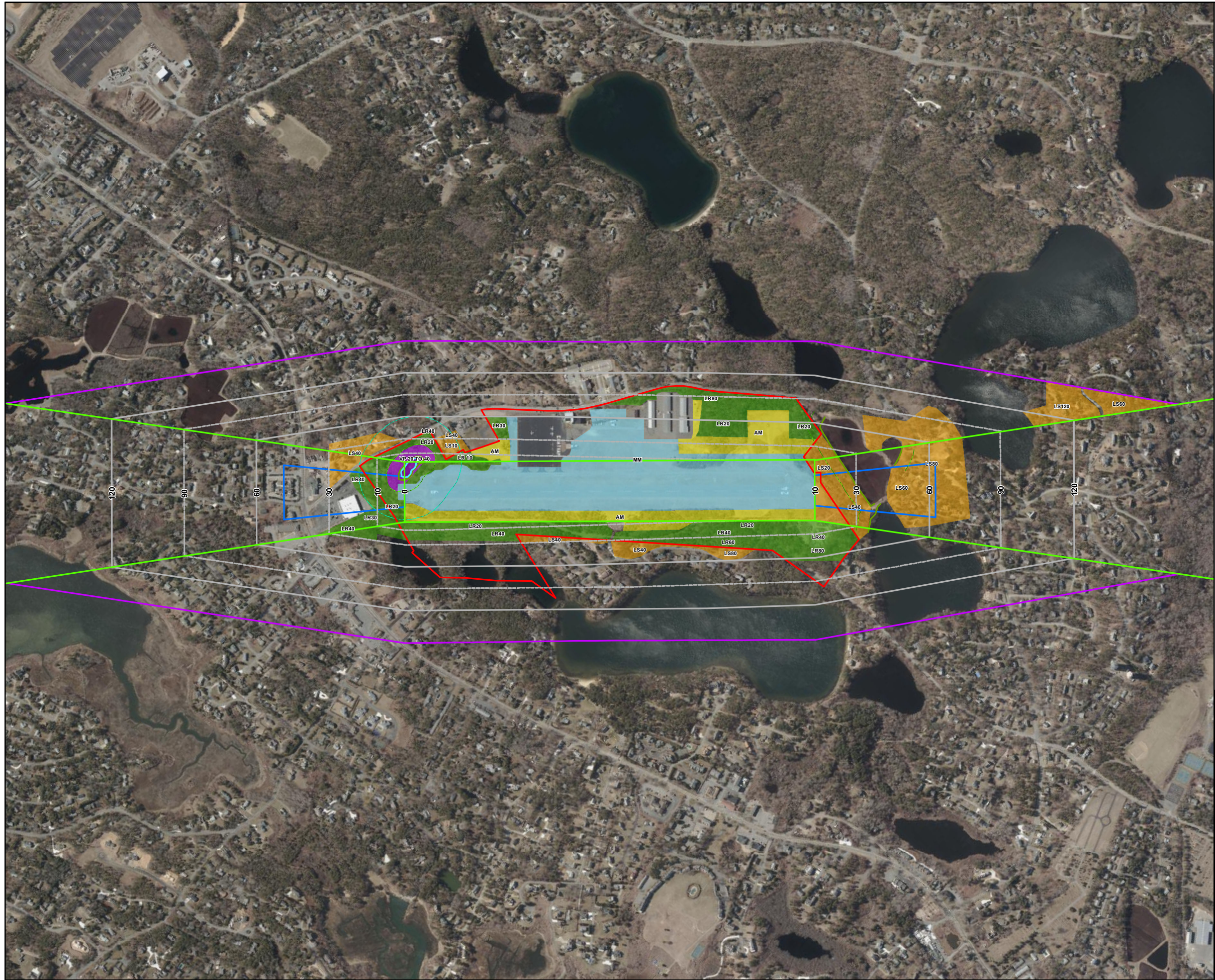
**CHATHAM AIRPORT VMP
CHATHAM, MA**

SHORT TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 6
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 200 ft	
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



APPENDIX 2
LONG TERM MANAGEMENT PLAN



LEGEND

- APPROACH SURFACE
- WETLAND BOUNDARY
- VERNAL POOL
- 100 FT BUFFER
- 350 VP BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY

MAINTENANCE AREAS

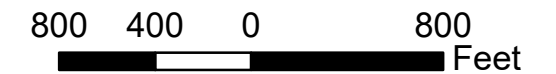
- MM: Monthly Mowing
- AM: Annual Mowing
- VP: Special Vernal Pool Management Zone
- LS20: Landscape Removal - Tree Height
- LR20: Logging Removal - Tree Height

HEIGHT ZONES:

- 10: Remove all vegetation over 10' (short shrub zone)
- 20: Remove all vegetation over 20' (tall shrub zone)
- 30: Remove all vegetation over 30' (short tree zone)
- 40: Remove all trees over 40' (medium tree zone)
- 60: Remove all trees over 60' (medium tree zone)
- 80: Remove all trees over 80' (tall tree zone)

NOTES:

1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.

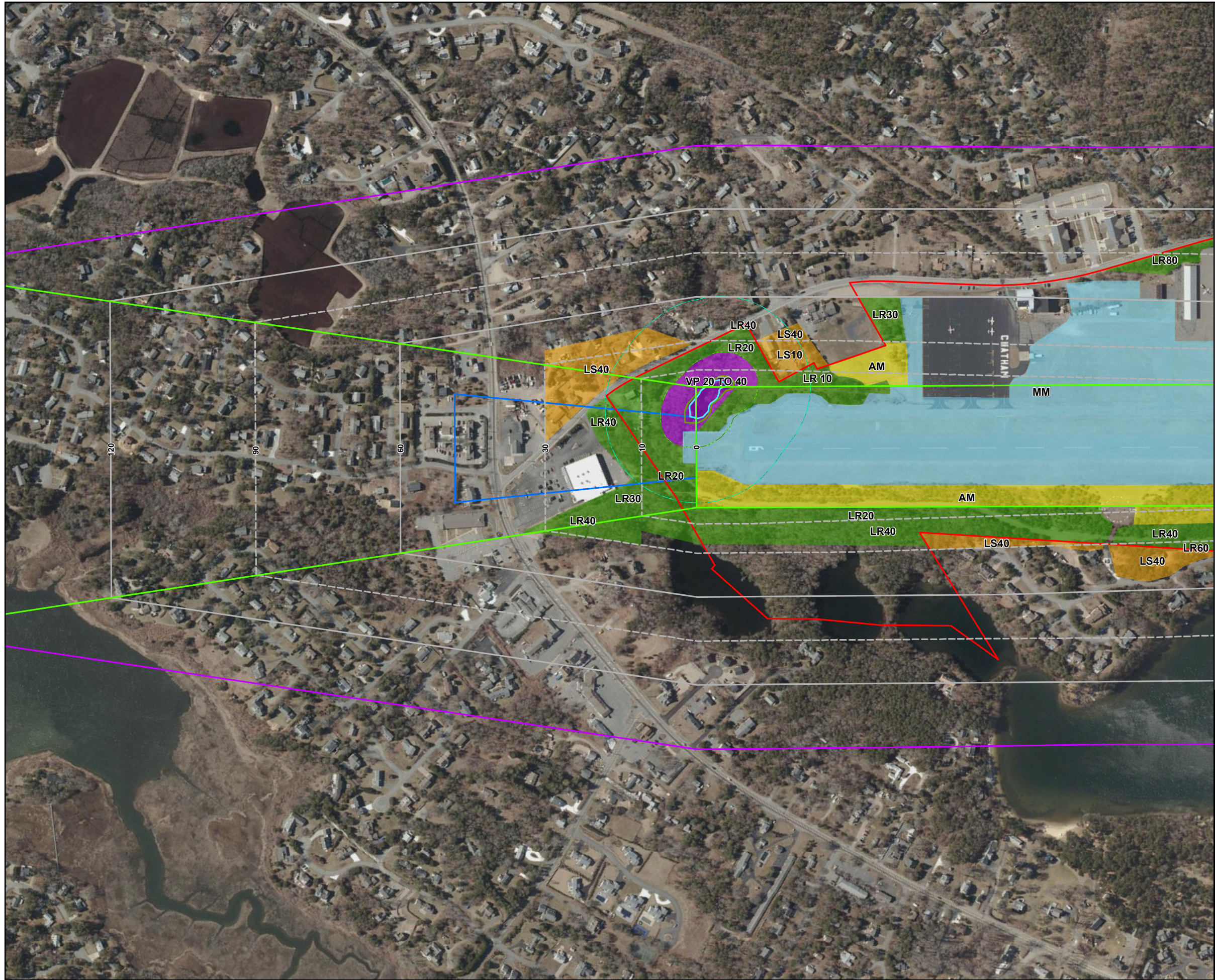


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**CHATHAM AIRPORT VMP
CHATHAM, MA**

LONG TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 1
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 800 ft	
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



LEGEND

- APPROACH SURFACE
- WETLAND BOUNDARY
- VERNAL POOL
- 100 FT BUFFER
- 350 VP BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY

MAINTENANCE AREAS

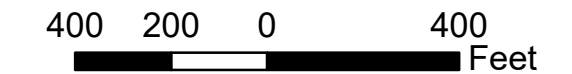
- MM: Monthly Mowing
- AM: Annual Mowing
- VP: Special Vernal Pool Management Zone
- LS20: Landscape Removal - Tree Height
- LR20: Logging Removal - Tree Height

HEIGHT ZONES:

- 10: Remove all vegetation over 10' (short shrub zone)
- 20: Remove all vegetation over 20' (tall shrub zone)
- 30: Remove all vegetation over 30' (short tree zone)
- 40: Remove all trees over 40' (medium tree zone)
- 60: Remove all trees over 60' (medium tree zone)
- 80: Remove all trees over 80' (tall tree zone)

NOTES:

1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.

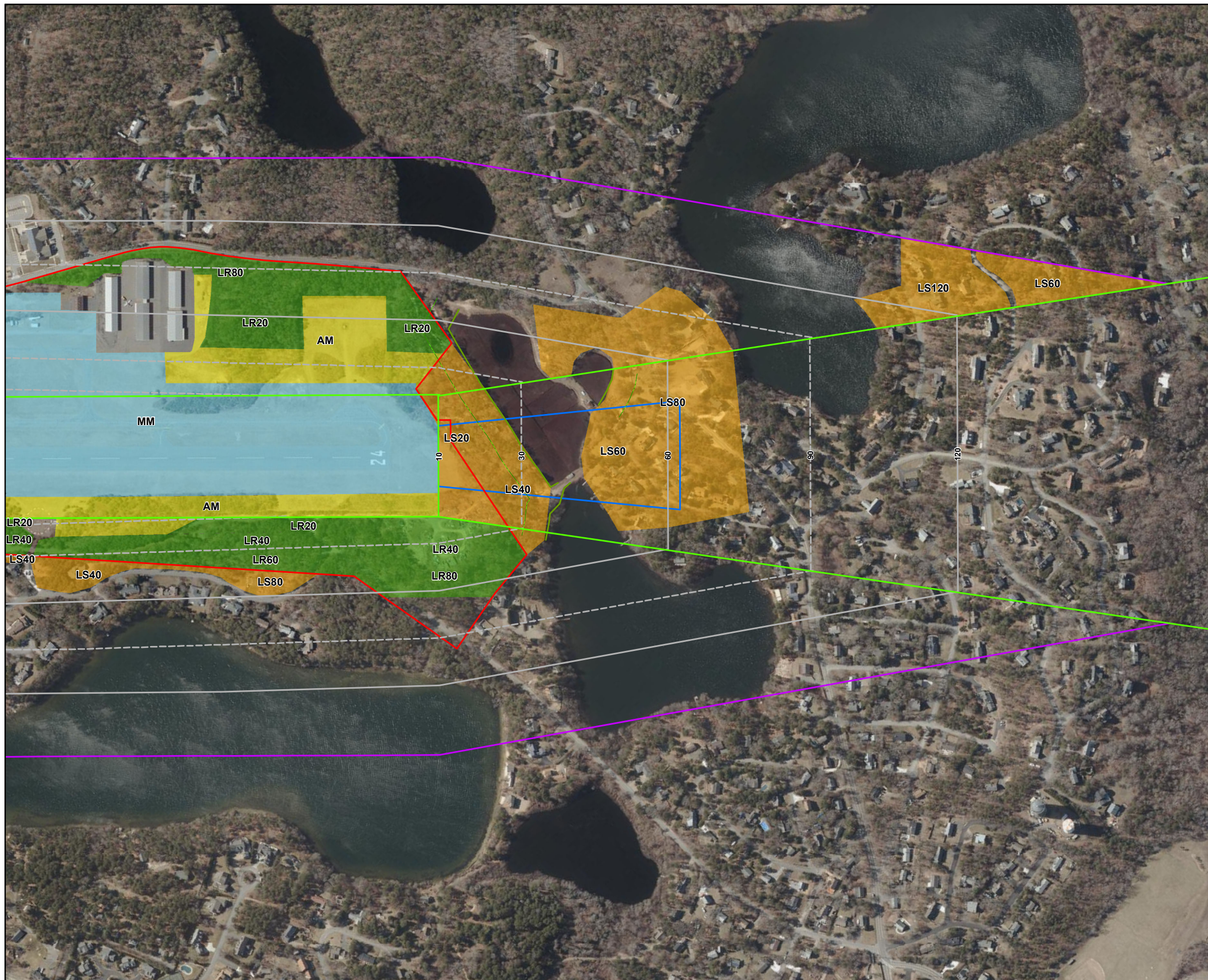


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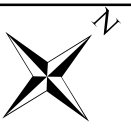
**CHATHAM AIRPORT VMP
CHATHAM, MA**

LONG TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	DESIGNED BY: JRC	REVIEWED BY: GPD	CHECKED BY: SLL
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	SCALE: 1 in = 400 ft	REVISION NO: -
			2



LEGEND



- APPROACH SURFACE
- WETLAND BOUNDARY
- 100 FT BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY

MAINTENANCE AREAS

- MM: Monthly Mowing
- AM: Annual Mowing
- VP: Special Vernal Pool Management Zone
- LS20: Landscape Removal - Tree Height
- LR20: Logging Removal - Tree Height

HEIGHT ZONES:

- 10: Remove all vegetation over 10' (short shrub zone)
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NOTES:

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**CHATHAM AIRPORT VMP
CHATHAM, MA**

LONG TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 3
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 400 ft	
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



LEGEND

- APPROACH SURFACE
- WETLAND BOUNDARY
- VERNAL POOL
- 100 FT BUFFER
- 350 VP BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY

MAINTENANCE AREAS

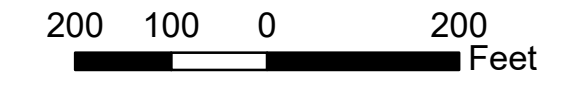
- MM: Monthly Mowing
- AM: Annual Mowing
- VP: Special Vernal Pool Management Zone
- LS20: Landscape Removal - Tree Height
- LR20: Logging Removal - Tree Height

HEIGHT ZONES:

- 10: Remove all vegetation over 10' (short shrub zone)
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- 60: Remove all trees over 60' (medium tree zone)
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NOTES:

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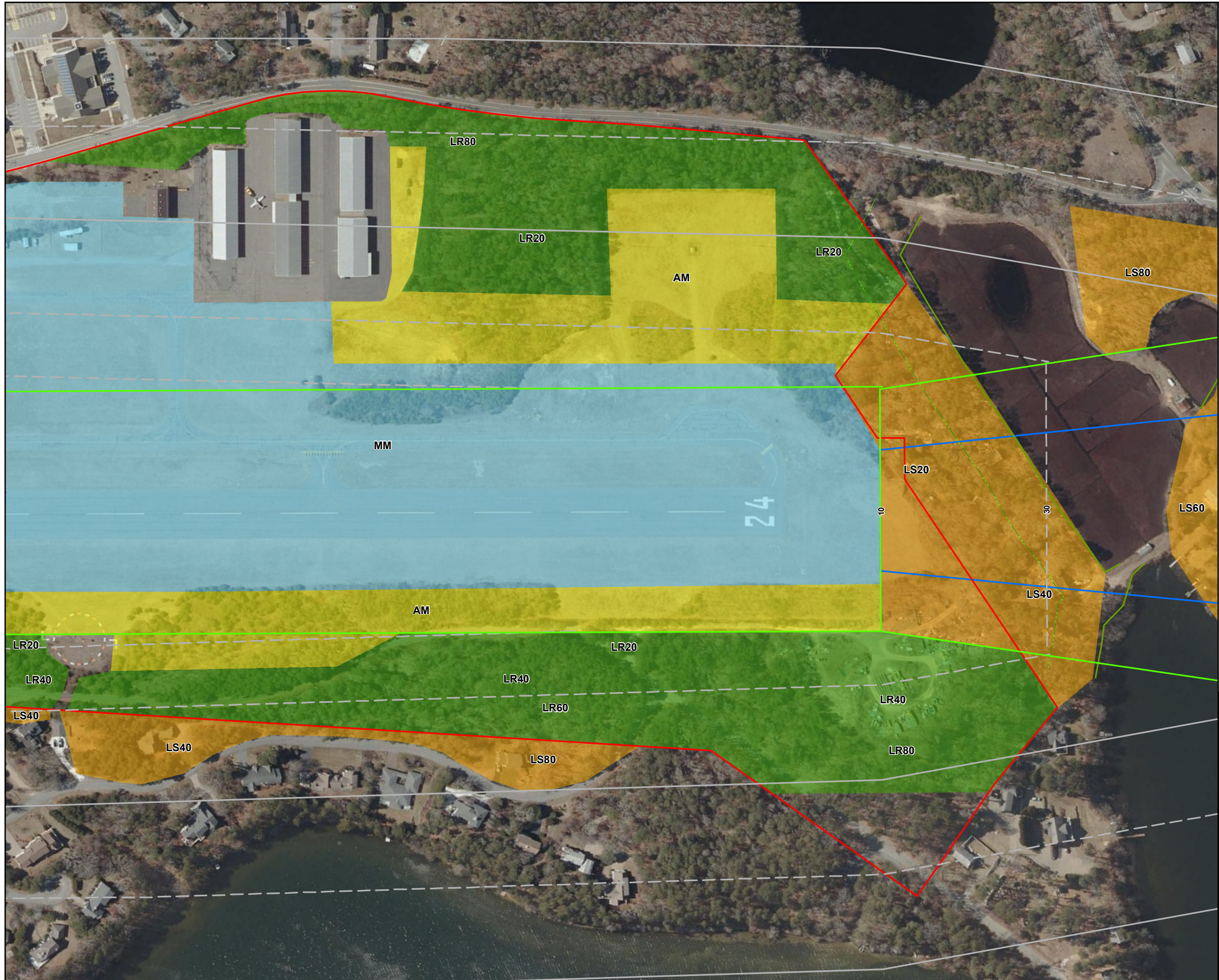


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**CHATHAM AIRPORT VMP
CHATHAM, MA**

LONG TERM VMP PLAN

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PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 4
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 200 ft	
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



LEGEND

- APPROACH SURFACE
- WETLAND BOUNDARY
- 100 FT BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY

MAINTENANCE AREAS

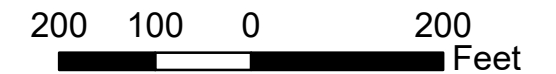
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1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.



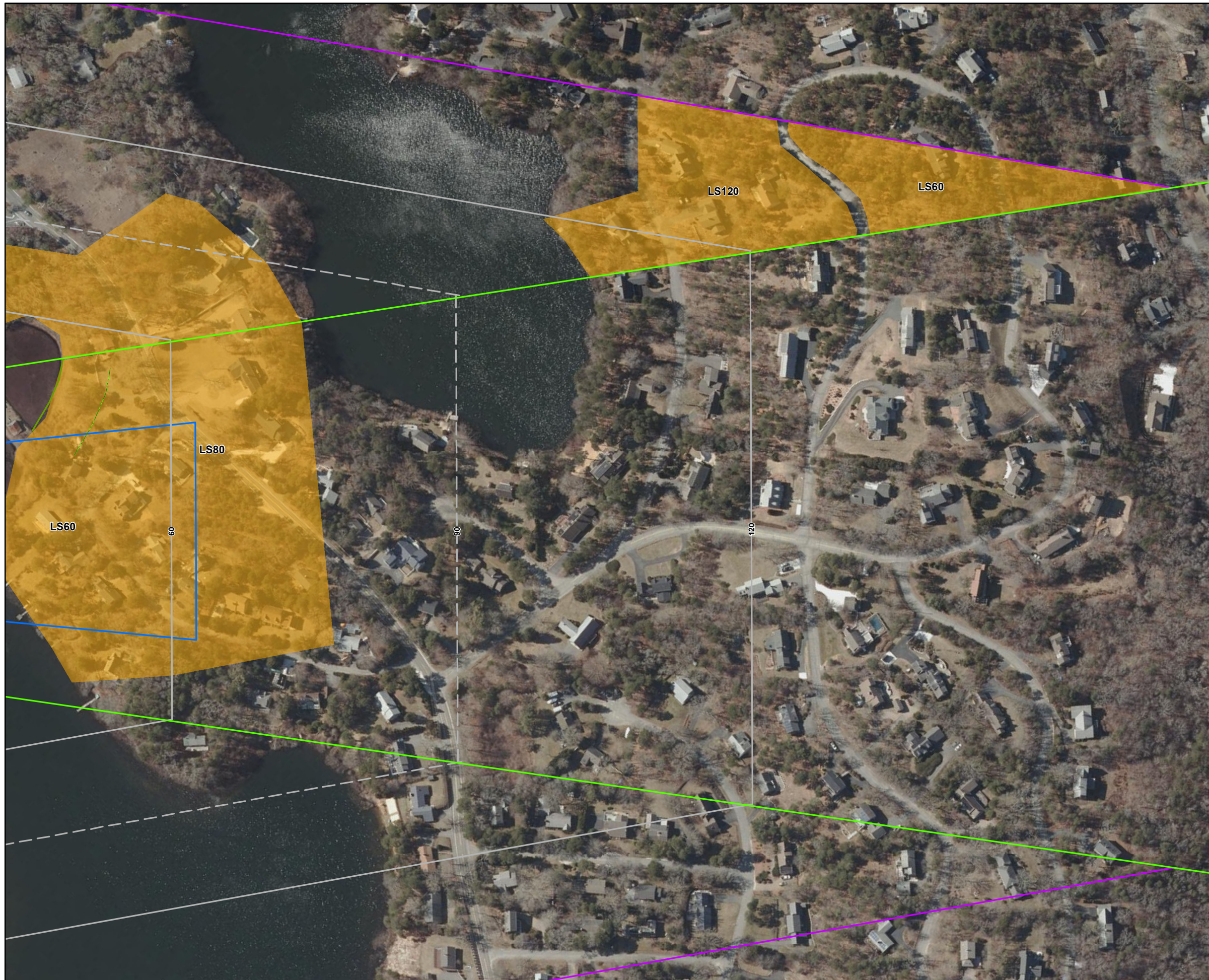
UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR THE USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

**CHATHAM AIRPORT VMP
CHATHAM, MA**

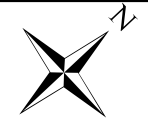
LONG TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
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PROJ MGR: SDR	DESIGNED BY: JRC	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE 5
DATE: 04/12/2021	DRAWN BY: JRC	PROJECT NO: 15.0166692.03	SCALE: 1 in = 200 ft	
		REVISION NO: -		



LEGEND



- APPROACH SURFACE
- WETLAND BOUNDARY
- 100 FT BUFFER
- SURFACE TOPO
- TRANSITIONAL SURFACE
- RUNWAY PROTECTION ZONE
- AIRPORT PROPERTY

MAINTENANCE AREAS

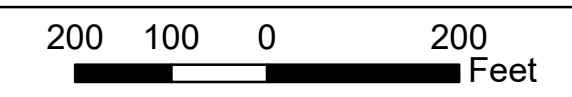
- MM: Monthly Mowing
- AM: Annual Mowing
- LS20: Landscape Removal - Tree Height
- LR20: Logging Removal - Tree Height

HEIGHT ZONES:

- 10: Remove all vegetation over 10' (short shrub zone)
- 20: Remove all vegetation over 20' (tall shrub zone)
- 30: Remove all vegetation over 30' (short tree zone)
- 40: Remove all trees over 40' (medium tree zone)
- 60: Remove all trees over 60' (medium tree zone)
- 80: Remove all trees over 80' (tall tree zone)

NOTES:

- 1. BASE MAP SOURCE: MASSACHUSETTS 2019 USGS COLOR ORTHO IMAGERY.



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**CHATHAM AIRPORT VMP
CHATHAM, MA**

LONG TERM VMP PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PREPARED FOR: GALE ASSOCIATES INC 163 LIBBEY PARKWAY WEYMOUTH, MA 02189	
PROJ MGR: SDR	REVIEWED BY: GPD	CHECKED BY: SLL	FIGURE
DESIGNED BY: JRC	DRAWN BY: JRC	SCALE: 1 in = 200 ft	6
DATE: 04/12/2021	PROJECT NO: 15.0166692.03	REVISION NO: -	



GZA GeoEnvironmental, Inc.

Listing of Public Comments

Chatham Municipal Airport

Draft Environmental Assessment (EA)

Correspondence Submitted

During Public Comment Period

May 20, 2021 – July 6, 2021

Terry Whalen

From: Kyle Takakjian <vf51@comcast.net>
Sent: Wednesday, June 09, 2021 7:34 AM
To: Huntley Harrison; Terry Whalen
Subject: Chatham Airport, Alternative 4

Dear Members of the Airport Commission,

I'm a retired full-time resident of Chatham, and live under the approach path to runway 6. I purposely moved to Chatham because of the airport. The safety of our residents and pilots is of the utmost importance to me.

Using the most advanced landing systems available to the Chatham Airport is the only prudent option. They bring aircraft into the airport on a consistent, precise approach path that minimizes the time it takes for landing. This equates to less circling at low altitudes and less noise for surrounding neighborhoods. Currently, the radio beacon approach system uses old equipment, that can't be purchased new, and in most cases, is unrepairable. The FAA is decommissioning these radio beacons all over the country. Why would the Airport Commission continue to support such a system?

Option 4 reduces the effected properties from 47 to 21 needing tree trimming or cutting. The town has a bylaw requiring this to be done, and it should be enforced for the safety of those on the ground and in the air.

I strongly urge you to pursue alternative #4 for the safety of all involved.

Respectfully,

Kyle Takakjian

Chatham

Terry Whalen

From: John Burke <john@johnburkelaw.com>
Sent: Wednesday, June 09, 2021 12:18 PM
To: Airport Commission
Subject: Draft Environmental Assessment

Dear Commission Members:

I am unable to attend this evening's Commission meeting but wish to be on record with respect to your consideration of the recommendations set forth in the Draft Environmental Assessment (EA)

I am a Chatham resident and I live in close proximity to the airport. I am also a pilot of many years. I have reviewed the EA and wish to note my strong support for Alternative 4.1.4 concerning the acquisition of the needed avigation easements. This action is especially important to the safety of residents living in close proximity to the airport and all others that use the facility. This is long overdue. As you know, there's been a long-standing, but woefully unenforced, Chatham Bylaw (Airport Approach Protection, Section 100-1-6) that already establishes limits to structures and vegetation. Obviously, this bylaw has not worked. I believe that the establishment of specific avigation easements will be of benefit in enforcing the original intent of the town's bylaws.

Thank you.

John P. Burke, Esq.
5 Ridge Cove Lane
Chatham, MA 02633
508-735-6065
john@johnburkelaw.com

Terry Whalen

From: Stella S. Ross <stelross@gmail.com>
Sent: Wednesday, June 09, 2021 5:48 PM
To: Airport Commission
Subject: Support for Alternative #4

To the Chatham Airport Commission:

My family & I have been coming to Chatham since 1998. I'm now retired, and while not quite living in Chatham fulltime, that's the plan. We've owned a home here for many years. We chose to retire to Chatham for many reasons, including the desire to live in a town *with* an airport.

Safety was a primary consideration as we considered aging in Chatham.

- It's important to us that in the event of a natural disaster (hurricanes, the rare tornado), supplies can arrive quickly and anyone hurt can be airlifted as necessary. What if Route 6 were closed, or cars were lined up bumper-to-bumper?
- In the event of a life-threatening medical need, we would certainly seek to fly, rather than drive, to an off-Cape hospital if we needed care elsewhere.
- New technologies increase safety! Is there a neighborhood in Chatham that looks the same as it did fifty years ago? Every home, every car, every family has benefitted from smart technologies introduced over the past several decades. It's common sense that 21st c. approaches to landing aircraft are safer than those of old, and that technologies that provide vertical, in addition to horizontal, guidance will greatly increase safety.

I support Alternative Number 4.

Stella S. Ross

Chatham, MA & Storrs, CT

Terry Whalen

From: Kenneth Bacow <kbacow@gmail.com>
Sent: Wednesday, June 09, 2021 8:47 PM
To: Airport Commission
Subject: In support of option #4

Dear members of the airport commission,

Thank you for the opportunity to speak at tonight's meeting. As I mentioned, I am strongly in favor of option #4, due to the increased safety that more modern instrument approaches will bring to the pilots and passengers that use Chatham airport, as well as to the many residents and homeowners (including myself, my wife, and our two small children) who have homes near the airport.

I was always taught to take good care of things, and in my mind this includes making regular and periodic updates to homes, property, and yes, airports. The current instrument approaches are archaic and not as safe as the modern approaches the residents of Chatham should expect.

Finally, as I mentioned tonight, this airport could save the life of anyone in Chatham and the nearby communities should a medical evacuation flight ever be necessary. The airport is a community resource and one we should continue to support and protect.

Thank you again for all that you do on behalf of the town and the airport.

Ken Bacow
405 Riverview Drive
Chatham, MA 02633

Terry Whalen

From: Gerry Stahl <Gerry@gerrystahl.net>
Sent: Thursday, June 10, 2021 6:53 PM
To: Airport Commission
Subject: Comments on Environmental Assessment of CXQ AMPU

The "Assessment" was conducted by Gale, who proposed the actions in the first place. It is not an objective environmental assessment by an unbiased investigator. Rather it is a repeated argument for the options that Gale and the Airport Manager have pushed for all along. While it appears to present multiple options, it stresses the advantages of the option preferred by Gale and the supposed disadvantages of any and all alternatives. It is not an honest assessment of the AMPU's impacts, but a rationalization, justification or cover-up. It is the hen house being guarded by the sly fox. This assessment was more a job application by Gale to the AC for renewal of Gale's contract as a loyal front-man for the Airport Manager's private financial interests.

The report does not assess the impact of all aspects of the AMPU, such as the jet-fuel increase, which would significantly increase carbon emissions. At a time when the federal, state and local governments are mandating decreasing carbon footprints, Gale is recommending the opposite. The jet fuel increase is excluded from the assessment on the grounds that it would not take place in the near future, although the RFQ included in the same AC package lists the Jet "A" Fueling Facility as scheduled before the construction of the hangers, which are assessed.

The flippant environmental conclusion is: "While the project would ultimately result in a **slight increase in aircraft traffic and associated GHG emission**, it is anticipated that this increase would have a **negligible impact on climate**." Of course, no local action is going to significantly impact the global climate, but it is such callous disregard for local emissions that originally caused climate change, and it is necessary for everyone to decrease emissions, not down-play planned but avoidable increases. The AMPU assumptions of slight increases in aircraft traffic is itself suspect, given Gale's consistent concern with "the viability of the Airport's role in the National Plan of Integrated Airport Systems." It is likely that this is a dog whistle for significant commercial flights, serving the increasing number of post-pandemic wealthy Chatham and Orleans home buyers. The entire AMPU designed by Gale can now be seen as a restructuring of the airport for this purpose. It is interesting that the AC's public relations effort has recently been focused on denying this planned increase in commercial flights.

Of course, the worst part of the assessment is that it is still pushing for the maximum number of aviation easements. There is no mention of the social impact of this assault on residents, which it euphemistically refers to as "isolated portions of selective vegetation management." Two years of vocal protest by the community has had no effect at all on the plans of Gale, the Airport Manager, the AC, the Select Board or the Town management, who all seem to support this continuing lack of assessment.

My own assessment is that the AMPU has already caused significant social impacts, increasing tensions and divisions in our community. This so-called Assessment is an affront to the many Chatham residents and nonprofit organizations who are struggling to lower carbon footprints, save trees and protect wetlands. How can Town representatives remain silent when the interests and environment of most residents are being so callously ignored?

-- Gerry Stahl, West Chatham full-time resident

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Saturday, June 12, 2021 4:42 PM
To: Airport Commission
Cc: Jill Goldsmith; Terry Whalen
Subject: Avigation easement notifications

Airport Commission:

Huntley, now that the AE is out for public review and comment, can you tell me if the commission has notified the owners of properties targeted for easement takings? How are they notified?

Thank you.

David Bixby

Sent from my iPhone

Terry Whalen

From: Gerry Stahl <Gerry@gerrystahl.net>
Sent: Sunday, June 13, 2021 12:32 PM
To: Airport Commission
Subject: response to airport environmental assessment
Attachments: Assessing the Town Airport's Environment.docx

Please see attached document and forward it to the FAA

Sincerely,
-- *Gerry Stahl*

Assessing the Town Airport's Environment

Chatham land use and Airport expansion have been developing for many years without coordination, creating serious conflicts between residential development and increasing air traffic. The Airport Master Plan (AMPU) for the coming 20 years should have been an opportunity to finally adjust airport operation to its residential surroundings, which have become densely congested since the airport was a field in farmland long ago. Given the emergency of climate change, the AMPU should have also been taken as an opportunity to reduce the impact of the airport on the physical environment. Unfortunately, the Airport Commission (AC) is relentlessly pursuing a plan that does the opposite, and it has now tried to justify its plan with a so-called Environmental Assessment that obfuscates environmental and social stressors.

The AC has ignored the interests of residents and treated them as the enemy, rather than as the legal owners of the Airport. Instead of seeking a plan for the airport which preserves the charm, relaxing atmosphere and natural environment that homeowners and vacationers value, the AC pushes to further expand airport traffic, including larger, noisier commercial flights. It should pull back the RPZ "crash zones" away from the populated West Chatham Village and Great Hill. Noise should be reduced and confined to reasonable daytime hours.

The AMPU should adopt a "net-zero" option that reduces pollution and preserves trees and wetlands. Chatham residents and nonprofits are struggling to reduce their carbon footprint. The federal, state and local governments are mandating conservation and reduction of CO₂. Yet, the AC plan runs headlong in the opposite direction.

The recently released "Environmental Assessment" was conducted by Gale Associates, the AC consultant who proposed the Plan in the first place. It is not an objective scientific assessment of the AMPU's impacts, but a rationalization, justification or cover-up. It is the fox guarding the hen house. This Assessment was more a job application by Gale to the AC for renewal of Gale's contract (immediately granted upon submission of the assessment) as a loyal front man for the Airport Manager's personal financial interests.

The report does not assess the impact of all aspects of the AMPU, such as the jet-fuel increase, which would significantly increase carbon emissions. The jet fuel tank is excluded from the assessment on the grounds that it would not take place in the near future, although the RFQ included in the same AC package lists the Jet "A" Fueling Facility as scheduled before the construction of the hangers, which are assessed.

The flippant environmental conclusion of the Assessment is: "While the project would ultimately result in a slight increase in aircraft traffic and associated GHG emission, it is anticipated that this increase would have a negligible impact on climate." Of course, no local action by itself is going to significantly impact the global climate, but it is such callous disregard for green-house gas (GHG) emissions at individual sources that has in sum caused climate change, and it is necessary for everyone to decrease emissions, not down-play planned but avoidable increases. Chatham should be setting an example of conservation, not flaunting the excessive exploitation of natural resources.

The AMPU assumption of slight increases in aircraft traffic is itself suspect, given the AC's repeated concern with "the viability of the Airport's role in the National Plan of Integrated Airport Systems." It is likely that this is an FAA dog whistle for significant commercial flights,

serving the increasing number of post-pandemic wealthy Chatham and Orleans home buyers. The entire AMPU designed by Gale can now be seen as a restructuring of the airport for this purpose. It is interesting that the AC's public relations effort has recently been focused on justifying this increase in commercial flights.

Of course, the worst part of the Assessment is that it is still pushing for dozens of aviation easements. There is no mention of the social impact of this assault on the community, which it euphemistically refers to as "isolated portions of selective vegetation management."

My own assessment is that the AMPU has already caused significant social impacts, increasing tensions and divisions in Chatham. In addition, Gale's so-called Assessment is an affront to the many people and organizations concerned about the environment.

It is time to resolve the conflicts that have arisen by planning for an airport suited to the current and future development of the area and to climate change. The most damaging options of the AMPU will soon be pushed through by the AC, and the conflict between the Airport and the Town will be cast in concrete for the next 20 years unless the opportunity for a responsible forward-looking plan is taken advantage of immediately.

-- Gerry Stahl is a full-time resident of West Chatham.

Terry Whalen

From: mflusberg@comcast.net
Sent: Sunday, June 20, 2021 9:17 AM
To: Airport Commission
Cc: 'Tager-Flusberg, Helen B'
Subject: Environmental Assessment

Chatham Airport Commission,

I would like to make some comments regarding the Environmental Assessment.

I have multiple concerns regarding the potential overall impacts of the Airport Master Plan, but will stay focused specifically on the Environmental Assessment. In fact, I will stay focused on one specific statement.

The plan is to seek the acquisition of aviation easements for up to 21 properties. The Environmental Assessment states: **“There are no environmental impacts associated with the acquisition of aviation easements”**.

Here is an abridged description, not described at all in the Assessment, of what the Easements include:

The appurtenant rights and benefits include the uses, rights and restrictions described as follows:

The unobstructed use and passage of all types of aircraft in and through the airspace at any height or altitude above the surface of the land. The right of said aircraft to cause noise, vibrations, fumes, deposits of dust, fuel particles (incidental to the normal operation of aircraft); fear, interference with sleep or communication, and any other effects associated with the normal operation of aircraft taking off, landing or operating in the vicinity of (Airport). As used herein, the term “aircraft” shall mean any and all types of aircraft, whether now in existence or hereafter manufactured and developed, to include jet, propeller-driven, civil, military or commercial aircraft; helicopters, regardless of existing or future noise levels, for the purpose of transporting persons or property through the air, by whoever owned or operated.

The Grantors (property owners) agree that during the life of this easement, they will not construct, erect, suffer to permit or allow any structure or trees on the surface of the burdened property.

Grantors agree to waive all damages and claims for damages caused or alleged to be caused by the Grantors violation of any aspect of this easement document. The (Airport) has a perpetual right of ingress/egress in the easement area and the right to remove any new structure or vegetation that is not specifically mentioned above as “accepted”.

Now, granted, the largest impact on the affected property owners will be financial, not environmental. Property values will plummet. We could see a reduction of perhaps \$10 million or more in property values, with a direct associated impact on property taxes paid to the town.

And there will clearly be physical and emotional impacts on the property owners as well. And, certainly, the affected property owners and their neighbors will feel much less safe – not safer as suggested by the goals of the plan.

But how can the removal of trees, not to mention noise, vibrations, fumes and the deposit of dust and fuel particles, not have any environmental impacts? To suggest that is totally illogical and disingenuous. It can have a meaningful environmental impact on the properties directly affected as well as nearby properties – and therefore on the Town of Chatham as a whole.

One related topic; both the Environmental Assessment and the Easement refer to tree removal. If the issue is that some trees have grown too tall in relation to the airport approaches, why not trim the trees? Certainly they should be able to be taller than the houses they surround; there is no compelling reason to remove them. Or to require easements.

If the goal of the Master Plan is safety, that can be more easily accomplished with a simple solution: in inclement weather require all pilots to land at Hyannis. No exceptions.

Martin Flusberg
Chatham

Terry Whalen

From: David Smith <dm99smith@hotmail.com>
Sent: Tuesday, June 22, 2021 4:46 PM
To: Airport Commission
Subject: Comments on the Airport Environmental Plan

We are Chatham homeowners, and live on the flight path of the airport. We've seen the many changes since we moved here full time in 2007, but the one most disturbing is the increasing number of charter flights bringing summer visitors starting at 5:30am from Friday through Monday. We are most disturbed by the changes to the airport contemplated by the AMP, apparently intended to increase the frequency of such flights and the proximity to the houses in our Great Hill neighborhood. We have lived in the vicinity of both Chicago O'Hare and London Heathrow airports and know how disruptive the noise can be.

We read the Environmental Assessment and have a few comments.

1. It is very unprofessional to have the same consulting firm produce both the AMP and the EA, and declare that there are minimal impacts. A clear conflict of interest.
2. It is clear that there will be significant impacts as a result of significant tree pruning and cutting. To say otherwise is to insult the Chatham residents who will be affected.
3. It is also clear that the lack of airport safety zones is a significant risk to both the pilots who utilize the airport and the citizens of Chatham who lie within the flight path. The AMP minimizes that risk and is disingenuous at best and duplicitous at worst.
4. We are not at all unsympathetic to the need to improve flight safety, but not at the cost of increasing noisy, disturbing charter traffic. We cannot talk on our deck when the turboprops land, and that is not character of the airport we want in Chatham.
5. Lastly, there is nothing in the AMP or EA about the potential impact upon Chatham property owners who will be affected by the avogation easements, which will most certainly reduce the value of their homes, nor the impact on Chatham taxpayers due to reduced property tax revenue and highly probable prolonged and expensive legal action by homeowners to preserve their rights.

We ask the Commission to respect the town and make the airport something with which we all can be pleased

David

David Smith
35 Skyline Drive
Chatham, MA 02633
Mobile: 508-737-2858

Terry Whalen

From: Lorraine & Bob <lorraine-bob@comcast.net>
Sent: Tuesday, June 22, 2021 4:53 PM
To: Airport Commission
Subject: Environmental Assessment Comments
Importance: High

I live on High Point Drive and I am awakened by low flying jet planes over my property coming in for landings at Chatham Airport in the early morning hours. In addition to limiting the size and number of planes there should be restrictions about the hours that planes can access the airport.

I am a year round resident disturbed by this noise polluting activity.

Lorraine Canavan
56 High Point Drive

Terry Whalen

From: HART FESSENDEN <hfessenden@mac.com>
Sent: Friday, June 25, 2021 12:07 PM
To: Airport Commission
Subject: CQX - Support Option 4

Chatham Airport is a huge asset to the town and its people. The public benefit includes jobs, Medevac, Angel Flight, Coast Guard search and rescue, shark spotting, fish spotting, whale studies, open space, and flight training which can lead young people to careers in aviation.

Everyone agrees that the safety of the airport should be promoted. The best way to do that is to follow the recommendations described in Option 4 of the EA (Environmental Assessment) and especially to follow the lead of other airports by installing modern GPS approaches.

Thank you for your hard work.

Hart Fessenden
88 Lienau Drive
Chatham, MA 02633
hfessenden@mac.com
917-257-0888 (cell)

Terry Whalen

From: Peter G. Gerstberger <petergerst@comcast.net>
Sent: Friday, June 25, 2021 10:42 PM
To: Airport Commission
Subject: Enclosed letter supporting Alternative # 4
Attachments: Support for Alternative #4 (final).pdf

Dear Commissioners,

Please see attached letter in support of Alternative #4.

Thank you.

Best regards,

Peter Gerstberger

Peter G. Gerstberger, Ph.D.
South Orleans, MA 02662
petergerst@alum.mit.edu

June 25, 2021

Dear Members of the Chatham Airport Commission:

I strongly support Alternative #4 as outlined in the Environmental Assessment of the proposed updated Master Plan for Chatham Airport. Alternative #4 is consistent with the Commissions' mission to support and enhance safety at the Airport. Furthermore, this "safety" goal, in my opinion, is aligned with the desire for "safety" advocated by the "anti-airport" members.

This opposition group is so much smaller than the much broader and larger constituency that benefits from the Airport and that will benefit further from the actions proposed under Alternative #4. Furthermore, even the opposition group will benefit from overflights over fewer homes as circling approaches are no longer necessary and fewer homes are exposed to any noise footprint since aircraft will be at lower power settings using straight-in approaches rather than circling while trying to maintain a constant altitude.

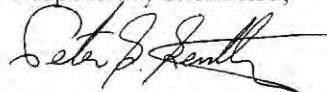
The recent "anti-airport" advertisement in the *Chronicle* is worthy of several *Pinocchios*. For one, shortening a runway by creating displaced thresholds reduces safety since braking distance upon landing is reduced. The risk of runway overruns increases and is a peril for pilots and passengers alike. The opponents have thrown what they consider to be "facts" against the wall under the guise of a "safety" argument and have attempted to mislead the public in an effort to enlarge their constituency and turn it against the airport and its safe operation.

So what is going on? To be blunt: **Blatant Hypocrisy!**

I wish the airport opponents would be honest for once. I surmise that their hatred of aircraft noise in general and the *Pilatus* aircraft in particular is their primary motive. It used to be *skydiving* where their opposition efforts cost Chatham considerable money and wasted a lot of Town staff time. The airport has been in place since 1929 and I suspect that several of the opponents have located in its vicinity in the late 1990s and early 2000s. They argue that the airport lowers their real estate values. OK, well they probably benefited from "lower" values when they purchased their property. I understand that they are trying to have it both ways. Who would not want to? But, on the plus side, eliminating the circling approaches and thereby reducing noise and overfly areas should improve property values in the future.

So where are we now? Time to put the hammer down and move forward with Alternative#4 and the updated airport master plan. There has been plenty of talking, listening, whining, generating misinformation, Ad Nauseam. It is high time to move ahead and embrace the safety benefits that new technology offers.

Respectfully submitted,



CQX Hangar Owner & Pilot

Terry Whalen

From: Joseph Sandberg <drjsandberg@gmail.com>
Sent: Friday, June 25, 2021 1:53 PM
To: Airport Commission
Subject: Environmental Assessment

Dear Commissioners,

I would like to strongly support Alternative 4 of the EA. As a CQX tenant, instrument flight instructor and Cape homeowner, I feel the modernization of the instrument approach procedures into CQX is vital to the Chatham community and safety of both pilots and residents. The development and implementation of straight-in approaches to both runways with vertical guidance is a major advancement of stable, safe and quieter approaches. The accident reports point to circling approaches as carrying higher risks than straight-ins and the addition of vertical guidance allows for more stable and lower power (ie quieter) approaches. I think when you weigh the environmental impact vs. the benefits, I think the decision falls heavily towards Alternative 4.

Thank you for your service to the community, Joseph Sandberg

Sent from my iPad

Terry Whalen

From: Pirri <pirri@comcast.net>
Sent: Friday, June 25, 2021 3:35 PM
To: Airport Commission
Subject: New CQX Airport Master Plan

Hi,

I am a pilot based at the Falmouth Airpark and frequently fly in to CQX enjoying its facilities and proximity to the offerings of the Town of Chatham. I am aware that you are presently reviewing a new Master Plan that would call for an LPV straight in instrument approach. This approach would offer a safer alternative to the circling approaches that are presently permitted to CQX. Increased safety and less noise for surrounding residents are a real plus. I encourage you to press ahead with this plan. Thank you.

Best regards,
Tony Pirri
N4521V

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Saturday, June 26, 2021 9:22 AM
To: Airport Commission
Subject: Comment period on EA

Is there a process for requiring an extension on the EA comment period and if so, what is that process?

It is my belief that due to covid meeting restrictions and other factors that the public needs greater time to review and comment on the EA. There remains outstanding document requests, the results of which might be significant to public comment.

It is also my belief that much of the public that will potentially be impacted remains insufficiently informed due to the fact that much of Chatham residency is seasonal. As people return to Chatham and when meetings become open to the public people will want to involve themselves in the process. This will require an extension of the comment period.

David Bixby

Sent from my iPhone

Terry Whalen

From: edwin stadelman <n415le@msn.com>
Sent: Saturday, June 26, 2021 12:51 PM
To: Airport Commission
Subject: LPV approach CQX

I would like to address the proposed instrument approach to be requested for CQX. I think this proposal is excellent and a true enhancement for safety and long overdue. We would like to have one at 5B6. This would be a major benefit not only to the Cape aviation community, but the community in general. Let's talk about all these issues.

First, this will give pilots a legal and safe approach to CQX when ceilings and visibilities are reduced below visual conditions. This approach would be monitored by Boston Approach and they would be able to help assure minimum altitudes are met and could challenge aircraft if they seem to be deviating from published procedures. Also if the approaching aircraft did not acquire the runway environment by the published missed approach point, a missed approach procedure would be published to be followed ensuring adequate terrain and obstacle clearance. This is good for both the pilot of the aircraft and for those on the ground as safety is enhanced for everyone. Those of us familiar with Cape weather know how rapidly it can change to reduced ceiling and visibility, in many cases trapping and unsuspecting pilot as these changes do not always appear in the forecast. Having an instrument procedure would give these pilots a safe approach to the airport. Without this approach, some pilots would be tempted to try to make the airport visually, a safety hazard for those flying and on the ground.

I have seen comment that having an approach would be detrimental as it would bring more jet aircraft. This comment is uninformed as there is only 3000 feet of runway at CQX. This is not long enough for most jet aircraft and certainly not suitable for aircraft operating under the constraints of FAR part 135. Other comments about electric and/ or vertical takeoff aircraft are also misinformed. Even if developed they would still need approach capabilities at the airport. This approach would also benefit the CQX region economically. Many aircraft owners and operators come to the Cape on day trips and vacations, as well as summer home owners. Knowing there is an instrument approach to CQX as a fall back would do nothing but enhance revenue to the Chatham community.

I hope the above illustrates for you the benefit to all of having an instrument approach at CQX.

Sincerely,

Captain Edwin Stadelman
American Airlines (Ret)
5B6 Airport Support Network Volunteer

Sent from [Mail](#) for Windows 10

Terry Whalen


From: Robert Bisbee <bobbisbeejr@gmail.com>
Sent: Saturday, June 26, 2021 1:34 PM
To: Airport Commission
Subject: Airport master plan.

I write to support your airport improvement plan. The ad in the Cape Cod Chronicle was misleading at best, outright false at worst. As you well know, there is already a GPS approach to R/W 24. Though it says circling, in actual operation it is a straight in unless there is a strong East wind.

Regarding Jet traffic, very few jets other than very small ones can operate on 3000'. and probably already do, Turboprops maybe.

135 charter is tightly controlled by the FAA.

Thanks,
Robert Bisbee
East Falmouth.

Sent from my  iPhone

Terry Whalen

From: John Reed <reedgrpjr@gmail.com>
Sent: Saturday, June 26, 2021 2:48 PM
To: Airport Commission
Subject: Environmental Assessment

I request that an impartial assessment be made of the Environmental impact the present plans will make on our water and air in Chatham. The airport commission has no concern for the people of Chatham as far as safety, noise or the environment is concerned.

Alice Reed,
South Chatham

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Saturday, June 26, 2021 3:10 PM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: Questions re: the EA

Airport Commission,

It is my understanding that you have set a July 6 deadline for public comment on the AMPU draft Environmental Assessment. Please answer or explain the following:

1. It is my understanding that under NEPA it is the federal government that has the responsibility for the EA of the impact of the AMPU, not the airport commission. In this case the federal agency with responsibility would be the FAA. Can you explain the involvement of the airport commission and its consultant, Gale Assoc., in this process? Do either the commission or Gayle have any official standing with respect to the preparation of the EA and its outcome or findings? I think the public deserves a clear explanation and understanding of the legal roles and responsibilities for the EA and any resulting findings.
2. You have set what I believe to be a 30 day timeframe for public comment with a July 6 deadline. Can you cite the regulatory framework for this comment period and deadline?
3. If under CEQ federal agencies are required to provide for public involvement in the EA process, please explain how and when that will take place.
4. Is it the opinion of the airport commission that the FAA has tasked public involvement to the commission or its consultant, Gale, and that the public involvement concludes with the July 6 deadline?
4. If an FAA review of the draft EA results in a Finding of No Significant Impact, please explain what steps are available to the public under NEPA to challenge that finding.
5. Has either the FAA or Airport Commission directly contacted all private parties that are potentially targeted for aviation easements advising them of the threat to their properties and outlined for them what roles or steps are available to them under the EA process?

Please respond promptly in time for a meaningfully response prior to July 6.

Thank you.

David Bixby

Terry Whalen

From: suzannemiska (null) <suzannemiska@aol.com>
Sent: Sunday, June 27, 2021 12:52 PM
To: Airport Commission
Subject: Airport Master Plan

Dear Members of the Commission:

Having followed the proceedings of this commission and the adversarial responses to fellow taxpayer concerns have prompted this email, along with the increased air traffic this summer.

As someone who lives near the airport, I appreciate that there will be traffic but when we bought 10 years ago Chatham airport was a sleepy venue with sky divers but now I have planes flying over on take off and planes that are more jet set then friendly flyer.

I'm concerned that your plan and intention is to increase Chatham airport to a more urban level airport and not the small airport we have known. The airport needs to be a good neighbor and unfortunately this plan of adding an aviation easement is not what we need in Chatham and it's unfair to the property owners of West Chatham. Do any of you live in West Chatham in areas affected by your plan?

Hyannis has an airport that can and should handle all the jets and whatever aircraft that need long runways, noise and volume of traffic NOT Chatham.

Please listen to your fellow neighbors and be a good one, stop these large plans and keep Chatham airport as it is!

Thank you,

Suzanne Miska

Resident of West Chatham

Suzanne Miska

Sent from my iPhone

Terry Whalen

From: Gerry Stahl <Gerry@gerrystahl.net>
Sent: Sunday, June 27, 2021 1:49 PM
To: richard.doucette@faa.gov; Airport Commission
Subject: Extend the Environmental Assessment of the AMPU

Investigate possible Airport pollution of the public well

The #1 public concern in Chatham today is PFAs in the drinking water, especially in the well near the airport.

If the Airport "Environmental Assessment" had been conducted as an unbiased, scientific assessment of the impact of the airport (and its planned expansions) on the physical and social environment, it should have investigated the possibility that airplane exhaust fumes, the planned storage of large amounts of Jet-A fuel, fire-fighting foam with known PFAs associated with the jet fuel, and other airport operations (anti-icing fluids, aircraft hydraulic fluid, etc.) put PFAs into the environment that can enter the water table.

The citizens of Chatham and any officials who claim to represent the interests of residents should insist that the Environmental Assessment be extended and conducted by an impartial expert to investigate the impact of proposed operational expansions on the water and other aspects of the physical and social environment.

Such an investigation should take seriously alternative options, including a net-zero option (as now required by Town Meeting) and a "displaced threshold" option, which would avoid avigation easements.

Immediate action is required to avoid the Airport Commission's rationalization being accepted by the FAA on July 6. If the FAA refuses to extend the investigation, the Town of Chatham should conduct an independent scientific environmental assessment of the Airport Plan and use the Town sponsorship of the airport to require the airport to act in the interests of Chatham residents.

-- *Gerry Stahl and Carol Bliss*
West Chatham

Terry Whalen

From: Ellen Adams <ellenadams0302@gmail.com>
Sent: Monday, June 28, 2021 11:30 AM
To: Airport Commission
Subject: Upgrade to Chatham Airport

Hello everyone,

Chatham Airport is a vital resource to our area. Chatham not only provides access to the area and a resulting increase in local commerce, it provides flight training for our next generation of pilots. Every time you board a commercial flight, an airport like Chatham has most likely played a role in your safe flight. A viable airport is an investment in today as well as the future.

An upgrade to the landing assistance from the outdated technology currently in use to a GPS-based guidance will help Chatham modernize in a way that won't change the character of this lovely small airport; it won't make the airport a magnet for larger jets; it won't make the airport noisier. It **will** give pilots a way to quickly and safely land. A faster landing is a less noisy landing!

The current landing system requires airplanes circle around the airport. The GPS system allows the maneuvering be done further from the airport and at higher altitudes, with a brief straight-in landing. There will be many in the area who are against the GPS guidance upgrade, but it is unfortunately a case of automatically assuming, without study, what the upgrade means. A safer, faster landing will benefit area residents immediately and over time.

Your support of this important upgrade is appreciated, and your other constituents will find GPS makes Chatham airport a better neighbor.

Thank you,

Ellen Adams
Private Pilot
54 Amvets Ave
Falmouth, MA 02540

Terry Whalen

From: Kevin Hughes <khughes9211@gmail.com>
Sent: Monday, June 28, 2021 2:40 PM
To: Airport Commission
Subject: Tree Clearing and Future Environmental Impact Concerns

To whom it may concern,

In regard to the proposed airport changes I would like to bring up my environmental concerns and offer my preferred solution.

I live on Great Hill and have a view of the airport along with the surrounding vegetation and ponds from my home. Clearing of any trees on the Cape should be done with caution as we have seen how erosion is occurring along our coasts and near water ways.

My first concern with clearing of the trees is based on the impact to the surrounding soil and possible future erosion as we continue to clear parcel by parcel with the thought process that is just a small amount of clearing that individually one feels is justified for their personal reasons.

The proposal requires removing these trees for clearance purposes but does not appear to mention what will be done to the land after the clearing. If the land will be replaced with additional concrete this would be rather a worst-case scenario for the environment as animal habitats are being diminished. On the other hand, if low growing vegetation were to replace those trees to allow for some continued soil erosion protection and habitat protection for animals, this would be favorable if the project needs to continue forward. I have enough coyotes and turkeys running through my yard as is, removing more of their land would only push more towards Great Hill. It is also my preference to continue to look out from Great Hill and see the beautiful green landscape of Chatham that I am accustomed to.

My second concern with clearing the trees is that the reason for doing so is to allow for the airport to meet requirements needed to be a non-precision-based airport instead of a precision based. With how foggy Chatham gets and how close airplanes already fly from above my home I would feel a lot more comfortable knowing the airplanes flying into town have more advanced equipment on board that allows for more accurate landing as opposed to allowing for a lower entrance for the planes. It appears that your justification for the need to be a non-precision airport is based on economics. Chatham has been home to very wealthy people and high-end businesses prior to the airport and will continue to bring in tourists regardless of the airport being non-precision based. Wealthy people in general are the typical people with second homes which the documents essentially specify as the people the airport gains income from. As wealthy as Chatham is, the cost to utilize more high-end aircraft should not really be an issue. I am far more concerned with preserving the beauty of Chatham which is the sole purpose people have second homes here in the first place. If a big airport is a big reason for people to visit a town or buy a second home in a town then Hyannis would have all of the wealthiest residents, yet Chatham and Provincetown hold that honor.

Adjusting the airport to meet non-precision requirements should solely be based on a safety standpoint compared to precision based. Adding a large fuel tank to the airport poses more safety concerns due to possible leaks into the surrounding ponds and aquifer. Has the cost of a cathodic protection system on the tank been considered in the cost estimates? Are pipes being installed to bring in the fuel or is it being trucked in? Both of these bring possible environmental concerns between possible pipe leaks and additional cathodic protection and AC mitigation (which you may not have considered based on what I have read in the documents) or additional road traffic concerns from constant deliveries of fuel.

Additional load current from the electric distributor does not appear to be addressed if any is required. Additional load currents being sent on existing circuits to the airport can have negative effects to the surrounding areas in the form of AC interference and additional stress to the circuits. I did not see anything regarding the need for future right of ways which will require clearing of trees to provide future electric circuits or pipes to the airport. If there is a need for a future right-of-way clearing that has not been discussed it should be brought up as I do not believe any Chatham citizens in the area will be in favor of such a project.

My preferred solution is for the committee to consider all of the concerns regarding each solution and choose on merit the solution that preserves Chatham's charm and environment while keeping the citizens and pilots the safest. If the current situation, where airplanes allowed to use the airport require more advanced equipment to use the airport, is an overall safer solution while preserving the environment, then that should be the solution. If continuing with the project to allow for substantial landing clearance is significantly safer than moving toward a precision-based airport, then the project should move forward while preserving as much vegetation as possible and replacing higher vegetation with short vegetation that will not overgrow in the future. This option should not allow for more jet airplanes into the area as the air and noise pollution directly affect the citizens this airport is supposed to service.

Thank you for your time,

Kevin Hughes

Terry Whalen

From: Margaret Tompsett <metompsett@gmail.com>
Sent: Monday, June 28, 2021 2:34 PM
To: Dean Nicaastro
Cc: Jill Goldsmith; Peter Cocolis; Shareen Davis; Jeffrey Dykens; Cory Metters; Terry Whalen
Subject: Environmental Assessment of Chatham Airport comments due by July 6th
Attachments: Brief Evaluation of EA.docx; FAA Avigation Easement Deed.pdf

Dear Dean Nicaastro,

I am writing to you as a lawyer and a member of the Select Board. My husband, Mike, has spent hours trying to understand and digest the so-called environmental assessment (EA) and the AMPU of our Airport here in Chatham. I am sending you his summary which I have been sending to those interested and concerned about this EA. The feedback is that it is well written but too technical and people cannot understand it.

The due date for comments is July 6th and it is evident that if our citizens cannot understand the EA they cannot comment on it. I therefore implore you as our representatives, owners and sponsors of the airport to insist on a longer period for comments. We need a proper meeting of the community at which Gail Consultants present the information to the town in a question and answer format so that we know and understand exactly what is proposed. This needs to be in person.

If you remember at the last meaningful in-person meeting in November 2019 it was stated by one of our premier real estate developers in town that avigation easements are "the kiss of death" to property values. In this EA, 21 avigation easements are called for but the original 46 have not been taken off the table.

At one of your last in-person meetings, the Select Board explicitly did not give the Airport Commission permission to go ahead and authorize an EA without first developing a clear plan. There is still no clear plan but \$345,000 of public money has been spent. This is unacceptable. It should also be noted that this 20 year plan is not due until 2023.

If this EA is approved without appropriate consideration of its effects on the citizens of Chatham I can guarantee that there will be law suits from affected individuals. Is this what you want?

You have the power to delay approval of this EA until it has had full public scrutiny. Please use your authority to delay approval and insist on a public in-person meeting. If it is not safe to do so until September so be it. We have until 2023.

Sincerely,

Margaret E Tompsett MD

--
Margaret E Tompsett, MD
17 Lake Shore Drive,
Chatham, MA 02633
Tel. 508-245-5212
Email: metompsett@gmail.com

BRIEF EVALUATION OF THE CHATHAM AIRPORT

2021 DRAFT ENVIRONMENTAL ASSESSMENT

At the outset the Draft EA defines the proposed actions as consisting of 3 projects:

The acquisition of Avigation Easements over 21 parcels,

The removal of vegetative obstructions.

The development of hangars.

Despite this statement, the EA extensively discusses lists of alternatives under these headings, but they are not proposed actions. There is no mention in the introduction of converting from a type 2 runway to a type 4 instrument runway, which is the intention and would have a major impact. Straight-in approaches are being sought, in which the pilot does not check that the runway is being used before flying 'straight-in. This is a dangerous practice without a control tower, but there is no discussion of this. In addition, a type 4 instrument runway specifies visibility $\geq 3/4$ mile. If $\geq 3/4$ mile is used then 49 acre Runway Protection Zones, would put many more people living in these enlarged zones in danger. This could not be allowed, either by the FAA or locally, but omitting this inconsistency from the Draft EA is unacceptable.

The definition of environment is 'the circumstances, objects, or conditions by which one is surrounded'. However the discussion in this Draft EA is not on assessing the environmental Impacts around us, but has a narrow focus on the economic impacts and the related processes of the 3 projects.

There is discussion on the process of acquiring avigation easements and the process of removing vegetation without discussion of the Environmental issues. There is obfuscation of the reasons for needing to clear vegetation from the approach surfaces. In fact there are 2 very distinct reasons:

1. Historical

PART 77 20:1 approach surfaces for the visual runways are required to maintain the present runway length, but only require 11 avigation easements. This need and the need to remove trees from the wetlands was actually created by extending the runway right up to the edge of the wooded wetlands in 1959. That the trees would grow into this approach surface was a forgone conclusion. FAA Advisory 150/5300-13A warns that positioning a new threshold for a visual approach may not allow for a future Instrument approach, because of penetrations to the instrument approach surfaces. This is exactly what has happened in Chatham, where not only are the original surfaces penetrated, but the proposed new instrument approaches are proving to be impossibly costly, untenable socially and disastrous environmentally. This should be reflected in the Draft EA.

2. Proposals for Instrument Approaches

There are proposals in the AMPU for new instrument approaches, which means the use of GPS for either horizontal or vertical guidance in the plane. However the FAA requires different design standards on the ground. The AMPU actually cites a preferred approach requiring a 30:1 glide-path requiring 46 avigation easements, and other significant clearing in the wetlands and around the runway. This approach and the clearing is also included in the Airport Layout Plan and in the 5 year plan. However the EA only discusses 20:1 approach surfaces, but these must meet so-called Terminal Instrument Procedures (TERPS) requirements. These surfaces cover different areas than the earlier PART 77 approach surfaces, require an additional 10 avigation easements and additional tree removal from the wetlands and vernal pool area. This is creating a new facility, which is an important distinction, which is not made clear in the Draft EA and should be.

There are major deliberate omissions from this Draft EA, which are totally disingenuous, self-serving and unacceptable. For example the construction of the 10,000 gallon fuel tank listed in the immediate 5 year plan, over a single source aquifer, which we all depend on, is deliberately excluded from this assessment.

No specific proposal was agreed on by the Airport Commission or by the Airport Sponsor, which the Town, or even specified before spending \$345,000 on this Draft EA, which defies comprehension. The Draft EA even says that the purpose of the Proposed Actions is to comply with FAA airport safety design standards, but without a plan the standard to be complied with is not defined.

The proposed new Instrument approaches include non-precision with horizontal guidance, non-precision with straight-in, and non-precision with straight-in and vertical guidance. Approaches with Vertical Guidance. are designed to handle instrument approach operations. where the navigation system provides vertical guidance down to 250 feet above the runway threshold in bad weather visibility as low as 3/4 statute mile. The FAA says the runway must be at least 3,200 feet, which cannot be met at Chatham Airport, which has a 3000ft runway. Approving this would put many more residents, shoppers, users of route 28 at much greater risk of planes landing short or overshooting.

The Draft EA explains that not implementing one particular alternative “*would reduce possible revenue from car rentals and the Airport’s role in the National Plan of Integrated Airport Systems.*” This is economic and not environmental impact, but it clearly shows that the goal of the proposed actions is to increase charter and scheduled traffic, and create a ‘commercial’ airport. There is zero assessment of the environmental impact of the increased traffic that would arise from this.

This is relevant to another omission. Pilatus turboprops are major users of the Airport, with over 200 landings in 2019 and many more this year. These planes are larger and in a higher design group-II for which the Airport does not and cannot meet FAA design standards. When the number of landings exceeds 250, the FAA will require major changes to the Airport to meet these standards. This could include removing ~10 more acres of trees around the runway and ~4 more acres of trees in the wetland and vernal pool areas. Assessing the current, let alone the future impact of the Pilatus PC-12s on the physical and social environment is just not considered.

The Draft EA expresses concern for “enhanced safety for pilots, passengers, neighboring properties, and aircraft” due to the removal of trees, but there is no mention of improvement in safety for those living or working in the RPZs, in fact the hazards would be increased. There are key social categories normally included in an environmental assessment that are not included in this one, namely:

Land Use: The statement in the Draft EA is disingenuous and wrong. The Airport is surrounded by many homes and business properties. Safety and welfare of the public in the vicinity of the Airport’s approach zones was in no way considered, under the flight path, and especially in the RPZs that according to the FAA should never have been allowed to become populated,

Noise and Compatible Land Use: Gale Associates relied on an arcane FAA requirement that noise analysis is only required with >350 annual jet landings or >1 average daily operations. In fact in 2019 the number of jet landings has already reached over 200 annually and 1 per day for the month of August 2019. Planes fly very low over people’s homes especially those in the RPZs and over homes on 70ft Great Hill The whole flight path is densely populated and noise levels exceed the OSHA threshold of 35dB stopping all conversation. Therefore excluding an assessment of noise is unconscionable.

Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks: The Draft EA implies 21 aviation easements removing trees from but omits to mention the economic

hardship that this would cause. A real estate developer referenced an aviation easement as “The kiss of death to a property’s value”. These proposals encourage traffic. Aviation gasoline contains very high levels of lead, much higher than those prohibited in automobile fuel, and which affects the health of children. There are 2 groups of habitat for humanity homes very close to the ends of the runway, where planes take-off with full throttle with the prevailing SW wind. The larger noisy planes flying low over everybody causes fear, which is also detrimental to health. The presence of the Airport and the RPZs over West Chatham are a major problem for the development of West Chatham. This Socio-economic category should never have been excluded from this Draft EA.

Development of Hangars

The Draft EA claims “the Airport continues to lack the adequate infrastructure to meet existing demand for hangar units” However it already has 3 hangars and according to the AMPU, the number of based aircraft is expected to only marginally increase, but the proposal is to unnecessarily construct 2 more hangars to double the capacity. With aprons and taxiways and car parking this would add an additional 3 acres of impervious tarmac surface. The Draft EA states that “the purpose of this development is to comply with FAA airport safety design standards”, which is ridiculous.

Threshold Displacement is mentioned as an alternative but then dismissed, yet it is allowed and recommended by the FAA for two reasons and it could have another advantage. The explanation for these reasons is illustrated in the drawings below.

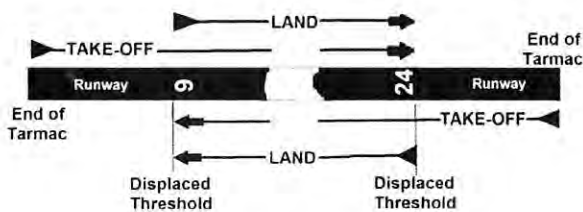
‘DISPLACING THRESHOLDS’ is the Solution

Aircraft normally land at the ends of the runway, called thresholds, but the FAA allows these thresholds to be displaced along the runway.

Jet charters would use Hyannis Airport, but recreational flyers would not be affected.

There would be less traffic, less hazard and less noise, no-cost and the character of Chatham would be preserved for future generations.

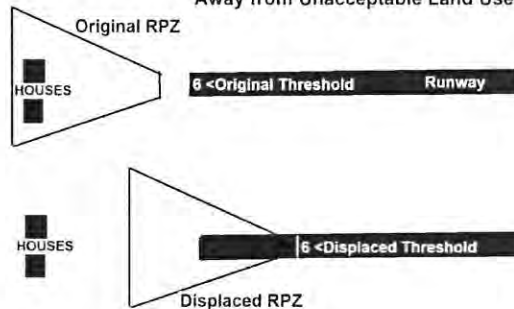
Operation of Runway with Displaced Thresholds



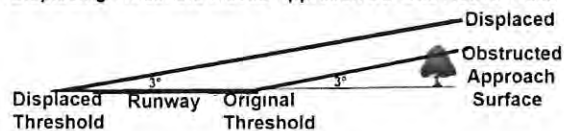
Change is Coming

It makes **NO** sense to spend millions of dollars and destroy habitat, when aeronautical technology is about to undergo such dramatic changes with electric propulsion and vertical take-off planes and drones.

Displacing Thresholds moves RPZs Away from Unacceptable Land Use



Displacing Threshold Moves Approach Surface Above Trees



Check <http://comspks.us> for more information
 Please Read and Submit comments on the Environmental Assessment at
<https://www.chatham-ma.gov/airport-commission/pages/environmental-assessment-ea-portal>
 Ad bought and paid for by The Community Speaks

1. Raises the approach surfaces above the vegetation eliminating the need for tree removal in the wetlands and aviation easements.
2. It moves the RPZs away from the residents currently living in those dangerous zones at the ends of the runway.

3. Shorter landing distances may discourage the use of the Airport by the larger aircraft types currently operating at the Airport.

The statement is made in the Draft EA that "it is to comply with *Airport Approach Protection* Bylaw by promoting the health, safety, and general welfare of the public by preventing the creation, establishment, and maintenance of airport hazards, thereby protecting the lives and property of users of the Chatham Airport and of the occupants of land in its vicinity and preventing destruction or impairment of the airport and the public investment therein." Without displacing thresholds, there is no effort to protect public safety.

Summary

In summary this Draft EA does not assess the impact of a defined plan. It omits assessing imminent issues such as the use of the larger aircraft in design group-II, but discusses the impact of new hangars, which are shown to be unnecessary. The impact on the wetlands and the vernal pool area are minimized. Much of the discussion is about process and economic factors, which are nothing to do with the environment other than ultimately having negative impacts. A viable alternative, displaced thresholds, is dismissed out of hand. This Draft EA is disingenuous, confusing, incomplete and not related to a specific approach plan, which renders it worthless. This Draft EA was called for under the National Environmental Policy Act. It expresses concern for "enhanced safety for pilots, passengers, neighboring properties, and aircraft, but there is zero concern for people living, working, shopping and driving in the RPZ hazard zones, and others living under the densely populated flight paths, some threatened with desecration of their property and property values. Those people would endure more extreme noise and psychological effects of more larger low flying, aircraft noisier than the OSHA threshold level of 85dB. The categories of Socioeconomics, Safety Risks, Land use and Noise were rejected from this draft EA. The explicit goal of the National Environmental Policy Act (NEPA), which controls the EA process, is "productive harmony between humans and their environment." There is nothing about productive harmony in this Draft EA, which should be rejected on all counts.

Suggested Template for Avigation Easements

SURFACE AND OVERHEAD AVIGATION EASEMENT

WHEREAS, (Property Owner), hereinafter called the Grantors are the fee owners of the following specifically described parcel of land situated in (City, County & State):

(Metes & bounds description of easement parcel)

hereinafter called "Grantors' property" and outlined on an attached Exhibit A map.

NOW, THEREFORE, in consideration of the sum of \$_____ and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Grantors, for themselves, their heirs, administrators, executors, successors and assigns do hereby grant the following appurtenant rights and benefits to the (Name of Airport) hereinafter called the "Grantee" for the use and benefit of the public.

The appurtenant rights and benefits include the uses, rights and restrictions described as follows:

The unobstructed use and passage of all types of aircraft in and through the airspace at any height or altitude above the surface of the land.

The right of said aircraft to cause noise, vibrations, fumes, deposits of dust, fuel particles (incidental to the normal operation of aircraft); fear, interference with sleep or communication, and any other effects associated with the normal operation of aircraft taking off, landing or operating in the vicinity of (Airport).

As used herein, the term "aircraft" shall mean any and all types of aircraft, whether now in existence or hereafter manufactured and developed, to include jet, propeller-driven, civil, military or commercial aircraft; helicopters, regardless of existing or future noise levels, for the purpose of transporting persons or property through the air, by whoever owned or operated.

In granting this easement, the Grantors agree to make no modifications to the following "accepted" existing structures lying within the bounds of the easement area of the Grantors' property.

(Example: 20' x 25' utility shed, see attached Exhibit A map)

The Grantors agree that during the life of this easement, they will not construct, erect, suffer to permit or allow any structure or trees on the surface of the burdened property. The Grantors may not permit any places of public assembly or gatherings within the easement area. (Examples: churches, schools, day care facilities, hospitals, restaurants, stadiums, office buildings, etc.) The Grantors are permitted to continue to grow and harvest crops or graze livestock in the easement area

The Grantors agree to keep the easement area free of the following: structures (permanent or temporary) that might create glare or contain misleading lights; residences, fuel handling and storage facilities and smoke generating activities and creation of any means of electrical interference that could effect the movement of aircraft over the easement area.

Grantors agree to waive all damages and claims for damages caused or alleged to be caused by the Grantors violation of any aspect of this easement document. The (Airport) has a perpetual right of ingress/egress in the easement area and the right to remove any new structure or vegetation that is not specifically mentioned above as "accepted."

TO HAVE AND TO HOLD said easement and right of way, and all rights appertaining thereto unto the Grantee, its successors, and assigns, until said (Airport) shall be abandoned and shall cease to be used for public airport purposes. It is understood and agreed that all provisions herein shall run with the land and shall be binding upon the Grantors, their heirs, administrators, executors, successors and assigns until such time that the easement is extinguished.

IN WITNESS WHEREOF, the grantors have hereunto set their hands and seals this _____ day of _____, 20____. (Local recordation and subordination practices must also be met. If subordination is necessary in which case the mortgagee must join in the agreement, a statement must be made to assure that the mortgage is subordinate to the Easement and the Easement recording superior and prior to lien in said mortgage without consideration of the date of the mortgage instrument)

_____(SEAL)
Grantor(s)

Terry Whalen

From: Shanna Nealy
Sent: Monday, June 28, 2021 3:17 PM
To: Terry Whalen
Subject: FW: EA relative to AMPU

Shanna Nealy
Executive Secretary to the Town Manager/Select Board
508-945-5105

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From: Gloria Freeman <freeannie@comcast.net>
Sent: Monday, June 28, 2021 3:15 PM
To: Peter Cocolis <PCocolis@chatham-ma.gov>; Shareen Davis <SDavis@chatham-ma.gov>; Cory Metters <CMetters@chatham-ma.gov>; Dean Nicastro <DNicastro@chatham-ma.gov>; Jeffrey Dykens <JDyken@chatham-ma.gov>; Richard Doucette <richard.doucette@faa.gov>; doucette@faa.gov; 'airport' <commission@chatham-ma.gov>; Jill Goldsmith <jgoldsmith@chatham-ma.gov>; Robert Duncanson <rduncanson@chatham-ma.gov>; Thomas Temple <TTemple@chatham-ma.gov>; Shanna Nealy <snealy@chatham-ma.gov>; Tim Wood <twood@capecodchronicle.com>
Subject: EA relative to AMPU

To those who are evaluating the Airport EA or involved in Chatham's water supply:

These comments are directly in response to the recent Environmental Assessment (EA), which was conducted as part of the update for the implementation of the new Airport Management Update Plan (AMPU). I would request that this letter be made available to all concerned parties and I thank you for that courtesy.

I strongly object to this report (EA) being conducted by the airport's engineering consultant, Gale Associates. This is a conflict of interest and further divides the community. It is made worse by the Select Board's hands-off attitude. Having Gale Associates conduct this study is a clear indication that the EA is meaningless and is not being taken seriously by the Airport Commission, the Select Board, and the FAA. An independent contractor should have been chosen to conduct the study. I am surprised that you did not consider how offensive this would be to many townspeople who are concerned about changes in the use of the airport. Safety, noise, and change of character, among others.

The EA is supposed to be a study to safeguard the human environment and establish all the impacts either positive or negative about a particular project. There are

numerous issues that do not appear to have been addressed in the EA, primary among them is our water. Right now, the single most important issue our Select Board should be discussing is the contamination of our potable water. A letter sent out to citizens by the Water Department has frightened many, and immediate action is needed to determine why our water is contaminated. PFAs are in the well near the airport. Why is that and are any airport operations causing that contamination? That issue must be addressed before any determination is approved by the FAA relative to the AMPU.

I hope that our Select Board will immediately request an expansion of the EA, to be conducted by an impartial science-based consultant, to include all airport operations which could possibly contaminate the water table or impact our wells. That first-step will show Select Board members' concern and determination to provide safe drinking water for its citizens, a most basic element of life.

Gloria Freeman

Terry Whalen

From: James Fulton <fulton1@optonline.net>
Sent: Monday, June 28, 2021 3:41 PM
To: Airport Commission
Subject: Gale Associates Draft Environmental Assessment

In Section 2.1 of the Draft Environmental Assessment, Gale Associates (“Gale”) communicates information that is false and misleading. They would be well advised to consult with an attorney experienced in aeronautics before presuming to understand what an avigation easement is. They state, for example, that if Chatham’s Airport Approach Protection Bylaw were enforced, a smaller number of avigation easements might be adequate for purposes that they have in mind. This is categorically untrue. They would also be well advised to consult with an attorney who has read *United States v. Brondum*, 272 F.2d 642 (5th Cir. 1959), a decision by Judge John Minor Wisdom, one of the greatest judges in the history of American jurisprudence.

The “Airport Approach Protection Bylaw” mentioned by Gale, which is contained specifically in § 100-1 et. seq. of the Town Bylaws, does nothing more than – as Gale explains – regulate “the height of structures and objects of natural growth in the vicinity of the Chatham Airport.” If it were ever actually enforced by the Town, the bylaw would grant what are called “clearance easements,” also known as “flight obstruction easements” – **not** “avigation easements” -- to the Town. The bylaw affords to no aircraft the right to fly anywhere.

The difference between a “clearance easement” and an “avigation easement” is that a clearance easement explains what a property owner may not do (i.e., grow trees or maintain structures higher than a prescribed height), but it does not allow aircraft to do anything. An avigation easement specifically allows aircraft to fly over property at a low elevation – not infrequently, but on a regular basis – regularly enough to constitute a “taking” of airspace property rights, damage property value and require just compensation. In the words of Judge Wisdom:

There is no mention of the right to fly over the land. In plain words, **the Government seeks to acquire the right to cut trees and natural growth to a prescribed height** and to remove man-made obstructions above a prescribed height. **The estate therefore is sometimes referred to as a ‘flight obstruction easement’.**

Brondum, 272 F.2d at 644-45 (emphasis added).

In *United States v. 64.88 Acres of Land*, (Citation omitted), a similar easement was interpreted as only a **clearance easement**.

Brondum, 272 F.2d at 645 (emphasis added). A clearance or flight obstruction easement restricts the height of trees and structures. Such an easement does **not** allow flights in the airspace where those trees would, but for the easement, be allowed to grow:

[In the case of a clearance easement], [t]here is no reason for planes to fly over the Brondums' land, unless an **emergency** should make such a flight unavoidable.

Brondum, 272 F.2d at 645.

"It [a clearance easement] is merely a safety factor in case a plane gets off course. If it gets off course and invades Mr. Brondum's property, he has a right of action against the

Government."

Brondum, 272 F.2d at 643 n. 1.

An **avigation easement** may or may not contain provisions dealing with obstructions, but, unlike a **clearance easement**, in express terms it **permits free flights over the land** in question [I]t provides for flights that may be **so low and so frequent as to amount to a taking of the property**. Thus, when an avigation easement is taken, such language is used as: '**for free and unobstructed passage of aircraft through the airspace above the portions of clear zones**' (Citation omitted).

Brondum, 272 F.2d at 645 (emphasis added).

Gale has informed us on repeated occasions that it is recommending the acquisition of avigation easements in order to facilitate "straight-in, nonprecision instrument" approaches to the Airport – approaches that are utilized by large, turboprop aircraft that *some* people would welcome more frequently at the Airport. If Gale's ideas became reality, aircraft would be allowed to utilize avigation easements to invade airspace lower to the ground – lower over homes that are occupied by Chatham families.

Gale states, "There are no environmental impacts associated with the acquisition of avigation easements." What exactly do they mean by this? Certainly the **imposition** and **enforcement** of avigation easement rights have environmental impacts; Gale admits that obstruction and tree removal – which more often than not are included with the imposition of avigation easements --- have environmental impacts. In addition, how can flying lower to the ground, thanks to an

avigation easement, have no environmental impact on the homeowner who lives below -- wondering whether aircraft is about to fly into his bedroom?

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Monday, June 28, 2021 3:47 PM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: Comment s on airport EA

Airport Commission,

Please add to the public comments, either directly or by reference, on the airport Environmental Assessment all public comments regarding the development of the AMPU and E.A. directed at the Commission during Commission public meetings as well as any related correspondence since public discussion of the AMPU began.

I suggest the public record of these meetings be presented electronically or by typed transcript.

Thank you.

David Bixby

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Monday, June 28, 2021 3:57 PM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: Comment on Chatham Airport E.A.

Section 40 CFR 1501.9 requires that affected persons or interested persons be included in the scoping process. It is unclear whether that is limited to the development of an EIS or also applies to the EA. Given the controversy over many of the AMPU proposals and alternatives, I would have expected that Gale's scoping meeting with its clients, (FAA, MassDOT, and Airport,) would have included those affected and interested persons as well. It did not. Why?

David Bixby

40 CFR § 1501.9 - Scoping.

• [CFR](#)

[prev](#) | [next](#)

§ 1501.9 Scoping.

(a) *Generally.* Agencies shall use an early and open process to determine the [scope](#) of issues for analysis in an [environmental impact statement](#), including identifying the significant issues and eliminating from further study non-significant issues. Scoping may begin as soon as practicable after the [proposal](#) for action is sufficiently developed for agency consideration. Scoping may include appropriate pre-application procedures or work conducted prior to publication of the [notice of intent](#).

(b) *Invite cooperating and participating agencies.* As part of the scoping process, the [lead agency](#) shall invite the participation of likely [affected](#) Federal, State, Tribal, and local agencies and governments, the proponent of the action, and other likely [affected](#) or interested persons (including those who might not be in accord with the action), unless there is a limited exception under [§ 1507.3\(f\)\(1\)](#) of this chapter.

(c) *Scoping outreach.* As part of the scoping process the [lead agency](#) may hold a scoping meeting or meetings, [publish](#) scoping information, or use other means to communicate with those persons or agencies who may be interested or affected, which the agency may integrate with any other early planning meeting. Such a scoping meeting will often be appropriate when the impacts of a particular action are confined to specific sites.

(d)

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Monday, June 28, 2021 4:10 PM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: Comments on EA

Airport Commission,

What is the significance of the July 6 deadline for comment on the draft EA? It is my understanding that the EA is an FAA responsibility and as such any deadlines for review must be set by the FAA. I am aware of no such announcement by the FAA setting any deadline for comment. Please clarify. Given that any legal challenges or remedies to the EA that are pursued in court are limited to issues raised during the official comment period, it is critically important that this process be conducted openly and with the clear understanding of the public. Many if not most of us consider the July 6 deadline to be unrelated to any FAA deadline for comment. If this is not the case then you have failed to adequately inform the public.

David Bixby

§ 1501.10 Time limits.

(a) To ensure that agencies conduct NEPA reviews as efficiently and expeditiously as practicable, Federal agencies should set time limits appropriate to individual actions or types of actions (consistent with the time intervals required by § 1506.11 of this chapter).

(b) To ensure timely decision making, agencies shall complete:

(1) **Environmental assessments** within 1 year unless a **senior agency official** of the **lead agency** approves a longer period in writing and establishes a new time limit. One year is measured from the date of agency decision to prepare an **environmental assessment** to the publication of an **environmental assessment** or a **finding of no significant impact**.

(2) **Environmental impact statements** within 2 years unless a **senior agency official** of the **lead agency** approves a longer period in writing and establishes a new time limit. Two years is measured from the date of the issuance of the **notice of intent** to the date a record of decision is signed.

(c) The **senior agency official** may consider the following factors in determining time limits:

- (1) Potential for environmental harm.
- (2) Size of the proposed action.
- (3) State of the art of analytic techniques.

- (4)** Degree of public need for the proposed action, including the consequences of delay.
 - (5)** Number of persons and agencies affected.
 - (6)** Availability of relevant information.
 - (7)** Other time limits imposed on the agency by law, regulations, or Executive order.
- (d)** The **senior agency official** may set overall time limits or limits for each constituent part of the NEPA process, which may include:
- (1)** Decision on whether to prepare an **environmental impact statement** (if not already decided).
 - (2)** Determination of the **scope** of the **environmental impact statement**.
 - (3)** Preparation of the draft **environmental impact statement**.
 - (4)** Review of any comments on the draft **environmental impact statement** from the public and agencies.
 - (5)** Preparation of the final **environmental impact statement**.
 - (6)** Review of any comments on the final **environmental impact statement**.
 - (7)** Decision on the action based in part on the **environmental impact statement**.
- (e)** The agency may designate a person (such as the project manager or a person in the agency's office with NEPA responsibilities) to expedite the NEPA process.
- (f)** State, Tribal, or local agencies or members of the public may request a **Federal agency** to set time limits.

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Monday, June 28, 2021 4:27 PM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: Comments on EA - Agency responsibility

Airport Commission,

NEPA regulations hold the FAA as the agency responsible for the accuracy, scope, and content of environmental documents. In Chatham the Town applied for a grant to develop an EA as well as other things. The FAA approved that grant. The FAA may **require** an applicant to submit environmental information for possible use by the FAA to prepare an EA. That does not appear to be the case in Chatham. There appears to be no provision in the regs for the Town to prepare the EA on behalf of the FAA, and yet that appears to be the case in Chatham. Gale Assoc. is contracted with the Town to prepare the EA, it is not contracted with the FAA. Absent a letter or directive from the FAA to the Town to prepare environmental documents, I have to question the legitimacy of the EA before the public for comment.

Can you please explain the relationship and roles under 40 CFR of the FAA, Town of Chatham, and Gale Assoc. with respect to the EA? Please cite supporting legislation or regulation.

Thank you.

Davis Bixby

§ 1506.5 Agency responsibility for environmental documents.

(a) Responsibility. The agency is responsible for the accuracy, [scope](#) (§ 1501.9(e) of this chapter), and content of [environmental documents](#) prepared by the agency or by an applicant or contractor under the supervision of the agency.

(b) Information. An agency may require an applicant to submit environmental information for possible use by the agency in preparing an [environmental document](#). An agency also may direct an applicant or authorize a contractor to prepare an [environmental document](#) under the supervision of the agency.

(1) The agency should assist the applicant by outlining the types of information required or, for the preparation of environmental documents, shall provide guidance to the applicant or contractor and participate in their preparation.

(2) The agency shall independently evaluate the information submitted or the [environmental document](#) and shall be responsible for its accuracy, [scope](#), and contents.

(3) The agency shall include in the [environmental document](#) the names and qualifications of the persons preparing [environmental documents](#), and conducting the independent evaluation of any information submitted or [environmental documents](#) prepared by an applicant or contractor, such as in the list of preparers

for **environmental impact statements** (§ 1502.18 of this chapter). It is the intent of this paragraph (b)(3) that acceptable work not be redone, but that it be verified by the agency.

(4) Contractors or applicants preparing **environmental assessments** or **environmental impact statements** shall submit a disclosure statement to the **lead agency** that specifies any financial or other interest in the outcome of the action. Such statement need not include privileged or confidential trade secrets or other confidential business information.

(5) Nothing in this section is intended to prohibit any agency from requesting any person, including the applicant, to submit information to it or to prohibit any person from submitting information to any agency for use in preparing environmental documents.

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Monday, June 28, 2021 4:31 PM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: Comment on EA - executive orders

Airport Commission,

Please explain why Executive Orders 13807 and 13891 do not apply in the case of the Town's application for a grant to develop an EA.

Thank you.

David Bixby

§ 1506.7 Further guidance.

(a) The **Council** may provide further guidance concerning NEPA and its procedures consistent with [Executive Order 13807](#), Establishing Discipline and Accountability in the Environmental Review and Permitting Process for Infrastructure Projects (August 5, 2017), [Executive Order 13891](#), Promoting the Rule of Law Through Improved Agency Guidance Documents (October 9, 2019), and any other applicable Executive orders.

(b) To the extent that **Council** guidance issued prior to September 14, 2020 is in conflict with this subchapter, the provisions of this subchapter apply.

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Monday, June 28, 2021 4:44 PM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: EA Comments - public involvement

Airport Commission,

40 CFR 1506.6 (b) requires the FAA provide public notice of NEPA-related hearings, public meetings, and other opportunities for public involvement, and the availability of [environmental documents](#) so as to inform those persons and agencies who may be interested or [affected](#) by their proposed actions. I am aware of no such notifications to persons, businesses, or organizations as noted under 1506.6 (b) (3) (vii, or viii.) It may be a technicality, maybe the Town or Gale did so on their own, but the regulation requires action by the FAA.

Can you explain why the FAA has not complied with requirements for public involvement under the regulation? I suspect it is because the FAA will do so when it asks the public for comment on its EA. Can you confirm this?

Thank you.

David Bixby

§ 1506.6 Public involvement.

Agencies shall:

- (a)** Make diligent efforts to involve the public in preparing and implementing their NEPA procedures (§ [1507.3](#) of this chapter).
- (b)** Provide public notice of NEPA-related hearings, public meetings, and other opportunities for public involvement, and the availability of [environmental documents](#) so as to inform those persons and agencies who may be interested or [affected](#) by their proposed actions. When selecting appropriate methods for providing public notice, agencies shall consider the ability of [affected](#) persons and agencies to access electronic media.
 - (1)** In all cases, the agency shall notify those who have requested notice on an individual action.
 - (2)** In the case of an action with [effects](#) of national concern, notice shall include publication in the Federal Register. An agency may notify organizations that have requested regular notice.

(3) In the case of an action with [effects](#) primarily of local concern, the notice may include:

(i) Notice to State, Tribal, and local agencies that may be interested or [affected](#) by the proposed action.

(ii) Notice to interested or [affected](#) State, Tribal, and local governments.

(iii) Following the [affected](#) State or Tribe's public notice procedures for comparable actions.

(iv) Publication in local newspapers (in papers of general circulation rather than legal papers).

(v) Notice through other local media.

(vi) Notice to potentially interested community organizations including small business associations.

(vii) Publication in newsletters that may be expected to reach potentially interested persons.

(viii) Direct mailing to owners and occupants of nearby or [affected](#) property.

(ix) Posting of notice on and off site in the area where the action is to be located.

(x) Notice through electronic media (*e.g.*, a project or agency website, email, or social media).

(c) Hold or sponsor public hearings, public meetings, or other opportunities for public involvement whenever appropriate or in accordance with statutory requirements applicable to the agency. Agencies may conduct public hearings and public meetings by means of electronic communication except where another format is required by law. When selecting appropriate methods for public involvement, agencies shall consider the ability of [affected](#) entities to access electronic media.

(d) Solicit appropriate information from the public.

(e) Explain in its procedures where interested persons can get information or status reports on [environmental impact statements](#) and other elements of the NEPA process.

(f) Make environmental impact statements, the comments received, and any underlying documents available to the public pursuant to the provisions of the [Freedom of Information Act](#), as amended ([5 U.S.C. 552](#)).

Terry Whalen

From: pgw73 <pgw73@verizon.net>
Sent: Tuesday, June 29, 2021 7:44 AM
To: 'Christine Howard'; Airport Commission
Cc: thomaswhurley1@gmail.com; 'Tom Maher - PYM Airport'; 'Kenneth Fosdick'
Subject: Favor for CQX
Attachments: cqx_draft_ea_for_public_comment.pdf; Airport Commission _ Chatham, MA.PDF; legal publishing.pdf

Good morning Commissioners,

I understand you are struggling with providing justifications for advancing toward GPS-based approaches at Chatham. For more than five years I managed the FAA contract team for FAA Navigation Programs in Wash. DC that creates the GPS approaches and maintains the satellite system servicing the WAAS-enabled GPS network. Let me simply offer:

1. The FAA steadfastly maintains they do not create GPS approaches to increase air traffic. They are created for primarily for greatly increasing safety.
2. GPS-based approaches also increase cost efficiency by enabling the removal of more costly VOR, NDB, and eventually some ILS systems.
3. As stated by others and is replicated all across the nation, GPS approaches eliminate more dangerous non-precision approaches and circling maneuvers.
4. As good as any GPS-based airport is, the operations are not based on the approaches that serve that airport, but the fixed ground environment such as runway length and width, approach lighting, overruns, and obstructions clearances.

These are not my personal opinions or comments. These are all part of the FAA's GPS navigation promotion guidelines when working with airports all across the country. The FAA has rightfully no interest in increasing air traffic where it is not wanted. GPS navigation wasn't created to do this. Again, it was created for safety and eliminate inefficiencies in the airways servicing systems.

Most sincerely,

Paul

Paul Worcester
Former FAA Contract Program Manager for FAA HQ Navigation Programs
C (774) 454-0701

From: Christine Howard <cocodevans@yahoo.com>
Sent: Thursday, June 24, 2021 10:16 AM
To: Thomas Hurley <tomhurley@aol.com>; plymouthaeroclub@gmail.com
Cc: sticknrudderaero@comcast.net
Subject: Re: Favor for CQX

Hi Tom,
I attached a copy of the EA, the legal publishing and The Airport Commissioners names for your convenience. Hopefully they are helpful.
Thanks,
Chris

On Thursday, June 24, 2021, 08:40:01 AM EDT, Christine Howard <cocodevans@yahoo.com> wrote:

Hi Tom,

I was wondering if you and your pilots at Plymouth Aero Club could assist with a little favor. CQX is currently in the public input stage of our Environmental Assessment including one of our major projects, upgrading to GPS based precision instrument approaches. Of course, our local anti-airport group is pushing back because well, they seem to think that the old outdated technology we currently have is enough and if the airport is safer, more aircraft will come.

Anyways, they are stuffing the Airport Commission email box as well as FAA email with negative comments so we were hoping some positive support of upgrading the precision approaches to the most current technology for safety might help.

Do you think some of your group be agreeable to putting some emails together in support of the GPS based instrument approaches and send to ? We've tried to explain that the new technology would allow for less circling in the pattern during inclement weather, that the technology also allows for straight in approach which leads to less noise, but they are fighting this hard.

I know your group understands the need for safe instrument approaches and how important small airports like CQX are. Any support your club can provide will be appreciated.

The public input stage closes July 1st, so if they could aim to get something in before that date, it would be so helpful.

Best regards,
Chris Howard
Chatham Municipal Airport

[Sent from Yahoo Mail on Android](#)

Terry Whalen

From: Shanna Nealy
Sent: Tuesday, June 29, 2021 8:17 AM
To: Airport Commission; Cory Metters; Dean Nicastro; Jeff Dykens; Jeffrey Dykens; Jill Goldsmith; Peter Cocolis; Shareen Davis
Subject: FW: EA relative to AMPU

Please see below.

Shanna Nealy
Executive Secretary to the Town Manager/Select Board
508-945-5105

Please be advised that email messages and attached content sent from and to this email account are public records unless qualified as an exemption under the Massachusetts Public Records Law - <http://www.sec.state.ma.us/pre/preidx.htm>.

From: Peter Cocolis <PCocolis@chatham-ma.gov>
Sent: Monday, June 28, 2021 4:58 PM
To: Shanna Nealy <snealy@chatham-ma.gov>
Cc: Jill Goldsmith <jgoldsmith@chatham-ma.gov>
Subject: Fwd: EA relative to AMPU

Please forward to Airport Commission and SB. PKC

Sent from my iPad

Begin forwarded message:

From: Peter Cocolis <PCocolis@chatham-ma.gov>
Date: June 28, 2021 at 4:55:58 PM EDT
To: Gloria Freeman <freeannie@comcast.net>
Cc: Jill Goldsmith <jgoldsmith@chatham-ma.gov>, Shanna Nealy <snealy@chatham-ma.gov>
Subject: Re: EA relative to AMPU

Thank you Gloria for your comments, concerns and opinions. You included a number of Town Staff and the FAA representative on your email. I agree this letter should be available to all concerned parties and will forward to the Airport Commission. As your concerns are being addressed, the one common factor is the Select Board and Town commitment to safe drinking water as our number one priority.

Peter

Sent from my iPad

Sent from my iPad

On Jun 28, 2021, at 3:14 PM, Gloria Freeman <freeannie@comcast.net> wrote:

To those who are evaluating the Airport EA or involved in Chatham's water supply:

These comments are directly in response to the recent Environmental Assessment (EA), which was conducted as part of the update for the implementation of the new Airport Management Update Plan (AMPU). I would request that this letter be made available to all concerned parties and I thank you for that courtesy.

I strongly object to this report (EA) being conducted by the airport's engineering consultant, Gale Associates. This is a conflict of interest and further divides the community. It is made worse by the Select Board's hands-off attitude. Having Gale Associates conduct this study is a clear indication that the EA is meaningless and is not being taken seriously by the Airport Commission, the Select Board, and the FAA. An independent contractor should have been chosen to conduct the study. I am surprised that you did not consider how offensive this would be to many townspeople who are concerned about changes in the use of the airport. Safety, noise, and change of character, among others.

The EA is supposed to be a study to safeguard the human environment and establish all the impacts either positive or negative about a particular project. There are numerous issues that do not appear to have been addressed in the EA, primary among them is our water. Right now, the single most important issue our Select Board should be discussing is the contamination of our potable water. A letter sent out to citizens by the Water Department has frightened many, and immediate action is needed to determine why our water is contaminated. PFAs are in the well near the airport. Why is that and are any airport operations causing that contamination? That issue must be addressed before any determination is approved by the FAA relative to the AMPU.

I hope that our Select Board will immediately request an expansion of the EA, to be conducted by an impartial science-based consultant, to include all airport operations which could possibly contaminate the water table or impact our wells. That

first-step will show Select Board members' concern and determination to provide safe drinking water for its citizens, a most basic element of life.

Gloria Freeman

Terry Whalen

From: Erika Klein <erikaklein161@gmail.com>
Sent: Tuesday, June 29, 2021 9:44 AM
To: Airport Commission
Subject: Airport Environmental Assessment

To Whom It May Concern,

We live at 87 North Skyline Dr. in Chatham Ma.

The noise already we have to put up with from low flying airplanes is intolerable.

To have our property devalued so that a few pilots can use the airport at night and in poor weather is very selfish.

We are tax paying long standing residents of Chatham and are opposed to all the changes that will be made at the airport

to provide this benefit to the few pilots.

Please listen to us! Cutting vegetation, clearing trees, creating avigation easements, increased carbon emissions, a 10,000 gallon jet fuel tank on aquifer
ALL TERRIBLE ideas, and again selfish.

The noise alone is atrocious. To add these environmental impacts on top of that is awful.

I appreciate you taking the time to take the residents of Chatham seriously and not push through for a busier airport that allows bigger planes to land at all hours of the day and in any weather.

Sincerely,

Erika Klein and James Schwartz

87 N. Skyline Dr

Chatham, Ma

401 486 3634

Terry Whalen

From: Margaret Tompsett <metompsett@gmail.com>
Sent: Tuesday, June 29, 2021 4:07 PM
To: Airport Commission
Subject: ENVIRONMENTAL ASSESSMENT

It was not clear to me that my letter went through to you so I am sending it again.

This Environmental Assessment is totally inadequate because it does not look at the impact of the noisy charter planes on the human beings in the vicinity, it minimizes the environmental impact of cutting down at least 10 acres of trees and destroying vernal pool and wetlands and the cost of the aviation easements. The idea of "trimming trees" is nonsense when we were told in no uncertain terms that trees had to be cut down. It decides to avoid looking at the impact of a 10,000 gallon jet fuel tank saying it is in the distant future when it is in the 5 year plan.

It impacts every citizen in Chatham. Driving on route 28 when one of these monster planes is coming into land is noisy and scary because it feels as if the plane is about to crash on you. Bird watching on the Monomoy river is ruined by noisy planes coming over.

What is the purpose of new hangars when it says that no marked increase in traffic is expected? So you cut down the trees and put more tarmac down on another 3 acres??

All charter planes coming straight in should go to Hyannis with 2 5000+ foot runways and a control tower if safety is the goal. It is unsafe to mix them with ordinary little planes who may not have their radios on. Save Chatham airport for the little planes for whom a shorter runway works well.

This is an attempt to whitewash an attempt to turn Chatham Airport into a commercial airport like Hyannis. It's entirely inappropriate for Chatham and decreases safety, destroying the natural environment, causing havoc for the unlucky people whose property will be slapped with an aviation easement and causing deterioration in the quality of life for everyone. This pot of whitewash should be rejected out of hand.

Margaret E Tompsett MD

Chatham

--

Terry Whalen

From: NicoleStern <meantobe60@aol.com>
Sent: Tuesday, June 29, 2021 4:37 PM
To: Peter Cocolis; Shareen Davis; Cory Metters; Dean Nicastro; Jeffrey Dykens; Jill Goldsmith; Shanna Nealy; Airport Commission
Subject: Chatham Water and Airport's Environmental Assessment

To All...

Action is needed NOW by our Select Board to determine the contamination of our drinking water. PFAs are in the well near the airport, could years of airport operation caused this contamination? Why wasn't our water included in the Environmental Assessment? This isn't the first time the Town has had problems with a well close to the airport. Why wasn't the Environmental Assessment conducted by an impartial independent contractor? Using Gale Associates, airport's engineering consultant, is like putting the fox in the hen house! The Environmental Assessment lacks credibility on many issues not addressed. The Select Board must immediately be involved to protect their citizens health by assuring safe drinking water. Thank you.

Nicole Stern

Terry Whalen

From: Shanna Nealy
Sent: Wednesday, June 30, 2021 8:17 AM
To: Airport Commission; Terry Whalen
Subject: FW: Chatham Airport Support

Shanna Nealy
Executive Secretary to the Town Manager/Select Board
508-945-5105

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From: Cory Metters <coryjmetters@gmail.com>
Sent: Wednesday, June 30, 2021 7:23 AM
To: Jeff Fisher <JFisher@cl-trust.com>
Cc: Cory Metters <CMetters@chatham-ma.gov>; Shanna Nealy <snealy@chatham-ma.gov>
Subject: Re: Chatham Airport Support

Hello Mr. Fisher,
Thank you for your email and the comments you provide in support of the airport. I will certainly be considering the needs of all residents as we discuss future items connected to the airport.

Thank you,
Cory Metters
SB

Sent from my iPad

On Jun 29, 2021, at 1:22 PM, Jeff Fisher <JFisher@cl-trust.com> wrote:

Mr. Metters:

As a long-time Chatham property owner, I am writing to you to voice my support for the work the Chatham Airport Commission is doing with the Airport Master Plan Update (AMPU). As a supporter and user of the Chatham airport, it is good to see the airport being modernized and continuing to add value to our community.

One of the reasons we bought a house in Chatham was for the convenience of having a local airport. I travel often for business in a turboprop Pilatus PC-12 within the New England area. (Please note that although the article in *Cape Cod Times (Hyannis, MA)* speaks to this plane as a "new jet", they were incorrect.) I believe the continued use of the Chatham airport by owners of propeller or turboprop planes is beneficial for all.

I also support the addition of satellite GPS technology, as I have had many trips to and from the Chatham airport cancelled at the last minute due to lack of visibility.

I hope you take into consideration the needs of all tax-paying residents of Chatham.

Sincerely,

Jeffrey Fisher
330 Stage Harbor Road
Chatham, MA 02633

Terry Whalen

From: Leslie Weinstein <leslie@turtlesflytoo.org>
Sent: Wednesday, June 30, 2021 10:01 AM
To: Airport Commission
Cc: Christine Howard; David V. Dinneen; Ken Andrews; Bonnie Barnes; pauls@mts-nc.com
Subject: Chatham Airport GPS Instrument Approach Upgrades
Attachments: MA Sen CRY 05142021[1].pdf; Chatham GPS Approach 06282021.pdf

To whom it may concern,

Attached is our letter in favor of CQX Chatham Airport GPS instrument approach upgrades. Turtles Fly Too is the conservation organization responsible for the Cape Cod cold stun sea turtle air rescues. It is imperative that our pilots flying our missions are safe.

It is further my opinion you have a few in your community who are ill advised when it comes to aviation and the important role aviation plays in conservation. Turtles Fly Too air medivacs the most endangered sea turtle species that are headed towards extinction from Cap Cod each year to rehab hospitals in the south. Recently I have had to address your ill-informed State Senator Cyr of the importance of aviation and his unfounded statements. Letter attached.

If nothing else think of the negative impact to the Kemp's ridley sea turtles that not approving the upgrades to the Chatham Airport will have. I am known for flying a single Kemp's ridley to rehab hospitals in the south, that is how important it is to save a species on the verge of extinction.

Sincerely,



Leslie J. Weinstein
President
Turtles Fly Too, Inc.
208-484-7774
4911 Parkwood Street
Boise, ID 83704
leslie@turtlesflytoo.org
www.turtlesflytoo.org
<https://www.facebook.com/turtlesflytoo/>
<https://www.instagram.com/turtlesflytoo/>
501(c)(3) public charity
EIN 81-4802745



*Our mission is to facilitate the use of general aviation
to transport endangered species and to promote
conservation through education and outreach*

May 17, 2021

State Senator Julian Cyr
24 Beacon St House
Room 309
Boston, MA 02133

Dear Senator Cyr,

I am writing representing our 501(c)3 non-profit organization, Turtles Fly Too, (TF2) as well as the many other organizations that provide critical general aviation emergency transport services to the state of Massachusetts.

House Bill 2305, as presented by you will provide considerable hardship to each of our general aviation nonprofits that transport children, animals, and of course, the endangered species we transport each year within and out of the state of Massachusetts.

This year was the second largest cold stun season for the Cape Cod area with our organization and "Turtle Fliers" transporting over 600 endangered sea turtles. We have been transporting these endangered sea turtles each year since 2014, as your local organizations MASS Audubon Wellfleet Bay Wildlife Sanctuary brings them in off the beaches, New England Aquarium and National Marine Life Center triage them, and we transport the large majority of them out of the state for long-term rehabilitation, as your local non-profit facilities do not have the means to provide.

This year alone, we flew 23 missions, using over 35 planes landing at your local airports. At \$1,000 each landing, that's a cost of over \$35,000 to our pilots (Turtle Fliers), of which each one contributes 100% of their time, fuel, and flight time to assist in our missions. Multiply this by the many other organizations that provide similar services that benefit your state. Turtles Fly Too provides our services nationwide and we do not encounter fees such as you are proposing in any other state. Why is it that you think this is a wise idea in the state of Massachusetts?

As President of Turtles Fly Too, I have enough on my plate taking care of the Cape Cod sea turtle cold stuns that occur every year in the State of Massachusetts. When it comes to endangered sea turtles and assisting the whale rescue teams in flying to the surrounding states when needed, TF2 is called on by NOAA and USFWS to fly these missions.

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Main Office: 4911 No. Parkwood St. | Boise, ID 83704 | 208-484-7774
East Coast Office: 22441 SW 88th Place, #304 | Miami, FL 33190 | 904-463-0513

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Our mission is to facilitate the use of general aviation to transport endangered species and to promote conservation through education and outreach

Your House Bill 2305 is damaging to conservation and the aviation industry as a whole. The most endangered species of sea turtles that TF2 transports by aircraft are the Kemp's ridley that are headed towards extinction. The Fixed Base Operators at your local airports have graciously waived their landing fees and it is time-consuming for us, as a 501(c)3 to negotiate these waivers. The fees you are proposing will cripple each of our non-profit's abilities to recruit pilots to fly our missions for these endangered sea turtles, which will have unquestionable devastating consequences on many of your general aviation transport services we provide.

In addition, due to COVID-19, commercial and private businesses of all types have undergone tremendous loss of business and income. Why would a bill like this to unduly tax the public you serve make sense at this time or for that matter at any time?

To give you an idea of the total costs involved in our air transports was in excess of 1 million dollars that was donated not by the state of Massachusetts, nor any government entity but by our pilot aircraft owners. Nor does any government entity and especially not Massachusetts provide TF2 with any overhead funding.

Recent example:

This past week I had to call off a mission scheduled for Friday, May 14 to fly sea turtles (Kemp's) from the New England Aquarium and National Marine Life Center that went through months of rehabilitation and are ready for release. The MA area ocean waters are too cold yet for release so flying to NC to release was the plan. Un-fortunately the Colonial Pipeline shutdown impacted us. *A total of 4 aircraft would have been involved at a cost to our volunteer Turtle Fliers of \$8,000.00.*

Julian Cyr quote:

"So why did I file the bill? I believe that reaching our goal of net-zero carbon emissions by 2050 (now in law in Massachusetts) will require changes and sacrifices in every industry and most areas of our lives. Currently, there is no public cost to private and corporate plane operators owned by millionaires and billionaires to fly in and out of Massachusetts as they please; every trip produces significant carbon emissions while often carrying just a handful of passengers. During the pandemic, we have seen the use of private air travel increase across Cape Cod, Martha's Vineyard, and Nantucket. Indeed our local airports are the busiest in New England in the summer months. I expect this trend to continue, with hybrid work practices and virtual work becoming

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more routine post-pandemic. Individuals with means have every right to travel as they'd like, but I believe there should be a price or disincentive on such high carbon emissions for few passengers. We are out of time to avert the climate crisis. To meet the moment, components of our way of life need to change, and that includes luxury air travel," Stated Mr. Julian Cyr, Massachusetts State Senator.

I strongly suggest that you abandon House Bill 2305 as it goes far beyond the devastation to climate and our environment. The consequences can decimate so many beneficial programs. You obviously have no idea and are ill-informed of the importance of aviation.

Sincerely,

Leslie J. Weinstein
President, Turtles Fly Too
208-484-7774
leslie@turtlesflytoo.org

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*Our mission is to facilitate the use of general aviation
to transport endangered species and to promote
conservation through education and outreach*

June 29, 2021

RE: Chatham Airport GPS Approach Upgrades

To whom it may concern:

I write this letter as a pilot on behalf of Turtles Fly Too, Inc. a 501(c)(3) public charity specializing in the air transport of endangered species and first responders. Our missions involve flying into a wide range of airports from small to large, urban to rural and mountainous to coastal depending on mission requirements. We recently became aware of challenges to the proposed GPS upgrades to the Chatham Airport's (KCQX) instrument approaches. As an emergency response organization, we wanted to provide feedback on these important changes that we view as a critical flight safety improvement to the airport.

Modernizing the airport's instrument approaches with GPS technology would yield a significant safety improvement for pilots, passengers and the general public. By utilizing modern technology, pilots arriving at the airport will have the option of flying a stabilized approach both laterally and vertically resulting in consistent and safe approaches. Many pilots take advantage of the precision afforded by GPS approach guidance even in good weather and visibility as the on-board systems will monitor the approach and provide feedback to the pilot that the aircraft is properly stabilized. The safest approach has been proven time and again to be one that is stabilized far from the airport and flown within a set of well-defined parameters – precisely what these GPS approaches would provide. The Chatham Airport and surrounding neighbors would benefit from the added safety brought by modernizing the airport's approaches to use GPS technology.

Contrary to what the layperson might assume, the proposed GPS approaches would in no way attract larger aircraft to the airport just as the current approaches are likely not a factor in deterring them. The primary constraint to larger aircraft utilizing the Chatham Airport is the available runway landing distance that would not be altered. Therefore, the approach changes would increase safety while in no way changing the available runway landing distance that is the primary factor in deterring larger aircraft from utilizing the airport.

We sincerely hope that these instrument approach upgrades are allowed to take place as they will increase the safety of the Chatham Airport for both aviators and the general public while not changing the dynamic of aircraft that currently utilize the airport. We know that our pilots, if called to fly a mission into the Chatham Airport, would be safer with these changes in place.

Sincerely,

Kenneth Andrews
Board Vice President
Turtles Fly Too, Inc.

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Main Office: 4911 No. Parkwood St. | Boise, ID 83704 | 208-484-7774
East Coast Office: 978 Gilbraltar Rd. #2 | Key Largo, FL 33037 | 904-463-0513

TURTLES FLY TOO.ORG

Terry Whalen

From: Shanna Nealy
Sent: Wednesday, June 30, 2021 11:32 AM
To: Cory Metters; Dean Nicastro; Jeff Dykens; Jeffrey Dykens; Jill Goldsmith; Peter Cocolis; Shareen Davis
Cc: Airport Commission; Terry Whalen
Subject: FW: Please forward to all Select Board Members, Many thanks.

Shanna Nealy
Executive Secretary to the Town Manager/Select Board
508-945-5105

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From: GEORGE HENRY <ghenry49@comcast.net>
Sent: Wednesday, June 30, 2021 11:30 AM
To: Shanna Nealy <snealy@chatham-ma.gov>
Subject: Please forward to all Select Board Members, Many thanks.

Dear Select Board,

The effects of airplane noise on the quality of life in Chatham especially Great Hill is terrible! Today, June 30, 2021, I counted six (6) low flying airplanes come over my house in 20 minutes! One was the heavy and very, very noisy commercial Pilatus aircraft. Another one had two engines, and it looked like it was just above the tree line! Since we bought our house 11 years ago the number of very noisy large airplanes has increased substantially. The increased commercial and charter flights are making the noise nuisance worse, and there are more flights during hours when we are sleeping.

Also, The airport commission wants to do avigation easements on a minimum of 21 homes, lower flight paths, and increase flights. Someone needs to step up and help the residents of Chatham! We are being bullied by the Airport Commission, and by the few who fly in these huge, low flying, noisy Pilatus airplanes. It needs to stop!

George Henry 210 Horizon Drive Chatham, Ma 02633

Terry Whalen

From: Joyce Williams <jkwlandscapedesign@outlook.com> on behalf of jkw007@comcast.net
Sent: Wednesday, June 30, 2021 1:06 PM
To: Airport Commission
Subject: Environmental Assessment of Chatham Airport Concerns

TO: Chatham Airport Commission
RE: Environmental Assessment of Chatham Airport Concerns

I have serious concerns about the Draft Proposal of the Environmental Assessment related to expansion of the Chatham Airport, specifically the potential for long-term environmental degradation, and the safety and quality of life for those living near the airport and especially those whose property lies within the Avigation Easement.

I am particularly concerned about the potential for removal of an untold number of trees from ten acres of land; destroying acres of wetland and numerous vernal pools; increasing air traffic by accommodating larger planes which will devalue homes and properties due to tree removal and associated noise and safety issues; and forever disrupting the quality of life in Chatham for those living near the airport. Additional jet fuel storage on our single source aquifer, with so many ponds and wetlands nearby, is a nightmare waiting to happen.

I hope that you can find ways to improve and maintain the safety of Chatham airport, and increase revenue if you must, but not at the expense of the environment and quality of life in Chatham.

Joyce K. Williams
15 Ryder Pond East Road
West Chatham

Terry Whalen

From: Roger D'Entremont <roger@angelflightne.org>
Sent: Wednesday, June 30, 2021 3:50 PM
To: Airport Commission
Subject: CQX GPS Approach

Friday, June 25, 2021

I have been a volunteer pilot with Angel Flight Northeast for over twenty years.

This year Angel Flight Northeast is celebrating it's 25th year of service.

Angel Flight Northeast is a 501 (c) (3) non-profit, tax-exempt organization that coordinates free air transportation for patients whose financial resources would not otherwise enable them to receive treatment or diagnosis, or who may live in rural areas without access to commercial airlines.

The organization is comprised of 500+ volunteer private pilots who combine our love of flying with the spirit of grassroots volunteerism by flying patients and their families to the critical health care they need.

Angel Flight NE provides air transportation in private aircraft by volunteer pilots so that children and adults may access lifesaving medical care free of charge.

The Chatham airport needs an approach with minimums of 200 feet and a half mile., which would be possible with a GPS LV approach. This approach is available in the aircraft flown by our volunteer pilots.

I have personally been unable to pick up a medical passenger flying out of Chatham because of 400-foot weather, which is below your approach minimums. The passenger was unable to be treated for two days.

The Chatham airport GPS-B and the ADF have minimums of 600 feet and 1 mile. These minimums are too high for New England weather!

An upgrade to GPS LV with a 200-foot decision height would be extremely helpful in allowing our volunteer pilots to fly safely into Chatham much more often than the current 600-foot minimums.

Angel Flight NE often is requested to fly patients in and out of the Chatham airport.

With a GPS LV approach we would be able to help more local residents get the medical treatment they require.

Considering the normal New England weather, I believe that Chatham needs to upgrade to a GPS LV approach as soon as possible.

Respectfully,

Roger D'Entremont
Angel Flight NE Pilot Administrator

Terry Whalen

From: pgw73 <pgw73@verizon.net>
Sent: Thursday, July 01, 2021 7:21 AM
To: Airport Commission
Cc: 'Christine Howard'
Subject: Public Response to Chatham EA
Attachments: cqx_draft_ea_for_public_comment.pdf; legal publishing.pdf

Good morning Commissioners,

I understand you are requesting inputs to the environmental assessment for advancing toward GPS-based approaches at Chatham. For more than five years I managed the FAA contract team for FAA Navigation Programs in Wash. DC that creates the GPS approaches and maintains the satellite system servicing the WAAS-enabled GPS network. Let me simply offer:

1. The FAA steadfastly maintains they do not create GPS approaches to increase air traffic. They are created for primarily for greatly increasing safety.
2. GPS-based approaches also increase cost efficiency by enabling the removal of more costly VOR, NDB, and eventually some ILS systems.
3. As stated by others and is replicated all across the nation, GPS approaches eliminate more dangerous non-precision approaches and circling maneuvers.
4. As good as any GPS-based airport is, the operations are not based on the approaches that serve that airport, but the fixed ground environment such as runway length and width, approach lighting, overruns, and obstructions clearances.

These are not my personal opinions or comments. These are all part of the FAA's GPS navigation promotion guidelines when working with airports all across the country. The FAA has rightfully no interest in increasing air traffic where it is not wanted. GPS navigation wasn't created to do this. Again, it was created for safety and eliminate inefficiencies in the airways servicing systems.

Most sincerely,

Paul

Paul Worcester
Former FAA Contract Program Manager for FAA HQ Navigation Programs
Airport Commissioner – Plymouth Municipal Airport, Massachusetts
Colonel (Retired) & Former Commander 102nd Fighter Wing, Otis ANGB, MA
C (774) 454-0701

Terry Whalen

From: Jane Wilson <jnww51@gmail.com>
Sent: Thursday, July 01, 2021 9:26 AM
To: Airport Commission
Cc: Peter Cocolis
Subject: Environmental Assessment Feedback

FAA:
Please consider the fact that in over 70 years our airport has had a remarkable safety record with a 600' visibility ceiling.
Do not lower it.
We DO NOT want more inclement weather landings at CQX.
Barnstable offers a much safer alternative site in inclement weather.
Do not lower the visibility ceiling.
There are no functional RPZs at our airport.
There's a Farmers Market IN the RPZ here.
Do NOT lower the visibility ceiling.

Jane Wilson
West Chatham

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Thursday, July 01, 2021 11:37 AM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: EA comments - locked document unnecessarily makes comment more difficult and time consuming

Airport Commission,

Why is the EA document locked? It makes detailed review and comment difficult. It is this kind of continuing lack of consideration for the public reviewing your documents that undermines any thinking that the Commission is engaged in any good faith effort to seek meaningful public input on its EA.

Please unlock the document in order to make comments easy to insert without retyping the document. Please also consider an extension of the comment deadline.

Thank you.

David Bixby

Terry Whalen

From: Dan Brickman <dan.brickman@me.com>
Sent: Thursday, July 01, 2021 11:42 AM
To: Airport Commission
Subject: Chatham Airport Option 4

Dear Commissioners:

We are Chatham homeowners and would like to see improvement to the Chatham Airport. Although we are not pilots we have used the airport on many occasion over the last 20 years. It is a great asset to the town and its residents, and should be modernized for the benefit of all. We fully endorse Option 4 to the Environmental Assessment (EA) proposal to install GPS instrument approaches and other improvements. We are in support of a safer, quieter and updated airport facility and instrumentation to assure the airport operations in the future. This is an important piece of Chatham!

Thanks for your time.

Sincerely,

Dan Brickman
20 Davids Lane
Chatham, MA 02633
203.249.2667

Terry Whalen

From: David Daniel <DDaniel@SpencerStuart.com>
Sent: Thursday, July 01, 2021 12:18 PM
To: Airport Commission
Subject: CQX

Dear Commissioners,

As a Chatham homeowner, I know that Chatham Airport offers many benefits to the town and its people. I have used it regularly as a passenger for many years. Option 4 to the Environmental Assessment (EA) speaks to the possibility of installing GPS instrument approaches and other improvements. I support this plan since it will make the airport safer and quieter and assure its future.

David Daniel
Private Equity, CEO and Board Practice
Spencer Stuart Miami

T 203.326.3780 | M 917.770.8258

[Email](#) | [Miami office](#) | [My bio](#)

Assistant: [Carolyn Caley](#) | T 203.326.3749 | M 203.918.4200

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Terry Whalen

From: Jan Fields <jbfields1@gmail.com>
Sent: Thursday, July 01, 2021 1:24 PM
To: Airport Commission
Cc: Shanna Nealy
Subject: Support of Alternate #4

To the Members of the Airport Commission:

In considering the choices in front of you presented by the Gale report on Environmental Assessment, I hope you will put safety as your first consideration. I strongly support Alternate #4 as the only alternative that fully embraces the safety of the surrounding area, people, places, and pilots. An approach that allows for both lateral and vertical guidance, technology that has been in place for years at other airports, is inherently much safer than the outdated technology that currently exists.

Some have suggested that shortening the runway makes things safer. That is incorrect as it shortens the landing distance allowing for a smaller margin of error for planes of all sizes. Further, if obstacles are not removed, we will be shortening the runway again in years to come as they grow further into the flight path of any size plane.

Finally, we seem to be in an era of positioning our beliefs as facts. Whether at Town Meeting, letters to the editor, Airport Commission, and/or Select Board, ads in the newspaper "facts" are cited which aren't, in truth, facts at all. For example, the Just the Facts ad which states that the "airport's current approach is visual conditions only" is patently false and is meant to mislead. The current, less than ideal circling approach, is used in instrument conditions.

Please do not be discouraged by these actions. Move forward with Alternative #4 for the safety of all.

Respectfully,

Jan Fields

Jan

Terry Whalen

From: Richard Klein <klei027@optonline.net>
Sent: Thursday, July 01, 2021 2:52 PM
To: Airport Commission
Subject: EA alternative 4

Hi. As a longtime property owner and pilot I support the proposal for improved GPS approaches. Safety is most important to pilots and neighbors.

Richard Klein
West Chatham,MA

Sent from my iPad

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Thursday, July 01, 2021 4:02 PM
To: Airport Commission
Cc: david bixby; Terry Whalen; Jill Goldsmith
Subject: Critique of Chatham Airport Master Plan Environmental Assessment

Please add the following comments to your review of the draft Environmental Assessment of the AMPU projects.

1.1 - When and why did the Commission expand the service areas of the airport from local communities to all of Cape Cod? The AMPU portrays the service areas all of Cape Cod. Service has also been expanded significantly to include Part 135 taxi/commuter service nationally. The EA does not adequately address the human impact of these expanded operations on Chatham residents living within the area impacted by airport noise.

2.0 - A commitment was made in public meeting by the Commission to not pursue aviation easements in the vicinity of Runway 24. The EA reneges on that commitment. It appears that the Commission has taken advantage of the covid meeting restrictions in order to quietly pursue more easements without the face to face opposition of the public.

2.0 - Did the Airport Commission consider the Cape Cod Commission order of conditions with respect to vegetative management under the Airport Commission's DRI hardship exemption back around 2003? If not, then why is that not discussed in the EA?

2.0 - There remains an issue that demand for more airport hangars is justified based on faulty mathematical analysis and only word of mouth estimates of the airport manager who will most likely benefit financially. The Commission has been unable to produce a written record of demand and may or may not even have a hangar waiting list or any written documentation of how a list, if it exists, is or will be managed. There are certainly ethical if not legal issues here that warrant investigation. There is no serious discussion of the human impact of increased airport activity, including noise and air pollution, as a result of a near doubling of based airport capacity. And there is no discussion on the impact on airport finances given the recommendation to pursue hangar development through private enterprises, thus depriving the public airport of needed funds to support airport operations as is required under aviation law and grant assurances with the FAA. The resulting human impact of continually increasing tax demands to support the under funded airport remains unexplored.

2.0 - Fuel facilities may be excluded generally but I believe NEPA law and regulations provide for special consideration when called for by local circumstances. A doubling of on airport fuel capacity is a significant risk to Chatham's drinking water supply, already compromised by a sinking water table and ground water pollution, possibly related to airport activities. It is hard to imagine a greater impact on the human environment than loss of its drinking water source. Airport officials have a record of ignoring SWPPP rules and agreements. The Manager has no SWPPP document as is required in the Commission's SWPPP. Furthermore, the Manager has routinely parked his private 3000 gallon fuel truck outside of the fuel spill containment area in violation of Commission conditions. The Commission is also on record as citing ongoing excess water accumulation in the spill containment area compromising the system.

2.0 State law and Cape Cod Commission rules categorize the AMPU as a Development of Regional Impact calling for, among other things, a public hearing. NEPA regulations call for coordination with other public bodies in the EA process. There has been no such coordination. A DRI application requires that the AMPU be evaluated in its entirety, not piecemeal. Had the Commission coordinated the EA review with the CCC, a review of the airport admin building and fuel farm expansion would have been included. The direct and indirect impact on the human environment for these two proposals should have been reviewed along with other projects in the AMPU. This attempt at a piecemeal EA of total AMPU project impacts weakens the process.

2.1 - It is not entirely clear that the Town Bylaw had or has the authority to limit stricter or tree growth without compensation under state law. Regardless, the Bylaw assigns responsibility to the Commission. There is no record of the Commission acting to enforce the Bylaw since I believe 1995 when the Commission abandoned all attempts to secure easement rights of private properties with compensation. Furthermore, there exists no record or inventory of which structures or trees existed at the time the Bylaw was enacted. The Commission has no idea of which trees would have been grandfathered under the Bylaw. For 26 years the Commission has ignored its responsibility with respect to the control of airport approaches under 1) the Bylaw, 2) FAA regulations, 3) federal grant assurances. And the FAA has done nothing in these 26 years to enforce these regulations and grant assurances. Why then the big push now to control tree heights? Do the Commission and FAA take no responsibility for their historic failings?

Has the Commission contacted each of the owners of property targeted for easement takings and solicited their involvement in the EA? What will be the human impact on the families who have been stripped of their right to the enjoyment of their properties? FAA aviation easements are harsh with respect to stripping home owners of rights. Where in the EA can we find a copy of the text for the aviation easements? Is this attempt to whitewash the impacts, by claiming straight in landings will result in less noise, disingenuous? We already know that most large Part 135 aircraft already practice straight in landings, so where is the noise reduction. Furthermore, we know that the larger turboprop air taxi / commuter operations in Chatham are increasing, thus creating even more noise, regardless of approach patterns. Where is the analysis, the projections, for increasing Part 135 activity? What will be the future impact on the human environment? Who is benefiting financially? Has the Commission set aside public concerns over noise, etc. in order to featherbed certain private interests? Why?

4.1 - In the 50 or so years of Chatham routinely ignoring federal aeronautics laws and grant assurances, the FAA has never once pursued an action to withhold airport improvement funds, despite numerous violations. Why then is this now a concern? Is the Commission using this apparently empty threat to justify its actions to deprive home owners of their property rights? The Town of Chatham ceded all rights to enforce the grant assurances required under federal law when it signed its grant assurances agreements with MassDOT. The FAA has taken action despite Part 13 complaints before the FAA. The Town has taken no action to restrict the land around the airport to uses compatible with normal airport operations. The federal grant assurances require the town to use zoning to prohibit the development of these areas for residential purposes. No such action has ever been taken by the town, and yet, no FAA enforcement actions. The Airport Management Services Agreements covering now a 30 year period grant all airport income (with now a few limited begrudging concessions as a result of public pressure) to the airport manager's private business, CCFC. Federal law and grant assurances prohibit the diversion of airport revenues for purposes other than funding airport operations and improvements. The FAA failed to take any enforcement action. There exist at least four other private businesses that operate on the premises of the public airport. Not one contributes revenues to fund the airport. Not one word from the FAA. Federal law and the FAA grant assurances require the airport to take reasonable steps to make the airport self sustaining. And yet the AMSA continues to strangle the airport of needed public funds. The Commission continues to seek public funding for improvements even while continuing to divert airport revenues for private purposes. No action from the FAA.

So it is a bit hard to accept the idea that the FAA will now step in and withhold funds because people bought houses in residentially zoned areas near the airport and allowed their trees to grow. Is it a safety issue? Maybe. But the FAA has ignored numerous repeated violations of its pilot regulations and prohibitions of skydiving with no consequence to pilots. Pilots flying out of Chatham routinely violated the minimum flight altitudes and the FAA allowed skydiving (which is prohibited over congested areas) of Chatham for five years. No enforcement actions were taken and no threats to withhold funds.

4.1.2 What does " 'potential' diminishment of the viability of the Airport's role in the National Plan of Integrated Airport Systems" mean? Does the Commission not know? Did they not fully investigate this alternative? Why not?

Not all pilots are entitled to use all airports. If local conditions and considerations call for a displaced threshold, in accordance with FAA design criteria and regulations, then so be it. There is no rule of law that says all airports must

accommodate all pilots. And it is not as if there are no viable alternatives given the proximity for the very close by and much safer Hyannis Airport.

The Airport has always had an obligation to continuously monitor vegetation, and has largely ignored that obligation for many years. What is the status of the airport's obligation to manage the growth of invasive species under its order of conditions from the CCC roughly 20 years ago?

I don't know how you can say aviation easements have no environmental impact. It is my understanding the impacts under NEPA are defined broadly to include all human impacts. When nearly 300 residents packed to overflowing meetings before the Commission nearly two years ago it was over their fear of the Town seizing their property rights. Only covid managed to defuse the public outrage. Confiscating a homeowner's right to enjoy his property is a pretty basic impact on the human environment.

"This option only provides a temporary solution to a long-term problem." - There appears to be an undertone here that pilots and airport officials will always get what they want: their stated need and purpose. But neither the Town nor the Commission have been willing to set limits on either the airport or outside development. The FAA required recipients of FAA funds to take actions, including zoning, to prohibit the use of lands near the airport to those compatible with normal airport operations. The Town and Commission have ignored that obligation for roughly 50 years. We now have an airport fully surrounded by residential and other uses that are according to the FAA inherently incompatible with the airport. The flareups over skydiving, the biplane, and now easements exemplify the very predictable conflict between airport and community. And now, after shirking their duty to comply with the FAA agreements for decades, the Commission wants to confiscate property rights. Let the Commission reap what it has sown. Maybe it is time to set limits for the airport. The EA has given little serious consideration to its heavy handed imposition on home owners and taken no responsibility for a situation of its own making. FAA literature is replete with warnings of the dangers of residential development and its existential threat to airports. The Town and Commission refused to heed those warnings. Why now should homeowners pay the heavy price for failure of the Town and Commission?

4.1.4 Has the Commission consulted with the Conservation Commission and Cape Cod Commission with respect to managing vegetative growth in the environmentally sensitive areas? What were the Airport's commitments under the DRI hardship exemption granted by the CCC with conditions? Is there a problem in these areas because airport officials, maybe again, ignored their responsibilities under previous agreements, in this case with the CCC. The CCC conditions and subsequent compliance actions by the airport officials need to be examined.

The airport needs to retain its existing client base? What analysis did the Commission determine which, if any, of the based aircraft would be limited, or forced to base elsewhere, as a result of a displaced threshold? Is conjecture the basis of this EA?

Preserve community revenue? 1) profits from fuels sales all go to a private company, CCFC, not to the airport and not to the Town. 2) Rental cars? Is there a rental car business operating at the airport? Where are the required permissions from the Commission and Town Manager? Or is this again just conjecture. 3) Hangars? In the past 25 years or so ALL hangar revenue has gone to the private manager, CCFC. And it appears that the new hangars proposed will also benefit a private business, most likely CCFC, with no revenue going to the airport. And if as the EA seems to suggest, if displaced runway thresholds result in based aircraft leaving Chatham, is that such a bad thing for the community as a whole, with less noise and less pollution?

4.2.1 There is no evidence of demand for airport hangars. There is no public waiting list documenting demand. Only conjecture. And just because pilots may want hangars in Chatham, is that justification for the inevitable conflict with the neighboring community resulting from increased air traffic? Children don't always understand that they can't have something just because they want it. But adults? Demand does not (and frequently does not) always result in wants being fulfilled for the simple reason that there can be consequences. Do the wants of a small number of pilots outweigh the interests of the hundreds if not thousands of airport neighbors who might not appreciate more airport noise.

New Hangars will help make the airport self-supporting? It is my understanding that the hangars will be built by private interests and most likely with no revenue benefit to the airport. Have the authors of the EA sought to mislead the reader? The next line of the EA confirms this. Private developers will develop the hangars. Guess who will get the revenue.

118,500 SF of impervious surface over the Town's drinking water aquifer that is already overtaxed and supplies shrinking. Where is the analysis of this loss of pervious surface and its impact on Chatham's water supply? Certainly the tradeoff between a couple dozen hangar spaces and town drinking water supply is worthy of a more careful analysis than this.

Increased opportunity for revenue generation? Certainly the EA could be more specific than this. How much revenue generation and for whom? Will revenues go to the airport fund or will revenues go to CCFC, a private company? Why is there no firm commitment here? Does the Commission use revenue generation as a carrot to get public support and then quietly steer hangar construction to private interests as it did last time?

Massachusetts law requires public agencies evaluate public projects for their impact on climate change. I see no such analysis in this EA.

6.0

How is it that a 10,000 gallon jet fuel storage tank over a sole source public drinking water supply a categorical exclusion? Don't NEPA regulations provide for setting aside the categorical exclusion when local conditions demand it. I can not image a more critical concern than jet fuel leaking into our water supply. We have no alternative supply of water. Our water levels are low and now contaminated, possibly from the airport. Is the trade-off here worth it? A real threat to our sole source water supply vs fuel supplies for larger, noisier turboprop aircraft? All profits from jet fuel sale will go to the private for-profit airport manager, CCFC. None will benefit the airport nor make the airport more self-sustaining. We will spend federal, state, and local public tax monies to build a facility for the sole financial benefit of a private business with close ties to the airport commission.

It is not clear to me how land use categorical restrictions apply to the AMPU EA. Is this an attempt to categorically exclude airport projects from NEPA examination?

Noise and Noise-Compatible Land Uses - I believe this categorical exclusion calls for greater review and with the possibility that it be set aside due special local considerations. And frankly, the FAA classifying an airport with annual operations approaching 90,000 or 247 daily as not requiring a noise analysis is laughable. No rational person would suggest the resulting noise impact on a community surrounding such an airport is so negligible as to not warrant review.

6.1 Air Quality - Barnstable County is not Chatham. What are the localized effects of lead fuel exhaust and jet fuel shoot on the local population in the vicinity of the airport, particularly children. A North Carolina study for statistically significant increases in lead levels in the blood of children within five miles of several airports. Chatham's children may or may not have increased lead in their blood as a result of localized airport operations, but we will never know by simply extrapolating to county wide numbers. Has anyone in Chatham actually bothered to compile the numbers for children growing up in Chatham near the airport?

6.3 Regardless of any agreement between the town and airport commission, I believe the order of conditions placed upon the Commission in its DRI hardship exemption requires the continuation of the bike path.

6.5 The convenient dismissal of the adverse affects of the Proposed actions on human health and the environment are at best speculative. Where is the evidence of insubstantial impact. I know I and many of my neighbors in Chatham are very concerned over both on-going impacts of the airport and the potential for increasing impacts as a result of the cumulative effect of the proposed actions on the growth of airport activity. The FAA well understands that airports and

residential communities in the vicinity of airports are not compatible. An expansion of airport facilities will inevitably attract more use and exasperate local conflict. This EA has given short shrift to those conflicts undermining the credibility of the document.

I find the statement that the proposed actions will not appreciably induce substantial growth either directly or indirectly to be disingenuous at best. The Town and Commission have repeatedly touted the \$13 million in annual economic activity attributed to the airport as justification for added and continuing airport investments. And now the EA says those investments will not make a difference? I guess I just don't understand this apparent contradiction, unless it is that airport officials speak out of one side of their mouths when it suits them and the other when it doesn't. In the world of aeronautics where there is often no accountability, I guess it just doesn't matter. And for the record, the MassDOT study of economic benefits would never stand up to peer review because they refuse to release the data. The sources of that data are often people who would benefit financially from airport investment. Not exactly unbiased.

Is tree removal really unavoidable? The Commission has consistently avoided releasing details of their constantly changing plans. Have they ever met face to face with the proposed property owners to see how they feel about these "unavoidable" impacts? And are they unavoidable in the case of displaced runway thresholds?

6.7.5 - With respect to impacts on climate change, probably no single action contributes significantly to climate change. And yet the cumulative affects of all these little insignificant actions has somehow changed our climate with disastrous consequences. And it will only get worse. To write off all these actions as "negligible," to encourage more use of the airport as having an insignificant impact on climate change perhaps undermines any chance we will ever have to reverse the trend. The continuing and increasing recreational use of the airport is maybe a luxury the world can no longer afford.

Thank you

David Bixby

Terry Whalen

From: Rene Haas <renehaas@gmail.com>
Sent: Thursday, July 01, 2021 10:52 PM
To: Airport Commission
Subject: Comment on Environmental Assessment

The following are my comments with respect to the Environmental Assessment conducted in conjunction with the Master Plan Update at Chatham Airport:

1. The proposed approaches called for in alternative 4 will more accurately and consistently guide aircraft to Chatham.
2. The new approaches will guide aircraft at a safe altitude above people's homes, never lower than current approaches in effect today.
3. The approaches will be quieter for everyone as aircraft are guided down steadily on a low power setting, overflying fewer homes than today.
4. The approaches have been proven (by FAA) to be far safer for all, based on many years of accident statistics.
5. Most airports in our region have already implemented these safer approaches; why should Chatham be a laggard?
6. Implementing the approaches will allow us to decommission the obsolete radio beacon, freeing space for a future solar array, and moving Chatham Airport toward a zero-carbon footprint.
7. Unlike the current obsolete radio beacon, the new approaches will require no maintenance whatsoever, reducing costs.
8. The proposed alternative 4 greatly reduces the number of impacted properties to 21 from the originally envisioned 46 in the Airport Master Plan Update. This shows that Gale Associates has worked hard to minimize property impacts while maintaining the high safety levels of the GPS-guided approaches.
9. The number of trees that are affected will be less than the tree clearing typically done to build a single-family home.
10. Proposed approaches would have a minimal impact on overall traffic at the airport. A small increase in instrument-guided landings would mostly be offset by a small decrease in landings under clear skies.

I have only one change to the EA that I would like the Commission to consider, namely, in section 2.1 it states that only 11 aviation easements would be required if the Town had enforced its airport protection bylaw. While that is true, there is nothing stopping the Town from still using the bylaw in lieu of pursuing Easements on the 10 protected properties. The EA should be amended to reflect that option.

In summary, I strongly support the adoption of the recommended alternative 4. It may not be the 100% solution sought by the aviation community, but it is an

excellent compromise that balances the need for safety with a substantial reduction in the impact to neighboring properties.

Thank you for your consideration,
Rene Haas
Chatham

Terry Whalen

From: Douglas Fields <douglas.fields1@gmail.com>
Sent: Friday, July 02, 2021 7:50 AM
To: Airport Commission
Cc: Aviation for us
Subject: Alternative #4

Your support of the historically significant and economically important part of our community, the Airport, means so much to us. The false rumours, inaccurate ads, and irrational letters to the editor don't make your job easier. Fortunately they do not represent the views of the community as a whole. In spite of the name they have adopted, they speak only for their own selfish motives. Continue your fine work managing this precious Community asset.

Douglas Fields

Terry Whalen

From: Gavin Archibald <garchib150@gmail.com>
Sent: Friday, July 02, 2021 8:00 AM
To: Airport Commission
Subject: Continued support for alternative #4

Hello Airport Commission, I continue to strongly support alternative #4. As an airport user, it makes the most sense to make the airport safer not only for airplanes, but those on the ground. This modernization and updating is long overdue.

Your steadfast support of the Chatham Airport, while under a barrage of false information campaigns has been admirable and I encourage you to stick to your convictions as we head into the final stretch of the AMPU, in spite of noise from those whose intent is to do anything to stop progress at the Chatham Airport.

Over the past several months, I have spoken with numerous Chatham residents and small business owners as I go about my day. To date, I have not spoken to one person, I will say that again, I have not spoken to one person who does not support the Chatham Airport. The anti-airport vocal minority remains that - a small minority of the Chatham population.

Thank you, Gavin Archibald
Harwich Port, MA
Aircraft owner, hangar owner at CQX

Terry Whalen

From: Peter Gerstberger <petergerst@comcast.net>
Sent: Friday, July 02, 2021 8:13 AM
To: Douglas Fields; Airport Commission
Cc: Aviation for us
Subject: RE: Alternative #4

Nicely done Doug

Sent from my Verizon, Samsung Galaxy smartphone

----- Original message -----

From: Douglas Fields <douglas.fields1@gmail.com>
Date: 7/2/21 7:49 AM (GMT-05:00)
To: airportcommission@chatham-ma.gov
Cc: Aviation for us <aviation-for-us@googlegroups.com>
Subject: Alternative #4

Your support of the historically significant and economically important part of our community, the Airport, means so much to us. The false rumours, inaccurate ads, and irrational letters to the editor don't make your job easier. Fortunately they do not represent the views of the community as a whole. In spite of the name they have adopted, they speak only for their own selfish motives. Continue your fine work managing this precious Community asset.

Douglas Fields

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You received this message because you are subscribed to the Google Groups "Aviation for us" group.

To unsubscribe from this group and stop receiving emails from it, send an email to aviation-for-us+unsubscribe@googlegroups.com.

To view this discussion on the web visit https://groups.google.com/d/msgid/aviation-for-us/CAPGWXj2xFY6Y064y4ismRLFomxPHMP89XPkg_OfYc3boxwXukg%40mail.gmail.com.

Terry Whalen

From: PAUL GREENOUGH <pgreen1938@aol.com>
Sent: Friday, July 02, 2021 8:33 AM
To: Airport Commission
Subject: Fwd: PFA's near well by the airport

Sent from my iPad

Begin forwarded message:

From: PAUL GREENOUGH <pgreen1938@aol.com>
Date: July 1, 2021 at 9:08:37 PM EDT
To: pcocolis@chatham-ma.gov, sdavis@chatham-ma.gov, CMetters@chatham-ma.gov, dnicastro@chatham-ma.gov, jdykens@chatham-ma.gov, rduncanson@chatham-ma.gov
Subject: Fwd: PFA's near well by the airport

Sent from my iPad

Begin forwarded message:

From: PAUL GREENOUGH <pgreen1938@aol.com>
Date: June 27, 2021 at 4:49:31 PM EDT
To: Jill Goldsmith <jgoldsmith@chatham-ma.gov>
Subject: PFA's near well by the airport

Dear Ms. Goldsmith,
We are very concerned about the quality of water in the well near the airport. The planned storage of jet fuel, fire fighting foam and other hazardous materials at the airport puts PFA's into the environment that can easily enter the water table. As I am sure you are aware, the quality of the water in our wells is critical. The results of the airport's environmental assessment are questionable. The town deserves to have an independent expert assess the impact of the airport's proposed expansion on our water supply as well as on the physical environment.
Respectfully,
Jean and Paul Greenough

Sent from my iPhone

Terry Whalen

From: Elizabeth Roos <lizandmikeroos@comcast.net>
Sent: Friday, July 02, 2021 10:13 AM
To: Airport Commission
Subject: Stop the Airport growth
Attachments: Stop the Growth-Keep the trees.pages

Terry Whalen

From: Judith Stewart <jmgstewart@verizon.net>
Sent: Friday, July 02, 2021 10:39 AM
To: Airport Commission
Subject: Environmental Assessment Comments regarding Chatham Airport

Dear Madam/Sir:

The Chatham airport is in a dense residential area and very close to West Chatham Village. The Airport Commission has not sufficiently studied nor considered the impact of airport expansion on the health and safety of the surrounding residents nor the environment. The AC process has lacked transparency and objectivity. Please do not allow further expansion of the airport.

Judith & Scott Stewart
65 Squanto Dr.,
Chatham

Terry Whalen

From: Maryellen Lorefice <maryellenlorefice@gmail.com>
Sent: Friday, July 02, 2021 11:43 AM
To: Airport Commission
Subject: Environmental Assessment Comments

Dear Town of Chatham officials/Select Board,
I am writing to you to express my concerns about the Airport Master Plan Update and it's apparent focus on what the Airport Commission wants vs. what is best for the Town. It is the Town who owns the airport--all the residents of Chatham--and for the Commission to continue to push for the cutting down of resident's trees, mandating easements that give the Commission permanent control over one's property as they see fit, subjecting residents on all sides of the airport to larger, noisier planes during more hours of the day...all while insisting these changes would be in the name of safety...is not right.

While I am a resident of E. Harwich, my Mother has lived one short block away from the airport on Thompson's Trace for over 30 years. I have several friends who have lived on both sides of the airport's flight path for many years...the marked increase in the number of flights, the loudness of the noise, the number of flights arriving before 8 a.m. and after 9 p.m., and the pollution generated by all of this is an assault on hundreds of tax-paying residents and their families, every day.

The fact that the airport is near one of the Town's drinking water wells, that the Commission is pushing to store more jet fuel on the premises and hence more toxic fire-fighting foam (when there are less toxic foams available) does not bode well for our environment...the air we breathe and our

groundwater in particular. Increased greenhouse gas emissions and PFAs released into the environment is not the way to go--we need to be trying to reduce these pollutants and toxins and improving our air and water quality, not adding to the problem.

These effects of the increased pollutants and toxins should not be minimized and considered "the price of doing business"--our friends and loved ones live and work here...the Airport Commission can do better, and must.

Maryellen Lorefice
32 Old Carriage Drive
E. Harwich, MA 02645

Terry Whalen

From: jfletcher252@gmail.com
Sent: Friday, July 02, 2021 11:45 AM
To: Airport Commission
Subject: Environmental Assessment Comments

As residents who live directly under the flight path of planes arriving and departing to Chatham airport, we object to the plan where there would be more and more planes polluting our special environment here in Chatham, spewing objectionable pollutants. In addition, aviation plans would cut down beautiful trees and upend other spaces. Also it would be possible for planes to fly even dangerously lower to the roofs of our house.

Alan and Jean Fletcher
252 North Skyline Drive
Chatham
Sent from my iPhone

Terry Whalen

From: Paula Lofgren <pwlofgren@mac.com>
Sent: Friday, July 02, 2021 12:01 PM
To: Airport Commission
Cc: Peter Cocolis
Subject: Draft EA comments

Comments on the DRAFT Environmental Assessment.

Please include the following text in the public comment report to the FAA.

2.0 Proposed action

The omission of investigating the environmental impact of a 10,000 gal Jet - A fuel facility on Chatham's single source aquifer defies explanation. Categorically excluded or not, this is a unique and potentially devastating location for this facility in the event of a possible accident. At a time when our nation is breaking ties with the use of fossil fuels, CQX proposes storing these fuels to meet customer demand putting the wants/needs of recreational pilots over the well-being and policies of the residents of Chatham who own this airport.

With regards to the assertion that "best practices" will be in place to protect our groundwater from possible contamination, at this very time the Jet-A Fuel truck operated by our airport manager is often seen parked by the fence along George Ryder Rd well away from the fuel farm where it is supposed be located.

This action has an environmental impact.

4.2.2 Development of Hangars:

The Proposed action is to provide for the needs of Airport users and to *meet hanger demands* at the airport. At a time when the necessity of non-essential air travel is being questioned and measures that reduce carbon emissions in all areas of transportation are being investigated, the development of hangars seems to be at odds with the town's efforts in this area. It seems to be in direct opposition to the implementation of projects that reduce individual citizen's production of carbon emissions. And for aircraft burning Avgas: the production of *leaded carbon emissions*

The draft document is in favor of the new hangars even though it does make note there will be an environmental impact of 118,000 ft.² (nearly 3 acres) of additional impervious surface on our aquifer. The project would result in the clearing of land, cutting down trees and vegetation and replacing it with buildings and asphalt.

At a time when Chatham is struggling with the issue of saving open space to mitigate climate change while at the same time looking for appropriate locations for affordable housing, this draft document conveys that message that 22 hangars for personal aircraft are more important than preserving open space.

One of the Airport Impacts noted is that the proposed hangars will result in additional sources of revenue for the Airport. If the hangars are to be built with private funds, where is the revenue source to the Airport Revolving Fund?

Contrary to the findings of the draft EA, this proposal most definitely has an environmental impact.

4.1 Avigation Easements:

The preferred alternative 4.1.4 states that "there are no environmental impacts associated with the acquisition of avigation easements." The draft document refers to homes as parcels and does not recognize that many of these parcels are residences to which the human impact of homeowner's reduced quality of life and reduced property values will be considerable.

The summary for this project states that this alternative positions the airport to preserve its revenue for private fuel sales and hanger revenue and tourism at the expense of the personal financial well-being of the homeowners on the avigation easement listing.

Even one easement will have a detrimental economic effect on the "human" environment.

Section 6.7.5 Climate

Quote from the EA: "Although there are currently no Federal standards for aviation related Green House Gas emissions, it is well-established that GHG emissions can affect climate.... While the project would ultimately result in a slight increase in aircraft traffic and associated GHG emissions it is anticipated that this increase would have a negligible impact on climate."

At a time when Chatham, Cape Cod and the entire world is working to reduce greenhouse gas emissions to the highest extent possible - including the aviation industry - this document actually states that the airport's increase in emissions is perfectly acceptable and has negligible environmental impact.

Recently the Chatham Select Board approved the newly renamed Chatham Energy and Climate Action Committee part of whose charge is to set goals for limiting energy consumption and emissions. They are to "cooperate with various town departments and boards" (Cape Cod Chronicle 7/1/21)

It is often stated that "we are all in this together" but it appears the airport is not part of that plan. Climate change is real and effects everyone in the human environment here.

The proposed actions in the EA most definitely have an environment impact on our climate.

I would like to request that the Airport Commission revisit the findings of this draft document and develop an assessment that is in line with the environmental policies of the the Town of Chatham in which it is located and the residents who own the airport and support it in so many ways.

Paula Winter Lofgren
69 Horizon Dr.
Chatham MA

Terry Whalen

From: Nina Kleaveland <ninakleaveland@gmail.com>
Sent: Friday, July 02, 2021 1:12 PM
To: Airport Commission
Subject: Airport Support

Dear members of the commission,

As a Chatham homeowner and mother of two small children, I want to strongly come out in support of the airport more broadly and alternative #4 more specifically. Going to the airport and watching planes take off and patronizing Hangar B is one of our favorite things to do in Chatham, and we love the community feel of the airport.

I understand there are some who are opposing modernizing the airport and I want to strongly support alternative #4 to bring safer and more accurate flight paths to the airport. Safe approaches seem to benefit all, most especially those of us who have homes near the airport. We appreciate the work of the commission and all those who help make Chatham the community we love. Much as we continue to invest in our homes, schools and roads, we should continue to invest in the airport.

Thank you,
Nina Kleaveland
405 Riverview Drive
Chatham, MA 02633

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Friday, July 02, 2021 12:56 PM
To: Airport Commission
Cc: david bixby; Terry Whalen; Jill Goldsmith
Subject: Re: Critique of Chatham Airport Master Plan Environmental Assessment

Airport Commission

I have revised my comments on your environment assessment of airport proposals. Changes are highlighted in red. The numbers to the left of comments correlate to sections in the EA.

Foremost in my thoughts is the question: Who's Environmental Assessment is this? My interpretation of NEPA and the implementing regs is that the EA is the responsibility of the federal agency with jurisdiction, in this case the FAA. Not Gale Assoc, not the sponsor (Town,) and not the Airport Commission. The FAA can request supporting environmental documents or information of other parties, but the EA belongs to the FAA. So I have to question why this EA was developed by a private consultant under contract with the Airport Commission with funding by the FAA and MassDOT. It appears that the Town or Commission have assumed responsibility for preparation of the EA where it has no responsibility to do so under NEPA law. As such, I question the validity of the 30 day deadline for public comment which is to be directed at the Commission. More to the point, I question the legality of the document itself. NEPA law requires the FAA do the EA with opportunity for public comment. This has not happened. If the law is to be taken seriously, this EA put out for comment by the Commission has no legal validity and does not satisfy the requirements of NEPA.

And there remain very serious unaddressed issues of compliance with ethics laws and regulations (local, state, and federal) due to the entangled relationships of the many parties involved in the preparation of the document and AMPU that cloud any proposals coming out of the EA/AMPU.

David Bixby

On Jul 1, 2021, at 4:01 PM, david bixby <dbixby48@icloud.com> wrote:

Please add the following comments to your review of the draft Environmental Assessment of the AMPU projects.

1.1 - When and why did the Commission expand the service areas of the airport from local communities (in the previous 2003 AMPU) to all of Cape Cod? The AMPU portrays the service areas as all of Cape Cod. Service has also been expanded significantly to include Part 135 taxi/commuter service nationally. The EA does not adequately address the human impact of these expanded operations on Chatham residents living within the area impacted by airport noise. There remains a dispute over the AMPU runway design aircraft selection and its impact on the heavily populated RPZ. The AMPU fails to take into account evidence of escalating use of the larger PC12 which will most likely reach the design aircraft threshold of 500 annual flights within the 20 year planning period. It has been suggested that the proposed approach guidance for the PC12s under IFR would require significantly larger RPZs with resulting incursions into heavily populated residential areas, obviously unsafe and unacceptable under FAA standards. This is a glaring oversight, maybe intentional, in both the AMPU and EA that must be addressed.

2.0 - A commitment was made in public meeting by the Commission to not pursue aviation easements in

the vicinity of Runway 24. The EA reneges on that commitment. It appears that the Commission has taken advantage of the covid meeting restrictions in order to quietly pursue more easements without the pressure of face to face opposition of the public.

2.0 - Did the Airport Commission consider the Cape Cod Commission order of conditions with respect to vegetative management under the Airport Commission's DRI hardship exemption back around 2003? If not, then why is that not discussed in the EA? What are those conditions and do they conflict with the EA proposals?

2.0 - There remains the issue that demand for more airport hangars is justified based on faulty mathematical analysis and only word of mouth estimates of the airport manager who will most likely benefit financially. The Commission has been unable to produce a written record of demand and may or may not even have a hangar waiting list or any written documentation of how a list, if it even exists, is or will be managed. There are certainly ethical if not legal issues here that warrant investigation. There is no serious discussion of the human impact of increased airport activity, including noise and air pollution, as a result of a near doubling of based airport capacity. And there is no discussion on the impact on airport finances given the recommendation to pursue hangar development through private enterprises, thus depriving the public airport of needed funds to support airport operations as is required under aviation law and grant assurances with the FAA. The resulting human impact of continually increasing tax demands to support the under-funded airport remains unexplored. The airport has significantly and maybe illegally exceeded its budget allocations over the past two fiscal years with no accountability. Mismanagement of the virtually non-existent airport budget is an ongoing problem. Neither the AMPU nor EA addresses the failure of the Town and Commission to either reign in expenses or take serious actions to increase airport revenues for the benefit of the airport as opposed to the private Manager, CCFC.

2.0 - Fuel facilities may be excluded categorically but I believe NEPA law and regulations provide for special consideration when called for by local circumstances. A doubling of on-airport fuel capacity presents a significant risk to Chatham's drinking water supply, already compromised by a sinking water table and ground water pollution, possibly related to airport activities. The EA has not explored the possibility that the source of the latest ground water contamination in the vicinity of the airport might be the airport, as has been suggested in recent local publications. It is hard to imagine a greater impact on the human environment than loss of a town's only source of drinking water. Airport officials have a record of ignoring SWPPP rules and agreements. The Manager, CCFC, has no SWPPP document is required in the Commission's SWPPP. Furthermore, the Manager has routinely parked its private 3000 gallon fuel truck outside of the fuel spill containment area in violation of Commission conditions. The Manager is also on record as having citing ongoing excess water accumulation in the spill containment area compromising the system.

A related issue that appears to many of us in Chatham that appears to permeate both the AMPU and EA is the seemingly incestuous relationships between and among the AMSA Airport Manager, CCFC; airport manager under Mass. C. 90 law, Tim Howard; Executive Officer of Airport Commission, Tim Howard; Tim Howard as owner of at least three on-airport premises businesses; Airport Commission members who own, rent, or lease on-site airport hangars, possible from one or more of Howard's businesses; and airport consultant Gale Assoc. who wrote the AMPU and EA under contract with the Commission. There remain unaddressed issues of compliance with both federal and state ethics laws as well as conflicts of interest and lack of full financial disclosure. Given the depth and complexities of the potentially illegal conflicts of interest it is impossible to state how much the AMPU and EA have been influenced by these conflicts. And there exist concerns over the execution of the EA by the FAA under NEPA law and SEQ. There is no evidence that the draft EA before the public is the product of a federal agency, the FAA in this case, as is required under NEPA. Public corruption is at the top of the FBI's list of threats to our nation. Public corruption has a profound effect on the human environment.

2.0 State law and Cape Cod Commission rules categorize the AMPU as a Development of Regional Impact calling for, among other things, a public hearing. NEPA regulations call for coordination with other public bodies in the EA process. There has been no such coordination. A DRI application requires that the AMPU be evaluated in its entirety, not piecemeal. Had the Commission coordinated the EA review with the CCC, a review of the airport admin building and fuel farm expansion would have been included. The direct and indirect impact on the human environment for these two proposals should have been reviewed along with other projects in the AMPU. This attempt at a piecemeal EA of total AMPU project impacts weakens the process.

2.1 - It is not entirely clear that the Town Bylaw had or has the authority to limit or restrict tree growth without compensation under state law. Regardless, the Bylaw assigns enforcement responsibility to the Commission. There is no record of the Commission acting to enforce the Bylaw since, I believe, 1995 when the Commission abandoned all attempts to secure paid easement rights of private properties with compensation. Furthermore, there exists no record or inventory of which structures or trees existed at the time the Bylaw was enacted. The Commission has no idea of which trees would have been grandfathered under the Bylaw. For 26 years the Commission has ignored its responsibility with respect to the control of airport approaches under 1) the Bylaw, 2) FAA regulations, 3) federal grant assurances. And the FAA has done nothing in these 26 years to enforce these regulations and grant assurances. Why then the big push now to control tree heights? Do the Commission and FAA take no responsibility for their historic failings? It is FAA policy to not fund airport projects to bail out airport sponsors where the sponsor has created a problem thru neglect or failure to comply with grant assurances. Chatham's Airport Commission has ignored or neglected its responsibility under the Town Bylaw to oversee approach obstructions for roughly 26 years. Is it appropriate that the FAA now step in to rescue the Commission after 26 years of incompetence?

Has the Commission contacted each of the owners of property targeted for easement takings and solicited their involvement in the EA process? What will be the human impact on the families who have been stripped of their right to the enjoyment of their properties? FAA aviation easements are harsh with respect to stripping home owners of rights. Where in the EA can we find a copy of the text for the aviation easements? Is this attempt to whitewash the impacts, by claiming straight in landings will result in less noise, disingenuous? We already know that most large Part 135 aircraft already practice straight in landings, so where is the noise reduction? Furthermore, we know that the larger turboprop air taxi / commuter operations in Chatham are increasing, thus creating even more noise, regardless of approach patterns. Where are the analysis, the projections, for increasing Part 135 activity? What will be the future impact on the human environment? Who is benefiting financially? Has the Commission set aside public concerns over noise, etc. in order to featherbed certain private interests? Why?

4.1 - In the 50 or so years of Chatham routinely ignoring federal aeronautics laws and grant assurances, the FAA has never once pursued an action to withhold airport improvement funds, despite numerous violations. Why then is this now a concern? Is the Commission using this apparently empty threat to justify its actions to deprive home owners of their property rights? FAA Grant Assurances require the Town as sponsor to preserve all rights and powers necessary to enforce the grant assurances. And yet, the Town ceded all rights to enforce the grant assurances required under federal law when it signed its grant assurances agreements with MassDOT. The FAA has taken no action despite Part 13 complaints before the FAA. The Town has taken no action to restrict the land around the airport to uses compatible with normal airport operations. The federal grant assurances require the town to use zoning to prohibit the development of these areas for residential purposes. No such action has ever been taken by the town, and yet, no FAA enforcement actions. The Airport Management Services Agreements covering now a 30 year period grant all airport income (with now a few limited begrudging concessions as a result of public pressure) to the airport manager's private business, CCFC. Federal law and grant assurances prohibit the diversion of airport revenues for purposes other than funding airport operations and

improvements. The FAA failed to take any enforcement action. There exist at least Four other private businesses that operate on the premises of the public airport. Not one contributes revenues to fund the airport. Not one word from the FAA. Federal law and the FAA grant assurances require the airport to take reasonable steps to make the airport self sustaining. And yet the AMSA continues to strangle the airport of needed public funds. The Commission continues to seek public funding for improvements even while continuing to divert airport revenues for private purposes. No action from the FAA.

So it is a bit hard to accept the idea that the FAA will now step in and withhold funds because people bought houses in residentially zoned areas near the airport and allowed their trees to grow. Is it a safety issue? Maybe. But the FAA has ignored **for years** numerous repeated violations of its pilot regulations and prohibitions of skydiving with no consequence to pilots. Pilots flying out of Chatham **have** routinely violated the minimum flight altitudes and the FAA allowed skydiving (which is prohibited over congested areas) of Chatham for five years. No enforcement actions were taken and no threats to withhold funds.

4.1.2 What does “ ‘potential’ diminishment of the viability of the Airport’s role in the National Plan of Integrated Airport Systems” mean? Does the Commission not know? Did they not fully investigate this alternative? Why not?

Not all pilots are entitled to use all airports. If local conditions and considerations call for a displaced threshold, in accordance with FAA design criteria and regulations, then so be it. There is no rule of law that says all airports must accommodate all pilots. **In fact, pilots’ use of individual airports is legally limited by the flight operations manual of each individual aircraft.** And it is not as if there are no viable alternatives given the proximity **of** the very close by and much safer Hyannis Airport.

The Airport has always had an obligation to continuously monitor vegetation, and has **possibly** ignored that obligation for many years. What is the status of the airport’s obligation to manage the growth of invasive species under its order of conditions from the CCC roughly 20 years ago?

I don’t know how you **(FAA?)** can say aviation easements have no environmental impact. It is my understanding **that** impacts under NEPA are defined broadly to include all human impacts. When nearly 300 residents packed to overflowing meetings before the Commission nearly two years ago it was over their fears **of** the Town seizing their property rights. Only covid managed to defuse the public outrage. Confiscating a homeowner’s right to enjoy his property is a pretty basic impact on the human environment.

“This option only provides a temporary solution to a long-term problem.” - There appears to be an undertone here that pilots and airport officials will always get what they want: their stated need and purpose. But neither the Town nor the Commission have been willing to set limits on either the airport or outside development. The FAA required recipients of FAA funds to take actions, including zoning, to **limit** the use of lands near the airport to those compatible with normal airport operations. The Town and Commission have ignored that obligation for roughly 50 years. We now have an airport fully surrounded by residential and other uses that are according to the FAA inherently incompatible with the airport. The flareups over skydiving, the biplane, and now easements exemplify the very predictable conflict between airport and community, **inevitable in Chatham because the Town as sponsor and Commission as custodian of the airport failed to honor their legal obligations with the FAA to control land use.** And now, after shirking **its** duty to comply with the FAA agreements for decades, the Commission wants to confiscate property rights. Let the Commission reap what it has sown. Maybe it is time to set limits for the airport. The EA has given little serious consideration to its heavy handed imposition on home owners and taken no responsibility for a situation of the **Commission's** own making. FAA literature is replete with warnings of the dangers of residential development and its existential threat to airports. The Town and Commission refused to heed those warnings. Why now should homeowners pay the heavy price for **failings** of the Town and Commission?

4.1.4 Has the Commission consulted with the Conservation Commission and Cape Cod Commission with respect to managing vegetative growth in the environmentally sensitive areas? What were the Airport's commitments under the DRI hardship exemption granted by the CCC with conditions? Is there a problem in these areas because airport officials, maybe again, ignored their responsibilities under previous agreements, in this case with the CCC. The CCC conditions and subsequent compliance actions by the airport officials need to be examined.

The airport needs to retain its existing client base? What analysis did the Commission do to determine which, if any, of the based aircraft would be limited, or forced to base elsewhere, as a result of a displaced threshold? Is conjecture the basis of this EA?

Preserve community revenue? **What community revenue?** 1) profits from fuels sales all go to a private company, CCFC, not **to** the airport and not to the Town. 2) Rental cars? Is there a rental car business operating at the airport? Where are the required **written permissions** from the Commission and Town Manager? Or is this again just conjecture. 3) Hangars? In the past 25 years or so ALL hangar revenue has gone to the private manager, CCFC. And it appears that the new hangars proposed will also benefit a private business, most likely CCFC **or some kind of affiliate**, with no revenue going to the airport. And if as the EA seems to suggest, if displaced runway thresholds result in based aircraft leaving Chatham, is that such a bad thing for the community as a whole, with less noise and less pollution?

4.2.1 There is no evidence of demand for airport hangars. There is no public waiting list documenting demand. Only conjecture. And just because pilots may want hangars in Chatham, is that justification for the inevitable conflict **with** the neighboring community resulting from increased air traffic? Children don't always understand that they can't have something just because they want it. But adults? Demand does not (and frequently does not) always result in wants being fulfilled for the simple reason that there can be consequences. Do the wants of a small number of pilots outweigh the interests of the hundreds if not thousands of airport neighbors who might not appreciate more airport noise.

New Hangars will help make the airport self-supporting? It is my understanding that the hangars will be built by private interests and most likely with no revenue benefit to the airport. Have the authors of the EA sought to mislead **the public**? The next line of the EA confirms this. Private developers will develop the hangars. Guess who will get the revenue.

118,500 SF of impervious surface over the Town's drinking water aquifer that is already overtaxed and supplies shrinking. Where is the analysis of this loss of pervious surface and its impact on Chatham's water supply? Certainly the tradeoff between a couple dozen hangar spaces and town drinking water supply is worthy of a more careful analysis than this.

Increased opportunity for revenue generation? Certainly the EA could be more specific than this. How much revenue generation and for whom? Will revenues go to the airport fund or will revenues go to CCFC, a private company? Why is there no firm commitment here? Does the Commission use revenue generation as a carrot to get public support and then quietly steer hangar construction to private interests **as it has done over the last 20 plus years?**

Massachusetts law requires public agencies evaluate public projects for their impact on climate change. I see no such **serious** analysis in this EA.

6.0

How is it that a 10,000 gallon jet fuel storage tank over a sole source public drinking water supply **is a**

categorical exclusion? Don't NEPA regulations provide for setting aside a categorical exclusion when local conditions demand it. I can not image a more critical concern than jet fuel leaking into our water supply. We have no alternative supply of water. Our water levels are low and now contaminated, possibly from the airport. Is the trade-off here worth it? A real threat to our sole source water supply vs fuel supplies for larger, noisier turboprop aircraft? All profits from jet fuel sale will go to the private for-profit airport manager, CCFC. None will benefit the airport nor make the airport more self-sustaining. We will spend federal, state, and local public tax monies to build a facility for the sole financial benefit of a private business with close ties to the airport commission.

It is not clear to me how land use categorical restrictions apply to the AMPU EA. Is this an attempt to categorically exclude airport projects from NEPA examination?

Noise and Noise-Compatible Land Uses - I believe this categorical exclusion calls for greater review and with the possibility that it be set aside due special local considerations. And frankly, the FAA classifying an airport with annual operations approaching 90,000 or 247 daily as not requiring a noise analysis is laughable. No rational person would suggest the resulting noise impact on a community surrounding such an airport is so negligible as to not warrant review.

6.1 Air Quality - Barnstable County is not Chatham. What are the localized effects of lead fuel exhaust and jet fuel soot on the local population in the vicinity of the airport, and particularly on children? A North Carolina study found statistically significant increases in lead levels in the blood of children within five miles of several airports. Chatham's children may or may not have increased blood lead levels as a result of localized airport operations, but we will never know by simply extrapolating to county wide numbers. Has anyone in Chatham actually bothered to compile the numbers for children growing up in Chatham near the airport?

6.3 Regardless of any agreement between the town and airport commission, I believe the order of conditions placed upon the Commission in its DRI hardship exemption requires the continuation of the bike path.

6.5 The convenient dismissal of the adverse affects of the Proposed actions on human health and the environment are at best speculative. Where is the evidence of insubstantial impact. I know I and many of my neighbors in Chatham are very concerned with both on-going impacts of the airport and the potential for increasing impacts as a result of the cumulative effect of the proposed actions on the growth of airport activity. The FAA well understands that airports and residential communities in the vicinity of airports are not compatible. An expansion of airport facilities will inevitable attract more use and exasperate local conflict. This EA has given short shrift to those conflicts undermining the credibility of the document.

I find the statement that the proposed actions will not appreciable induce substantial growth either directly or indirectly to be disingenuous at best. The Town and Commission have repeatedly touted the \$13 million in annual economic activity attributed to the airport as justification for added and continuing airport investments. And now the EA says those investments will not make a difference? I guess I just don't understand this apparent contradiction, unless it is that airport officials speak out of one side of their mouths when it suits them and the other when it doesn't. In the world of aeronautics where there is often no accountability, I guess it just doesn't matter. And for the record, the MassDOT study of economic benefits would never stand up to peer review because they refuse to release the data. The the sources of that data are often people who would benefit financially from airport investment. Not exactly unbiased.

Is tree removal really unavoidable? The Commission has consistently avoided releasing details of their constantly changing plans. Have they ever met face to face with the proposed property owners to see

how they feel about these “unavoidable” impacts? And are they unavoidable in the case of displaced runway thresholds?

6.7.5 - With respect to impacts on climate change, probably no single action contributes significantly to climate change. And yet the cumulative affects of all these little insignificant actions has somehow changed our climate with disastrous consequences. And it will only get worse. To write off all these actions as “negligible,” to encourage more use of the airport as having an insignificant impact on climate change perhaps undermines any chance we will ever have to reverse the trend. And the continuing and increasing recreational use of the airport is maybe a luxury the world can no longer afford.

Thank you

David Bixby

Terry Whalen

From: Ej McKenna <chatharbor@aol.com>
Sent: Friday, July 02, 2021 2:13 PM
To: Airport Commission
Subject: Environmental Assessment Comments

To the Chatham Airport Commission members:

As year round residents of Chatham, we are concerned about many aspects of our environment. Recently, we learned about the significant concerns related to the presence of unacceptable PFAS6 in our town water supply and the need to close the training field well. This is not the first time, wells have had to be closed due to high levels of toxic substances.

The recent environmental assessment for the projected 20 yr airport plan does not take into consideration the potential future effect on water quality in Chatham. The removal of trees and the ongoing vegetation removal and chemical methods used for these removals, as well as future jet fuel storage, increased use of commercial planes and jets, all point toward possible negative impact on our water and overall environment. Indeed one jet fuel spillage, could harm our water for years to come.

In addition, what began here in Chatham as a small quaint community airport, could morph into a mini Hyannis airport with all the accompanying noise and environmental impact. The Town owes its residents an independent and objective environmental impact study that can correctly assess the potential effects on water quality and habitat as well as the effects on human quality of life. In this time of rapid climate change and significant environmental effects on our town and its people, this is one more issue that needs to be addressed in light of its effects on the quality of life here in Chatham. We urge the Airport Commission to have an environmental study conducted by an independent and objective contractor.

Thank you for your attention to our concerns.

Louis Hieb,
EJ McKenna-Hieb
South Chatham

Terry Whalen

From: Elizabeth Roos <lizandmikeroos@comcast.net>
Sent: Friday, July 02, 2021 3:24 PM
To: Terry Whalen
Subject: Re: Stop the Airport growth

Stop the Growth-Keep the trees

The amount of traffic and noise that is generated by the Chatham airport has way surpassed what is appropriate for this seaside town. Chatham airport was once the host to a few quieter private planes or a few that were utilized for scenic tours and now it has turned into Logan Airport. As a resident of this town for fifty years, and a home owner of four different homes in West Chatham, the airport traffic noise has grown 1000%. Those of us who live within a mile of the airport, and there are a lot of us, must go inside to continue conversations or host guests as the noise level is outrageous and constant. The size of the planes has grown and the quality of life for local residents has decreased. Hyannis should be the home of all this coming and going and return Chatham to its original use. We should NOT be a town with a commuter airport.

Liz and Mike Roos
123 George Ryder Road South

On Jul 2, 2021, at 2:16 PM, Terry Whalen <twhalen@chatham-ma.gov> wrote:

Please note the attachment submitted in the below email could not be opened

From: Elizabeth Roos <lizandmikeroos@comcast.net>
Sent: Friday, July 02, 2021 10:13 AM
To: Airport Commission <airportcommission@chatham-ma.gov>
Subject: Stop the Airport growth

Terry Whalen

From: Shanna Nealy
Sent: Friday, July 02, 2021 3:55 PM
To: Airport Commission; Terry Whalen
Subject: FW: Chatham Municipal Airport: Environmental Assessment

Shanna Nealy
Executive Secretary to the Town Manager/Select Board
508-945-5105

Please be advised that email messages and attached content sent from and to this email account are public records unless qualified as an exemption under the Massachusetts Public Records Law - <http://www.sec.state.ma.us/pre/preidx.htm>.

-----Original Message-----

From: Douglas Nichols <stickwalk@comcast.net>
Sent: Friday, July 2, 2021 3:54 PM
To: Peter Cocolis <PCocolis@chatham-ma.gov>; Shareen Davis <SDavis@chatham-ma.gov>; Cory Metters <CMetters@chatham-ma.gov>; Dean Nicastro <DNicastro@chatham-ma.gov>; Jeffrey Dykens <JDykens@chatham-ma.gov>
Cc: Jill Goldsmith <jgoldsmith@chatham-ma.gov>; Shanna Nealy <snealy@chatham-ma.gov>
Subject: Chatham Municipal Airport: Environmental Assessment

Select Board:

This message is to add our names to the list of Chatham residents/taxpayers/voters who urge you to take meaningful steps to assert a responsible oversight role in the management of our Chatham Airport.

It should be clear to you that the great majority of us support our Airport. What we do NOT want are chartered commercial flights by turbo-jet aircraft which could easily use the larger airport only fifteen miles away, and the legal minefield likely to ensue if aviation easements are taken against Chatham homeowners and businesses. Nor do we countenance a self-serving environmental assessment by the airport's engineering consultant rather than an independent consultant.

And now you, as well as the Airport Commission, appear to ignore the implications of the recent finding of PFAs in a town well very close to the Airport. At a minimum, Chatham should determine if these contaminants are a result of Airport activities before moving ahead with the proposed Master Plan.

For too long the Select Board has failed to act on behalf of all of Chatham, and allowed the Airport Commission and Airport Manager to push their agenda of a larger, noisier, and more commercial airport in the middle of our quiet town.

-Douglas Nichols
Judith Nichols

Terry Whalen

From: Lisa Brickman <lisa.brickman@me.com>
Sent: Friday, July 02, 2021 5:39 PM
To: Airport Commission
Subject: Chatham airport--option 4

July 2, 2021

Dear Commissioners,

I am a Chatham resident and homeowner who has used the Chatham airport as a passenger for several decades—I am not a pilot.

I fully support and endorse Option 4--the update and modernization of the Chatham airport which includes GPS instrumentation and other safety improvements.

These improvements will assure our town residents & passengers that our airport is current and future air travel is much safer.

Thank you,

Lisa Brickman
20 Davids Lane
Chatham, MA 02633
203-912-1989

Terry Whalen

From: Jill Goldsmith
Sent: Friday, July 02, 2021 6:53 PM
To: Airport Commission
Subject: FW: Chatham Municipal Airport: Environmental Assessment

Jill R. Goldsmith, Chatham Town Manager
Sent from my Verizon, Samsung Galaxy smartphone

----- Original message -----

From: Douglas Nichols <stickwalk@comcast.net>
Date: 7/2/21 3:54 PM (GMT-05:00)
To: Peter Cocolis <PCocolis@chatham-ma.gov>, Shareen Davis <SDavis@chatham-ma.gov>, Cory Metters <CMetters@chatham-ma.gov>, Dean Nicastro <DNicastro@chatham-ma.gov>, Jeffrey Dykens <JDyken@chatham-ma.gov>
Cc: Jill Goldsmith <jgoldsmith@chatham-ma.gov>, Shanna Nealy <snealy@chatham-ma.gov>
Subject: Chatham Municipal Airport: Environmental Assessment

Select Board:

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For too long the Select Board has failed to act on behalf of all of Chatham, and allowed the Airport Commission and Airport Manager to push their agenda of a larger, noisier, and more commercial airport in the middle of our quiet town.

-Douglas Nichols
Judith Nichols

Terry Whalen

From: PAUL GREENOUGH <pgreen1938@aol.com>
Sent: Saturday, July 03, 2021 8:23 AM
To: Airport Commission
Subject: PFA's near airport

Dear Ms. Goldsmith,

Passing my email onto the airport commission is not very productive. I have already sent them one.

The point of the email we sent to you is say that we need an independent environmental impact study on the effect of airport expansion. Not just the one sponsored by the airport commission. (Particularly as it effects our fragile aquifer)
Thank you.

Jean and Paul Greenough

P.S. We would appreciate a response not just an automatic reply.

Sent from my iPad

On Jul 2, 2021, at 8:33 AM, Airport Commission <airportcommission@chatham-ma.gov> wrote:

Thank you for your comment - it will be reviewed by the Airport Commission or its representative

Terry Whalen

From: David McAlpin <david@fradkinmcalpin.com>
Sent: Saturday, July 03, 2021 12:27 PM
To: Airport Commission
Subject: Support of Environmental Impact Assessment - Option #4

Dear Commissioners:

I am a Chatham homeowner and have flown to and from Chatham since 1972. The airport has many positive benefits to the town, its character and its people. CQX needs to be kept up to date and not become obsolete.

I write to support Option 4# of the current Environmental Assessment proposes improvements. The improvements identified therein will render the airport safer, quieter and assure its future viability.

Thank you for your hard work and consideration.
Sincerely,

David M. McAlpin, AIA
191 Bridge Street
Chatham, MA

David M. McAlpin, AIA
Fradkin & McAlpin Architects LLP
c. 917-596-3542
d. 646-627-8511

Terry Whalen

From: Jason Gregg (YB) <jagyb1@gmail.com>
Sent: Saturday, July 03, 2021 1:10 PM
To: Airport Commission
Subject: KCQX a Benefit to All

Dear Commissioners:

I am a Chatham homeowner and have flown in and out of Chatham Airport for decades. The airport has many important benefits to the town and its people. It should be maintained, and as a safer airport is a better airport, should be modernized as opportunities to do so are presented. Option 4 to the Environmental Assessment (EA) proposes improvements (including GPS approaches) that should be supported since it will make the airport safer and quieter and assure its future.

On this, the eve of a July 4th that sees our nation's aviation future looking brighter than ever, an investment in the future of one of Chatham's most important assets is the right decision.

Thank you for your consideration.

Sincerely,

Jason Gregg
[247 Bridge Street](#)
[Chatham, MA 02633](#)

Sent from my iPad

Terry Whalen

From: Stuart Deadrick <stuart.deadrick@gmail.com>
Sent: Sunday, July 04, 2021 4:23 PM
To: Airport Commission
Subject: Support for Option 4

To Whom It May Concern:

I am a long-time Chathamite and feel privileged to have learned to fly at the Chatham Airport. I went on to a career in aviation and I am now a captain for a major airline. Option 4 as outlined in the Environmental Assessment will enhance safety at the airport, preserving its future and should be supported.

Thank you,

Capt. Stuart Deadrick
Delta Airlines

Terry Whalen

From: Thomas Dahms <tmdahms1007@gmail.com>
Sent: Monday, July 05, 2021 10:00 AM
To: Airport Commission
Cc: Thomas Dahms
Subject: Chatham airport

Greetings commissioners and town leadership:

To say we are disappointed... is an understatement ! In an increasingly fragile time for the environment, YOU are proposing expansion of what should be at most a small airport for only small planes! And now, we are becoming more aware of the danger to our shared water supply ,... with the recent discovery of a dangerous level of PFAS in well #5, close to the airport. There seems to be a relationship between the airport and our water-the only two wells with PFAS are near the airport! The source of PFAS needs to be determined objectively by a reputable contractor before any further changes are made to the airport. There is near universal support for clean water and air (hence the EPA): to minimize this concern is to risk Chatham's reputation.

We are and have been Summer residents for the past 79 years !! Watching the town grow and worrying about the direction the town is taking with recent environmental decisions: Increased development on a limited land mass with few limitations regarding lawns size, water use (sprinkler systems) and water treatment (septic systems) all of which put our marine environment at risk. Potential visitors will not make the distinction between contaminated drinking and swimming water. The town needs a plan to protect our environment and hire additional staff to do so!!! It appears that ever greater burdens are being placed on a few individuals to not only solve these complex problems but to stay ahead of them. What good are low tax rates if your health is at risk by living in or visiting Chatham?

The relationship between trees and the environment is well known... documented world wide. (see the NYT article 7/4/21) Certainly, science has documented this.... and yet, the airport plan proposes trimming and removal of trees for planes !! planes that could safely land in Hyannis instead !!!

We request that all involved in this decision reconsider the plans... NO airport expansion... NO tree trimming... and certainly more care and clean up to prevent chemicals damaging our fragile water supply... Water water everywhere... and NOT a drop to drink !

Tom and Merry Dahms
48 Chatharbor Lane
S. Chatham, ... a flyover location for the planes !!

Terry Whalen

From: Kevin Downey <kdowney1730@gmail.com>
Sent: Monday, July 05, 2021 11:40 AM
To: Airport Commission
Subject: Environmental Assessment Feedback

To whom it may concern:

In reading the environmental assessment that has been provided for the Chatham airport we would like to point out a few areas of concern to us as area homeowners.

1. There is little discussion around the actual impact to the environment. Clearing trees off of 21 private parcels of land as well as in wetlands and vernal pools will have some impact on the environment but this document consistently states there is no impact to obtaining avigation easements.
2. Given the negative impact of avigation easements on property values, have there been any discussions with impacted homeowners about trimming/removing the "select" trees that penetrate the approach zones? All previous documents and discussions jump directly to obtaining easements instead of partnering with the community.
3. Discussion points on the economic impact to the town of Chatham if these changes are not made are not backed up by any data. What would happen to the town if the airport couldn't bring in more planes? Besides airport services is there any hard data around how many less tourists would visit the town?
4. The proposed future addition of a jet fuel storage tank that would sit over one of the town wells should be eliminated. The town of Chatham already struggles with managing water supplies during peak season and has recently had to take a well off-line due to contamination. We can not afford to have a larger contamination that would take years to recover from.

We support safety for both pilots and for those who live around the airport. We do not support an increase in traffic for charter services. These planes can be more safely accommodated in Hyannis. We also do not support a growth plan that lacks transparency and is slated for the benefit of a few to the detriment of the overall community.

Thank you,
Kevin and Christine Downey

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Monday, July 05, 2021 11:57 AM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: Environmental Assessment - AMPU ignored PC12 as possible selection for design aircraft for CQX, undermining credibility of EA and other comments

Airport Commission,

Projects reviewed in the Environment Assessment derive from needs identified as a result of growth projections in the AMPU. If growth projections are invalid due to a faulty data base and study methodology, then the projects identified as needed are suspect. I reviewed AMPU preferred alternative growth projections for airport operations through the twenty year planning period presented in Table 4-24 of the Plan. Two things in particular drive my review of the growth forecast: 1) selection of the Beechcraft Barron B-58 as the design aircraft, and 2) failure to analyze the increasing use of the airport by the Pilatus PC12 and its projected use of CQX over the planning period. It is my contention that there is sufficient evidence that points to the PC12 as the design aircraft. Had it been selected as the design aircraft there remains a dispute over the implications on runway design for the planning period, and in particular the RPZ. If as has been suggested, selection of the PC12 as the design aircraft would require an increase in the dimensions of the RPZ for straight in non-precision runway approaches under IFR, then that is a big problem. Any expansion of existing RPZs at CQX encroach into heavily developed residentially zoned land use districts. Residential use of the RPZ is unacceptable.

I will try to outline the confusing and convoluted AMPU approach to its aircraft operations forecast and note some of my concerns, but simply put, there is evidence the AMPU projections of air taxi/commuter operations by the predominant PC12 might have been suppressed, maybe intentionally. Whereas the Beechcraft Barron chosen as the design aircraft had only a few dozen operations in the year preceding the AMPU, PC12 operations at CQX numbered in the hundreds.

1. The AMPU uses as a base the 2017 TAF operations count of 20,100. Note that TAF figures come from the FAA Airport Master Record. The Master Record is updated by CQX airport officials, most likely the airport manager, Tim Howard. Howard bases his numbers on the on-site GARD system which estimates airport operations from its monitoring of radio calls in the vicinity of the airport. GARD system estimates of airport operations are notoriously inaccurate and have never been calibrated to actual use at CQX. Furthermore, while the TAF figures supposedly based on GARD estimates from Chatham remain static at 20,100 since implementation of GARD in 2016 and 2017, this number does not correlate with the actual GARD numbers recorded at the airport.

2. While the FAA TAF assigns a 40/60 itinerant to local air traffic split, the AMPU instead assigns a 60/40 split based on interviews with "airport management and users." The 60/40 split may be valid or it maybe not. But there is no supporting documentation. It is concerning that much of the ensuing base data decisions are based on similar such discussions absent any documentation or supporting evidence. In fact, much of the underlying data assumptions are supplied by airport officials with existing conflicts of interest, raising the specter of possible ethics issues. One or more parties involved in the development of the AMPU and ensuing EA stand to benefit substantially, directly or indirectly, from the projects recommended in the AMPU and EA. It is quite possible that private financial interests might have steered the AMPU toward projects that would benefit those private interests. Federal, state, and Town ethics laws and guidelines may have been ignored in the development of the AMPU.

3. AMPU Section 4.7.2.2 establishes the baseline operational fleet mix for Turboprop aircraft (King Air, PC12) of 20% citing as a source the airport manager. I unable to identify where this number was applied, if at all, in the AMPU projections of airport operations.

4. Table 4-24 presents the preferred CQX operations forecast over the 2018 - 2030 planning period. It applies the 60/40 itinerant to local usage split to the 2017 base count of 20,100 operations. It then applies growth rates established by the FAA TAF forecast methodology to the user mix: -.994 for the air taxi/commuter group and +1.003 for the GA group. Where it gets sticky is how the Plan assigns the usage breakdown to the user groups. The TAF forecast uses a breakdown that assigns a base number of 500 operations to the air taxi/commuter group. The preferred alternation instead assigns a base number of 402 to the same group. Applying the -.994 factor to the air taxi group shows a diminishing use of CQX over the 20 year planning period. Unexplained is why the AMPU changed the mix of air taxi etc. from 500 annual operations in 2017 the 402. Also unexplained as far as I can tell is why Section 4.7.2.2 indicates that Turboprop aircraft such as the PC12 make up 20 % (or 4,020) of CQX air operations while Table 4-24 uses a base for air taxi/commuter operations of 402, just 2 percent of total operations. Admittedly there might not be a precise correlation between Turboprop use and Air taxi/Commuter, but given the commonality of the PC12 to the two groups I would expect a far closer spread than 4,020 vs 402. Do PC12s truly account for only 10 percent of turboprop use at the airport? Where is the documentation supporting these figures?

5. Note that rather than PC122 usage of CQX decreasing at a rate of -.994%, the reality is the opposite, PC12 use is increasing, maybe significantly over previous years. The AMPU notes that Jet-A fuel sales jumped from 7000 gallons in 2017 to 11,095 in 2018, a nearly 60% increase in one year. PC12s use Jet A fuel. The airport manager began offering Jet-A fuel from his recently purchased mobile fuel truck. And the Manager's (CCFC owned by Tim Howard) latest Airport Management Services Agreement allowed the Manager to offer Part 135 services. It was about this time that residents living around the airport began to notice a significant appearance of various PC12s at the airport. It is most likely not coincidental that the newly available supply of Jet-A fuel coincided with the arrival of the PC12s. Three years of data supplied by FlightAware to resident Mike Tompsett revealed PC12 use of CQX of 407 operations in 2019 and 275 in 2020. But 2020 air taxi operations were most likely significantly impacted by the covid restrictions on travel. And we have recently learned that FlightAware data can undercount the use of PC12s in Chatham. I recently learned that at least one PC12 owner/operator shields its aircraft from FlightAware tracking. And I learned of another that is not included in FlightAware's data records, for unknown reasons. How many other PC12s use CQX without tracking by FlightAware? The daily use of CQX by PC12 aircraft this year in 2021 that has been observed by airport neighbors is significant. Given the underreporting by FlightAware, the pre-covid 407 operations in 2019, the 60 % increase in Jet A fuel sales in 2018, the clearly increasing PC12 activity in 2021, I can not understand why the PC12 is not the design aircraft for the 20 year AMPU planning process. Clearly there is something fishy going on here that warrants investigation.

6. The 2003 AMP described the airport as serving Chatham and several neighboring towns. Unfortunately the 2003 Plan has been removed from the Town website or I could cite the exact language. However, the 2021 AMPU substantially expanded its area of coverage to include all of Cape Cod. The question is why? The expansion of the airport service area coupled with the authorization to the Manager to provide Part 135 service (air taxi/commuter) and the corresponding increasing use of the airport by the PC12s is very concerning to the communities in the vicinity of the airport. Concerns range from more noise, greater pollution, threat to the sole source drinking water supply beneath the airport, and very legitimate safety concerns. These all impact the human environment and are not sufficiently addressed in the EA.

"In an effort to define CQX's service area, this report relies on the home zip codes of each based aircraft owner. Based on the proximity of the home zip code of each based aircraft owner to the airport, the service area was determined to be the County of Barnstable, Massachusetts, as 80 percent of based aircraft owners reside in the County (see Figure 4-1). "

7. As I have alluded to earlier, there exist a number of conflicts of interest and financial entanglements associated with the participants involved in the development of the AMPU and EA that cloud the integrity of the documents. Perhaps it is time for an independent investigation by appropriate agencies.

Summary:

The failure to select the PC12 as the airport design aircraft in the AMPU and EA needs review.

The financial entanglements and conflicts of interests of parties involved in preparing the AMPU and EA calls for independent investigation.

The failure of the FAA to “own” the EA as is required under NEPA challenges the validity of the EA of the AMPU.

The failure to coordinate the EA with the required DRI assessment by the CCC further undermines the legitimacy of the EA.

The airport has withheld documentation of PC12 fuel sales, etc which would support the selection of the PC12 as the design aircraft.

The airport has failed to notify property owners of their opportunity to comment on the EA.

The airport has failed in its duty to monitor and regulate tree growth since 1995.

The FAA has failed to enforce numerous grant assurances with the Town of Chatham.

There is no evidence of the FAA required coordination in the development of the AMPU with the CCC or local Planning Commission.

It remains unclear when and why the AMSA added Part 135 services for the CCFC.

The impact of the PC12 flying into Chatham under IFR on the RPZ dimensions remains unresolved.

The EA preferred alternatives may require FAA Modifications of Standards, the impact of which on the human environment remains unclear.

Public involvement has been limited and restricted and insufficient throughout the AMPU and EA process.

The Town and Commission have failed to provide documents supporting the review of the AMPU and EA.

Covid restrictions served to severely limit public involvement in the AMPU process.

Thank you.

David Bixby

Terry Whalen

From: Michael Tompsett <drmikeft@gmail.com>
Sent: Monday, July 05, 2021 12:26 PM
To: Airport Commission
Subject: No Public Notification should Disallow the Draft EA,

A fatal flaw and reason for rejecting this Draft Environmental Assessment is that the residents of Chatham who could be affected by one or more categories included or otherwise in the Environmental Assessment were NOT notified that proposed changes under consideration would affect them. These residents include property owners whose trees would be removed under avigation easements, residents in existing Runway Protection Zones who would be subject to greater danger as indicated by the FAA Airport Design Advisory, residents who could be included in expanded Runway Protection Zones, residents who would be disturbed day and night by noise, and especially excessive noise in excess of the FAA threshold of 85dBA, residents who would be subject to the dangers of straight-in without a control tower and landings in inclement weather, residents who would lose rights to use the bicycle path if the Airport were to be redesigned to meet the FAA Design Standards for Design Group II aircraft. Especially these residents listed above, but **NO** residents of Chatham have been officially notified of the impact of the Airport proposals and especially with respect to the issues listed above. There was no notification of a/the/any proposal (The EA is confused by not have a defined, approved specific proposal) sent to the residents of Chatham and no notification of a public meeting or even a public meeting to allow presentation and discussion of the issues. Many people continue to be totally unaware of the proposals and any sort of public comment option.

This Draft EA cannot go forward with any legal justification.

--

Terry Whalen

From: Michael Tompsett <drMikeft@gmail.com>
Sent: Monday, July 05, 2021 12:34 PM
To: Airport Commission
Subject: Revised Comment

A fatal flaw and reason for rejecting this Draft Environmental Assessment is that the residents of Chatham who could be affected by one or more categories included or otherwise in the Environmental Assessment were NOT notified that proposed changes under consideration would affect them. These residents include property owners whose trees would be removed under aviation easements, residents in existing Runway Protection Zones who would be subject to greater danger as indicated by the FAA Airport Design Advisory, residents who could be included in expanded Runway Protection Zones, residents who would be disturbed day and night by noise, and especially excessive noise in excess of the FAA threshold of 85dBA, residents who would be subject to the dangers of straight-in without a control tower and landings in inclement weather, residents who would lose rights to use the bicycle path if the Airport were to be redesigned to meet the FAA Design Standards for Design Group II aircraft. Especially these residents listed above, but **NO** residents of Chatham have been officially notified of the impact of the Airport proposals and especially with respect to the issues listed above. There was no notification of a/the/any proposal (The EA is confused by not have a defined, approved specific proposal) sent to the residents of Chatham and no notification of a public meeting or even a public meeting to allow presentation and discussion of the issues.

A so called EA portal is named, but it doesn't exist. The link only leads to 2 email addresses, including the Airport Commission and a Town official. This is not an independent portal collecting public comments for FAA/NEPA officials.

This Draft EA cannot go forward with any legal justification.

--
Dr Michael F. Tompsett
17 Lake Shore Drive
Chatham, MA 02633
drMikeft@gmail.com
508-250-7448

Terry Whalen

From: Ann E. Reydel <reydel@comcast.net>
Sent: Monday, July 05, 2021 3:33 PM
To: Airport Commission
Subject: Airport plans

To Whom It May Concern:

I have owned in Chatham since 1983 and have lived here full time since 2007.

I suspect I am in the minority but I think we should close the Chatham Airport and use the Hyannis Airport. We could sell the land, build a senior center there, build homes for the needy or other cool things. Personally I don't like listening to the planes and I hated the sky diving.

Sincerely submitted,
Ann Reydel
781-910-5960
306 Chipping Stone Road

Terry Whalen

From: Roger Dillow <jrdillow@comcast.net>
Sent: Monday, July 05, 2021 3:46 PM
To: Airport Commission
Subject: Environmental Assessment question

As I understand it, the assessors declined to address the environmental issue of **noise** on the basis of the Chatham airport being deemed a small airport. Small, yes, but it is situated in the middle of a small town.

Question: Since the changes proposed in the Master Plan update will only continue to increase air traffic to/from the airport, including more flights by larger and noisier aircraft, how can the environmental impact of noise not be relevant to the assessment process?

Sent from [Mail](#) for Windows 10

Terry Whalen

From: Jill Goldsmith
Sent: Monday, July 05, 2021 7:18 PM
To: Airport Commission
Subject: FW: APPROACHES AT CHATHAM AIRPORT

Jill R. Goldsmith, Chatham Town Manager
Sent from my Verizon, Samsung Galaxy smartphone

----- Original message -----

From: Dan Brown <123always@comcast.net>
Date: 7/5/21 6:35 PM (GMT-05:00)
To: Peter Cocolis <pkcocolis@icloud.com>, Dean Nicastro <DNicastro@chatham-ma.gov>, Shareen Davis <shareendavis@gmail.com>, Jill Goldsmith <jgoldsmith@chatham-ma.gov>
Cc: Barbara Fouhy <bfouhy1@icloud.com>
Subject: Fwd: APPROACHES AT CHATHAM AIRPORT

P,D, S and J....Barbara Fouhy and I are in full agreement with the objections outlined by Nicole, In short, we don't want anymore airport than now, less air traffic... no jets...and we certainly don't support the taking of trees, land,etc. from private property. We have Hyannis. This is a little town. Protect your constituents from this takeover by a commission OUT OF CONTROL OF YOU, OUR ELECTED OFFICIALS! Dan Brown ps. Please forward to Messrs Dykens and Metters....can't work emails. Thanks

Sent from my iPhone

Begin forwarded message:

From: Barbara Fouhy <Bfouhy1@comcast.net>
Date: July 5, 2021 at 2:20:54 PM EDT
To: Dan Brown <123always@comcast.net>
Subject: Fwd: APPROACHES AT CHATHAM AIRPORT

Sent from my iPad

Begin forwarded message:

From: NicoleStern <meantobe60@aol.com>
Date: July 5, 2021 at 12:50:43 PM EDT
To: NicoleStern <meantobe60@aol.com>

Subject: Fwd: APPROACHES AT CHATHAM AIRPORT
Reply-To: NicoleStern <meantobe60@aol.com>

REMINDER....

Hello Chatham Neighbors Near and Far, Second Home Owners and Renters.

The Airport Commission is accepting comments through **JULY 6, 2021** on the Environmental Assessment conducted by the airport's engineering consultant, Gale Associates, determined **NO SIGNIFICANT ENVIRONMENTAL IMPACT!** What's wrong with this picture? Please forward this email to all your friends and acquaintances regardless of where they live in Chatham. Climate change, safe drinking water, local wildlife, and the environment are all top priorities. It's your Town, you decide! Let your voices be heard before it's too late.

2021 Chatham Municipal Airport Environmental Assessment Now Available Draft Document for Public Review & Comment

- [View the 2021 Chatham Municipal Airport Environmental Assessment \(PDF\)](#)
The review period ends July 6, 2021. [Submit your comments here.](#)

Please, also send a copy of your comments directly to the Select Board and Town Manager:

To: Peter Cocolis <pcocolis@chatham-ma.gov>; Shareen Davis <sdavis@chatham-ma.gov>; 'Cory Metters' <CMetters@chatham-ma.gov>; Dean Nicastro <dnicastro@chatham-ma.gov>; Jeff Dykens <jdikens@chatham-ma.gov>; 'Jill Goldsmith' <jgoldsmith@chatham-ma.gov>; Robert Duncanson <rduncanson@chatham-ma.gov>; Shanna Nealy <snealy@chatham-ma.gov>

HELPFUL FACTS - APPROACHES AT CHATHAM AIRPORT

THE AIRPORT'S CURRENT APPROACH:

Visual Conditions Only
Pilots Circle from 600ft for Clear Runway
No known Collisions in 70 Years
In Poor Visibility pilots go to Nearby Hyannis
which has a Control Tower and Two 5,000ft Runways

PROPOSED INSTRUMENT APPROACHES:

Would permit Straight-in Approaches without a Control Tower in
Poor Visibility and Bad Weather - Day and Night
Lower Visibility Ceiling to 300ft
Encourage Increased Mixed Traffic

PROPOSED NEW APPROACHES WOULD REQUIRE:

AVIGATION EASEMENTS - "Would give the Airport a Perpetual Right of Access to Remove any Tree or Structure Existing or in the Future" on **Private Chatham Properties**

A 3,200ft Runway - Not the Single Compromised 3,000ft Runway at Chatham Airport
Removal of 10 Acres of Trees Essential to the Environment
and the Survival of Local Wildlife along the Runway, Wetlands, and Vernal Pool
The Installation of a 10,000 Gallon Jet-A-Fuel Tank near Public Water Supply Wells, while Doubling the Carbon Fuel Supply Affecting Climate Change

BY SAVING NATURE WE ARE SAVING OURSELVES

NEW APPROACHES WOULD CAUSE:

Increased Danger in Poor Visibility for People **NOW** Living, Working, Shopping, and Driving in West Chatham's Runway Protection Zones(**RPZs**)
FAA states **RPZs** are Hazardous Areas and should be Empty of Anything that Encourages People to Gather - **RPZs** are at the Ends of Runways to Protect People and Property from Planes that Land Short or Overshoot the Runways

Best,
Nicole Stern
Questions?
508-945-1388

Terry Whalen

From: Lisa Evans <evanslisa28@gmail.com>
Sent: Monday, July 05, 2021 8:55 PM
To: Airport Commission
Subject: Chatham Airport Environmental Assessment

To Whom it May Concern,

There has not been a logical, clear or concise case made for the need to expand the Chatham airport.

Meetings have not been inclusive of the people of Chatham to ask questions or voice concerns. Residents need to clearly understand how the following will **NOT** impact the residents of Chatham:

- How will clearing 3 acres of trees and vegetation removed for new approach, hangars, tarmac, **NOT** impact the environment?
- How will Avigation Easements to cut trees on property owner's property and take control of air space **NOT** impact neighbors close to the airport?
- How will Air Quality (carbon emissions)/Well Water (omission of 10,000 gal. jet fuel on top of our aquifer) contaminants **NOT** impact our environment?
- What are the measures that will be taken for no net-zero climate mitigation?
- How will the increase in jet port traffic noise NOT impact the quality of life for the residents in surrounding neighborhoods and commercial properties that are properly zoned **NOT** be impacted?

The people demand that their voices be heard that this is a project that has profoundly serious short and long-term environmental impacts.

Lisa Evans, West Chatham

Sent from [Mail](#) for Windows 10

Terry Whalen

From: Koen Jansen <koenjansen@rocketmail.com>
Sent: Monday, July 05, 2021 9:25 PM
To: Airport Commission
Subject: Supporting Alternative 4

To whom it may concern:

As a Chatham resident and a close neighbor of the airport I want to express my support for Alternative 4. The Chatham airport is a great asset to the town. It invites business and allows yet another means of access. Because of the nice amount of traffic Chatham airport is active. And because it is active we should enhance safety with capable and reasonable means. Living very close to the approach end of runway 24 on Old Queen Anne road, I can assure you that we who are in the vicinity endure no hinder of said activity. In fact we welcome it as it is always different and intriguing. I support the Chatham airport and again I support Alternative 4.

Thank you for what you do.

Sincerely,

Koen Jansen

Terry Whalen

From: Read and Jane Moffett <Drmoftett13@comcast.net>
Sent: Monday, July 05, 2021 11:19 PM
To: Airport Commission
Subject: Comments about the Environmental Assessment Draft Report

Dear Airport Commission,

I would like to register my complaint about the Environmental Assessment Draft by Gale Associates and would like you to pass my objection to the FAA. The report is self serving and one sided in an attempt to defend what the Commission intends to do to the environment to support its Master Plan for the Chatham Airport. How can you justify clearing nearly 3 acres of trees and vegetation to pave over for new hangars? Tarmac effects the drainage of ground water and the trees which are good for the environment because they absorb CO2. Vernal pools and wetlands will also be "disturbed." Other effects on the environment include increased carbon emissions, jet fuel exhaust - all effecting the air quality, not to mention an increase in automobile traffic. In reading the EA it is my opinion that the report tries to justify treating the Chatham Airport as a commercial venture rather than how their plans will effect the environment.

Sincerely, Jane Moffett, Chatham

Terry Whalen

From: Read and Jane Moffett <Drmmoffett13@comcast.net>
Sent: Monday, July 05, 2021 11:34 PM
To: Airport Commission
Subject: Comments on Draft Environmental Assessment

July 5, 2021

Dear Airport Commission,

This is what the Draft Environmental Assessment says about the environmental impact of Alternative 4, the AC's (Airport Commission) apparently preferred alternative:

Environmental Impacts

- There are no environmental impacts associated with the acquisition of avigation easements
- Temporary wetland impacts as a result of selective tree removal
- Selective tree removal is proposed to occur within wetland resource areas and their buffers as noted below:
 - Runway 06
 - Wetland: 4,650 square feet
 - Vernal Pool: 8,272 square feet
 - 350' Vernal Pool buffer (per Cape Cod Commission): 95,432 square feet

That quote makes my head spin. How can you say there is no environmental impact from acquiring (21) easements which will result in cutting down many trees on people's private property. And furthermore the EA does not address the effect of cutting down several acres of trees. Cutting down trees has the well known effect of increasing CO2 which trees absorb from the atmosphere. And what about the 3 acres of tarmac the AC wants to add for additional hangers. There is no mention of impact of that. Could it really have no impact? And then we have the 10,000 gal jet fuel storage facility. No environmental impact?

But the most important question to answer is what is the benefit of sustaining this environmental damage? On the grand scale of things, little Chatham airport is not going to have a significant environmental effect. On the other hand everyone has to share in reducing our environmental footprint. If we all acted the way the AC wants to act, we would make no progress on climate change. We take our recyclables to our transfer station. We try to do our small bit. So should the AC.

Sincerely,

Read Moffett
Chatham, MA

Terry Whalen

From: NicoleStern <meantobe60@aol.com>
Sent: Tuesday, July 06, 2021 8:05 AM
To: Airport Commission
Cc: To: Peter Cocolis <pcocolis@chatham-ma.gov>; Shareen Davis <sdavis@chatham-ma.gov>; 'Cory Metters' <CMetters@chatham-ma.gov>; Dean Nicastro <dnicastro@chatham-ma.gov>; Jeff Dykens <jdykens@chatham-ma.gov>; 'Jill Goldsmith' <jgoldsmith@chatham-ma.gov>; Shanna Nealy <snealy@chatham-ma.gov>
Subject: Environmental Assessment

The EA report conducted by the Airport's engineering consultant, Gale Associates, is a clear conflict of interest and has no validity.

Terry Whalen

From: Joanne Conrad <jc@conradgroupintl.com>
Sent: Tuesday, July 06, 2021 10:13 AM
To: Airport Commission
Subject: Environmental Assessment Comments, June 6, 2021

To whom it may concern,

There are several omissions or inadequately assessed areas in the Environmental Assessment (EA) that we wish to raise and strongly urge that further work be completed here.

- There is inadequate assessment of the potential impact a new 10,000 gallon fuel tank malfunction could have on the aquifer below it, the water from which is Cape Cod's sole source of drinking water. Read more here: <https://capecodwaters.org/overview/>

- There is inadequate assessment of noise pollution from the take-offs and landings of the planes. The surrounding residential neighborhood is densely populated, perhaps more so than many other landing fields in the area. The noise literally forces outdoor conversation to cease while the planes fly overhead, and this does not solely refer to the antique bi-plane but to most other planes' engine noise, as well. Whether it is casual conversation between neighbors outdoors or a large social gathering, all conversation stops. This noise dramatically affects quality of life.

- Another unanswered question is, the FAA has specific requirements for the proposed airport master plan. One is a minimum length runway. The other is an adequate runway protection zone (RPZ), neither of which exist at the Chatham airport. The question is, has this been presented to the FAA, and if yes, what is their response?

Respectfully submitted,
Joanne Conrad and Robert Nelson

Terry Whalen

From: Gary Ferguson <cape.fergusong@gmail.com>
Sent: Tuesday, July 06, 2021 10:20 AM
To: Airport Commission
Subject: Easement

Airport Commission

I want to voice my support for Alternative 4 on the current EA for the airport. I agree with Governor Baker on his assessment of general aviation quoted from his presence at the airport in Stow MA June 25, declaring July General Aviation month in Massachusetts:

“General aviation and community airports play a critical role in the lives of our citizens, as well as the operation of our business and farms.”

The critical role the Governor recognizes cannot be sustained without the routine upgrade of approaches to Chatham Airport to meet modern safety requirements. That upgrade requires tree trimming as outlined in Alternative 4. Just as Chatham harbor periodically requires dredging to maintain its function, so the airport requires periodic tree trimming to maintain its function. Trees will grow back, sand will return to the harbor, and reasonable maintenance will continue.

Gary Ferguson
Chatham
Angel Flight pilot

Terry Whalen

From: Douglas Fields <douglas.fields1@gmail.com>
Sent: Tuesday, July 06, 2021 11:36 AM
To: Airport Commission
Cc: Dean P Nicastro; Aviation for us
Subject: Environmental Study

To the airport Commission, and Select Board,

A group identifying and itself as the Community Speaks is going door to door trying to drum up support against the environmental study for the Chatham Airport. This group, formerly Citizens for a safe Chatham airport and has changed their name because their focus now is not in promoting safety but to impede it. They ran an ad in the local newspaper that was filled with inaccurate information including stating that Chatham was a fair weather airport with no instrument approaches, there are two published by the FAA. They are circulating (anonymously) what is purported to be a letter that the FAA is going to require abutting citizens to the airport to sign, abandoning any and all their rights, which is completely false. And they are attempting in person to spread false information and create anxiety among citizens of our town regarding the airport. The claims include there are plans to lengthen the runway to accommodate large jet aircraft, and that a new approach is designed to increase commercial traffic. Their anti Airport behavior is filled with misrepresentations and outright lies as they continue to attempt to interfere with all activities at the airport. Their behavior should not influence the execution of a thoughtful and legitimate course of action for the future of Chatham airport.

Douglas Fields

Terry Whalen

From: Kahn, C. Ronald <C.Ronald.Kahn@joslin.harvard.edu>
Sent: Tuesday, July 06, 2021 11:37 AM
To: Airport Commission
Subject: Airport Environmental Assessment

I have read the Draft Environment Impact Report by Gale dated April 2021 concerning the changes to allow more instrument approaches and find the document fundamentally biased and flawed.

It assumes that growth of activity at Chatham airport, including increased use of the airport at night and under poor weather conditions, increased air traffic and increased hangar space, benefits the town and its residents, when in fact it only benefits the airport management and a small group of aircraft owners, almost all of whom live outside the town of Chatham. Indeed, with a fully 24-hour functional airport within a 30 min drive from Chatham, it would be much safer for both the pilots and their passengers to land at the much larger and better equipped airport when there is poor visibility and bad weather - day or night, with lower visibility ceiling in an airport that has no active Control Tower – and take inexpensive transportation (like Uber) to Chatham, than it would be to fly in and out of CQX. The proposed changes would simply encourage more traffic of more types of aircraft into the airport under less ideal flying conditions, something which benefits very few and has negative consequences to many others, not to mention increased risk to the pilots and their passengers, themselves.

In addition, the Gale report is a rubber stamp, justifying the desires of airport management with no real evaluation of the impact and or assessment of the desires of the airport abutters or other residents in the vicinity of Chatham airport, who are greater in number than the users of the airport. There are also many hidden long-term implications of the proposed changes, many of which are buried in a document which seems to be asking for one time permission to trim some trees. In fact, the proposal includes giving the Airport a perpetual right of access to remove any trees or structures existing on private Chatham properties in the region of the airport. It already includes removal of trees on over 20 acres of property surrounding the airport, trees which are the property of the homeowners and provide not only pleasure to the home owners, but essential benefit to the environment, including local wildlife. The proposal also allows for an increase in runway length to 3,200ft, from the current 3,001ft which encourages usage by larger planes, including more jet powered aircraft. It also includes installation of a 10,000 gallon Jet-A-Fuel Tank. This is not only near public water wells, but also impacts carbon emissions affecting climate change and increases potential airport use by more jet aircraft.

While some of these things are mentioned in passing in the report, there is no real evaluation of the impact of these factors on the surrounding environment, including noise, air pollution, or the potential toxic effects of allowing increased usage by jet aircraft, whose fuel and exhaust exposure is linked to multiple negative health effects, including eye irritation, increased severity of asthma and influenza, and carcinogenesis. Indeed, jet fuel fumes are especially toxic to children, and exposure to jet fuel fumes during pregnancy has been associated with low birth-weight babies. These are all parts of the environmental impact of the proposed changes at the airport, but none are mentioned or even alluded to in the report.

There are many people impacted by changes at the airport other than the airport manager, aircraft owners and landing field users. These include individuals who own homes in the vicinity of airport and residents of the town of Chatham itself. The report shows no interest in or mention of how to balance the different interests of these groups, or even any attempt to survey the affected residents and residential property owners. Indeed, the lack of attention to the desires and interests of people with houses in the vicinity of the airport is clear by the fact that the word “abutters” does not appear at all in the document and the word “residents” only three times, although 15 different residential properties will have work done on their property to reduce vegetation for the convenience of the airport and its users, none of whom live in any of these properties. In addition, hundreds of other residents who have homes near the airport surrounding

areas will be impacted by increased noise and air traffic. For example, the removal of vegetation in the surrounding properties affects some 20 acres on 21 different properties outside airport grounds. This is not trivial if one considers that the airport itself only occupies 105 acres, i.e., the airport has effectively increased the space they control by 20% without any formal process.

This type of one-sided view is present throughout this document. For example, there is also no balance in the discussion of the proposed new hangars. The report states the obvious, namely if you build more hangars, there will be more space available for pilots who want to hangar their planes at CQX. While doubling the hangar space may be good for airport management, is this increase good for the tax paying residents of Chatham who live in the vicinity of the airport? How many of the users of Chatham Airport or its hangars are actual tax paying residents of the town? In this case, as in the others, the report is totally biased to growing the airport and its business, which benefit the pilot and the airport manager, but are at the detriment of those of us who have homes in this area and who support the town with both taxes and their use of the town throughout the year.

The Airport Commission seems to have forgotten that people, not just wild animals and vegetation, are part of the environment too. So, if these changes impact on people in a negative way, they are having a negative environmental impact. Built into this report are many other equally flawed or one-sided statements. Also included are many statements which appear in the multiple tables in the report. For example, statements like "No noise analysis is needed for projects involving Design Group 1 and II airplanes....operating at airports whose forecast operations ...90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations)." This may be what the FFA or the pilots think, but what do the residents in the environment of the airport think? Aircraft noise pollution has been associated with several negative stress-mediated health effects, from sleep disorders to cardiovascular ones, but none of these are considered in the report. Already the airport allows some homemade helicopter-like aircraft whose noise levels exceed those of normal aircraft by many decibels and are definitely a disturbance to the environment. With increased access, who knows what other types of aircraft may appear.

In summary, this is a totally unbalanced evaluation of the impact of the proposed changes, both immediate and long-term, and needs to be reconsidered in a way that takes into account the hundreds of individuals who live and/or own homes in the vicinity of the airport, as well as the town itself.

I believe these changes are unnecessary for the pilots and aircraft owners, who already have the option of using another very closely located, larger and fully equipped airport and put an undue burden on homeowners and renters in the vicinity of the airport, who do not have an alternative but to either tolerate increasing airport usage or give up their homes. There is nothing fair in this unbalanced outcome should the airport be allowed to proceed with their plan.

Respectfully submitted,

C. Ronald Kahn, MD

C. Ronald Kahn, MD
Chief Academic Officer, Joslin Diabetes Center
Mary K. Iacocca Professor of Medicine, Harvard Medical School
Home Owner; 33 Sky Way, Chatham, MA 02633
E-mail: c.ronald.kahn@joslin.harvard.edu

Terry Whalen

From: bfouhy1 <bfouhy1@comcast.net>
Sent: Tuesday, July 06, 2021 11:48 AM
To: Airport Commission
Subject: Airport Modifications

To whom it may concern:

I couldn't be more opposed to the suggested modifications to our airport. There has never been a series of any kind of accidents at the Chatham Airport. The proposed changes would amount to theft of private property all for the pilot's convenience, income to the airport manager, and increased noise for all our citizens .

Kindly vote against these modifications.

Barbara Fouhy
757 Riverview Drive
Chatham,MA 02633

Terry Whalen

From: sue machie <sjm.arc@gmail.com>
Sent: Tuesday, July 06, 2021 1:14 PM
To: Airport Commission
Subject: Response to the Chatham Airport EA

To Whom it may concern and the FAA

I am writing in opposition to the airport expansion which it plans to accomplish by development of more hangers, acquisition of Aviation Easements over at least 21 parcels and large acreage removal of vegetation in the form of trees, shrubbery and other vegetation.

Residents have opposed many of the changes to the airport which will result in substantial damage to our fragile environment, however the airport commission has not made any changes from their original plans completely ignoring the community and neighbors. There are many significant environment concerns in the plan as presented and in changes that are not presented or considered in the plan.

Sandy soil and sole aquifer-Chatham airport is located in the midst of a highly environmentally sensitive area on top of a single source aquifer. The sandy soil of this area increases the movement of pollution directly and rapidly into our aquifer. Pollution from airplanes and increased airport use will directly impact resident's health and will travel into our water source causing further health and environmental damage. This damage is not reversible.

PFAS-The town has discovered two wells to have above EPA standard allowed PFAS. PFAS have been used extensively at airports. By increasing the use at the Chatham airport by both numbers of planes and size, the potential of increasing the PFAS to our sole aquifer is undeniably a concern to the residents.

Oil- The airport currently has a 10,000 gallon tank of jet fuel that if spilled will cause irreparable harm to the aquifer and the environment, plants, animals and humans. The airport must not be allowed to increase its holding of jet fuel and an environmental assessment must be done on the potential environmental hazard of having this existing tank at this location.

Carbon dioxide- USA is making great efforts to reduce carbon dioxide by increasing wind, solar and electric vehicles. Increasing the air traffic to this town is not in keeping with the stated goals. The health impact of those with respiratory issues are negatively affected by the carbon emissions of airplanes. Chatham has a high elder populations, so increased air traffic will directly have a direct negative impact on our population. The town just voted to not build affordable housing in a natural area in order to preserve the environment for future generations. Increasing the air traffic with so many environmental risks, is contrary to the town's needs and goals. We must preserve the environment for our health as well as future generations and the wildlife. The answer is to use the existing airport in Hyannis and not allow increased use of the local airport with its inherent environmental detriment. The increase air traffic and plane size is both contrary to the goals of both the USA government and the Town of Chatham goals.

Vegetation- The plan will require around 3 acres, with potential for more, to increase the tarmac and the number of hangars. Further, vegetation will be removed from private homes. The vegetation removal also speaks negatively to air quality in the town and again goes against the objective of addressing climate change. Trees and shrubs hold carbon and when removed they release carbon. They remove CO2 from the atmosphere acting as a carbon sink. These are important factors affecting climate change.

Climate Change-The Town of Chatham has just made climate change a priority by establishing the [Energy and Climate Action Committee](https://www.chatham-ma.gov/348/Energy-and-Climate-Action-Committee), (<https://www.chatham-ma.gov/348/Energy-and-Climate-Action-Committee>). The EA must take into

consideration the goal of the Town of Chatham to reduce future impacts that will further negatively impact the environment. Much that is presented in this plan will, without doubt, be contraindicative. From the town's web site: "**Committee Charge**-The charge of the Chatham Energy and Climate Action Committee is to reduce the community's contribution to climate change, with a focus on ensuring our energy infrastructure is cleaner, leaner, and more resilient, and to prepare, coordinate and execute mitigation actions and adaptation strategies that anticipate and respond to the effects of climate change." Air traffic and airport increased use will negatively impact the region and adversely affect climate change.

Noise-In recent years, the flight path of planes has increased over populated areas causing noise complaints. Noise has become one of the major residential issues and is stated as an environmental concern. The use of the airport has increased with much larger planes and very noisy planes, etc, which cause vibration in homes and conversation must stop while the planes go overhead. This is a new and increasing problem that didn't occur a few years ago. With the changes proposed, this problem will exacerbate the conflict with homeowners and airport. The health and environmental concerns are very real.

Avigation Easements- The airport plans to take Avigation Easements of at least 21 homes and possibly more over time. The planes will be flying too close to homes causing distress, environmental noise and taking of property. This must not be allowed.

Cost-The negative impact by the proposed airport to the environment, health and town are substantial and have a high cost. The cost can not be measured accurately, but each subject mentioned above has a dollar value, a health value and an environmental value.

The Town of Chatham is a small town, that attracts people due to its quiet, picturesque nature and the environment. The town has a high population surrounding the airport. There is no need for this airport to expand in this populated community when there exists a commercial airport but 20 minutes away, so the environmental damage can be avoided by not allowing the requests from the Chatham Airport.

Sue Machie
14 Horizon Drive
Chatham, MA 02633

Terry Whalen

From: Katie Waters <kaviatrix737@gmail.com>
Sent: Tuesday, July 06, 2021 1:28 PM
To: Airport Commission
Cc: Shanna Nealy
Subject: CQX Support Alternative 4

> July 6, 2021

> Chatham Airport Commission

> Dear Mr. Harrison,

> Having grown up in Chatham, attending the public schools here and then launching into a career that took me all over the country, I eagerly looked forward to returning to my home town when I retired as a Captain for Southwest Airlines. Most appealing was to become part of the aviation community at CQX. The more local pilots I met, both men and women with a variety of backgrounds and experience, the more impressed I became with their dedication to safety, their depth of knowledge, and desire to inform the public and promote CQX.

> As a professional aviator, I it is very reassuring that so many well informed residents are actively involved in supporting the safest aviation procedures available today, as are outlined in Option 4 and the EA currently being presented to you. I am honored to stand with this knowledgeable group of citizens to insure a viable future for CQX.

> Unfortunately, a barrage of misinformation and alarming claims are not only confusing and misleading the citizens of Chatham, they are inciting a concern that is causing a rise in unnecessary angst and fear by the distribution erroneous ads and handouts. The pall this group of citizens is casting on the town of Chatham is a poor reflection on who we really are: responsible, hardworking, respectful citizens on this jewel of a sandbar.

> As a professional aviator, I strongly urge you to see the propaganda as a deterrent and obstacle to the safest procedures available and move to approve Alternative #4 .

> Respectfully,

> Captain Katie Waters (ret. SWA B737)
> Chatham High School '74

>
> Sent from my iPhone

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Tuesday, July 06, 2021 1:40 PM
To: Airport Commission
Cc: david bixby; Jill Goldsmith; Terry Whalen
Subject: More comments on the airport environmental assessment

The FAA may not have followed NEPA rules and policy in the preparation of the EA. Comments are highlighted in blue below.

NEPA Policy

The National Environmental Policy [Act](#) (NEPA) is a procedural statute intended to ensure Federal agencies consider the environmental **impacts** of their actions in the decision-making process. NEPA establishes the national environmental policy of the Federal Government to use all practicable means and measures **to foster and promote the general welfare**, create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans. it requires Federal agencies to provide a detailed statement on [proposals](#) for major Federal **actions significantly affecting the quality of the human environment**.

Human environment means comprehensively the natural and physical environment and the relationship of present and future generations of Americans with that environment. (See *also* the definition of "effects" .)

Effects or impacts means changes to the human environment from the proposed action or alternatives that are [reasonably foreseeable](#) and have a reasonably close causal relationship to the proposed action or alternatives, including those [effects](#) that occur at the same time and place as the proposed action or alternatives and may include [effects](#) that are later in time or farther removed in distance from the proposed action or alternatives.

(1) Effects include ecological (such as the [effects](#) on natural resources and on the components, structures, and functioning of [affected](#) ecosystems), aesthetic, historic, **cultural, economic** (such as the [effects](#) on employment), **social, or health effects**. [Effects](#) may also include those resulting from actions that may have both beneficial and detrimental [effects](#), even if on balance the agency believes that the effect will be beneficial.

Overlooked in the EA assessment of FAA-funded projects for Chatham Airport are the effects or possible effects of public corruption in the decision-making process on the human environment. (The FBI identifies public corruption as its top criminal investigative priority. It poses a fundamental threat to our national security and way of life. Public corruption can affect everything from how well our

borders are secured and our neighborhoods protected to how verdicts are handed down in courts, and most importantly in this case, to how **public infrastructure** such as roads and schools are built. It also takes a significant toll on the public's pocketbooks by siphoning off tax dollars—it is estimated that public corruption costs the U.S. government and the public billions of dollars each year.) In Chatham it is impossible to separate public from private interests in the management and operation of the airport. The issue of the role public corruption played in the development of the AMPU and EA in the warrants review. It is possible if not probable that public corruption significantly affects the quality of the human environment in Chatham. An examination of the public/private financial entanglements leading to selection of project alternatives is needed to fulfill the requirements of NEPA, perhaps with the assistance of the FBI.

Definition of Public Corruption: A corrupt scheme whereby a public official is unlawfully utilizing his/her position for personal gain. The categories of public corruption investigated by the FBI include legislative, judicial, **regulatory, contractual**, and law enforcement. In Chatham we have one or more officials whose private interests are inextricably linked to public duties. These conflicts of interest are systemic to the operation and management of Chatham's airport. The inherent conflicts of interest undermine the public's confidence that the airport is managed for the public good rather than personal gain.

And then there is the role of FAA oversight in Chatham. When Congress investigated the FAA's role in silencing whistleblowers reporting falsified inspection records of Southwest Airlines aircraft, one Congressman on the House Committee on Transportation described the FAA as guilty of malfeasance bordering on corruption. I think that describes the New England Office of the FAA quite aptly in its dealings with Chatham. The FAA regional Office in New England has consistently displayed a disinterest and unwillingness to enforce airport finance law, grant assurances, and FAR safety regulations in Chatham. Under such a cloud many in Chatham have little confidence the FAA is up to the task of overseeing the environmental review process here.

The Town of Chatham Home Rule Charter sets standards of ethical behavior. Appointees are prohibited from using their official positions to secure advantage, etc not available to every person. And yet we have sitting airport commissioners with vested interest in the airport who vote on policy measures they could benefit from. And then there is the airport manager appointed by the Commission under Mass c.90 with assigned regulatory duties that may conflict with any of his four on premises private airport businesses. The Manager is cited frequently in the AMPU as the source of information critical to projections of future airport use and resulting needs. Many if not all of the selected project alternatives will benefit the Manager personally.

Section 1-8 Ethical Standards [Added 5-11-2009 ATM by Art. 31, approved 5-13-2010 Annual Town Election; amended 1-10-2013 by Chapter 457, Acts of 2012]

Elected and appointed officers, officials and employees of the town of Chatham are expected to demonstrate, in their general conduct and in the performance of their duties and responsibilities, the highest ethical standards. Elected and appointed officers, officials and employees of the town of Chatham are expected to recognize that they hold their offices or positions for the benefit of the public and that while acting in their official capacities they are expected to faithfully discharge the duties of their offices in the public interest, regardless of personal considerations. Elected and appointed officers, officials and employees of the town of Chatham shall not use their official positions to secure or to grant special consideration, treatment, advantage, privilege or exemption to themselves or to any other person beyond that which is available to every person.

Massachusetts law law c. 268B prohibits the appearance of a conflict of interest in municipal employees without written disclosure of the conflict. And yet certain Chatham Airport officials have filed no such written disclosures despite clear appearances of conflicts of interest. Other Mass. ethics law provisions may have been ignored in Chatham with respect to airport management, but town officials appear to lack the will to investigate.

f) **Appearance of conflict.** Acting in a manner that would make a reasonable person think you can be improperly influenced is prohibited. (See Section 23(b)(3))

A municipal employee may not act in a manner that would cause a reasonable person to think that she would show favor toward someone or that she can be improperly influenced. Section 23(b)(3) requires a municipal employee to consider whether her relationships and affiliations could prevent her from acting fairly and objectively when she performs her duties for a city or town. If she cannot be fair and objective because of a relationship or affiliation, she should not perform her duties. However, a municipal employee, whether elected or appointed, can avoid violating this provision by making a public disclosure of the facts. An appointed employee must make the disclosure in writing to his appointing official.

It is this perceived cesspool of conflicts of interest and government disinterest in enforcing laws or regulations that overshadows our (or my) review of the EA.

Major Federal actions tend to fall within one of the following categories:

(ii) Adoption of formal plans, such as official documents prepared or approved by Federal agencies, which prescribe alternative uses of Federal resources, upon which future agency actions will be based.

(iv) Approval of specific projects, such as construction or management activities located in a defined geographic area. Projects include actions approved by permit or other regulatory decision as well as Federal and **federally assisted activities.**

With respect to (ii) above, why is there not an environmental review of the AMPU itself, let alone project alternatives? Many residents of Chatham feel the public was intentional discouraged from public involvement in the AMPU process.

Environmental impact statements

Informed by the submitted alternatives, information, and analyses, including the summary in the final [environmental impact statement](#) and the agency's response to comments in the final [environmental impact statement](#), together with any other material in the record that he or she determines relevant, the **decision maker shall certify in the record of decision that the agency considered all of the alternatives, information, and analyses, and objections** submitted by States, Tribal, and local governments and other public commenters for consideration by the lead and cooperating agencies in developing the [environmental impact statement](#).

It would be difficult for any FAA official to certify in good faith in the record of decision by the FAA that it considered all alternatives, etc. objectively given the track record of FAA official's with respect to their failure to ensure compliance with federal aeronautics law, regulations, grant assurances, and FARs involving the management of Chatham Airport and aeronautics safety regulations.

Federal agency responsibility

Agencies shall reduce delay by:

(a) Using [categorical exclusions](#) to define categories of actions **that normally do not have a significant effect on the human environment** and therefore do not require preparation of an [environmental impact statement](#).

Certainly the effects of a 10,000 gallon jet fuel leak into Chatham's sole source drinking water supply have not been fully examined. Airport management has ignored SWPPP requirements for years and continues to ignore the Commission's commitment that the private 3000 gallon jet fuel truck be parked within the designated fuel spill containment area. The cavalier willingness to flout protocols does not inspire confidence among the residents who rely on clean water.

(b) Using a [finding of no significant impact](#) when an action not otherwise excluded **will not have a significant effect on the human environment** and therefore does not require preparation of an [environmental impact statement](#).

(d) Engaging in **interagency cooperation** before or as the [environmental assessment](#) or [environmental impact statement](#) is prepared, rather than awaiting submission of comments on a completed document.

(a) In assessing the appropriate level of NEPA review, Federal agencies should determine whether the proposed action:

(1) Normally does not have significant [effects](#) and is categorically excluded (§ 1501.4);

(2) Is not likely to have significant [effects](#) or the significance of the [effects](#) is unknown and is therefore appropriate for an [environmental assessment](#) (§ 1501.5);
or

(3) Is likely to have significant [effects](#) and is therefore appropriate for an [environmental impact statement](#) (part 1502 of this chapter).

(b) In considering whether the [effects](#) of the proposed action are significant, agencies shall analyze the potentially [affected](#) environment and degree of the [effects](#) of the action. Agencies should consider connected actions consistent with § 1501.9(e)(1).

(1) In considering the potentially [affected](#) environment, **agencies should consider, as appropriate to the specific action, the affected area (national, regional, or local) and its resources**, such as listed species and designated critical habitat under the Endangered Species Act. Significance varies with the setting of the proposed action. For instance, **in the case of a site-specific action, significance would usually depend only upon the effects in the local area.**

While fuel facilities may be categorically excluded generally, The FAA should consider the special circumstances unique to Chatham Airport. It sits atop the Town's sole source drinking water supply. Satisfactory alternative jet-A fuel supplies exist. Jet-A fuel was only recently introduced in Chatham. The EA does not give adequate consideration to private financial interests driving the need to sell jet fuel in Chatham.

(a) For efficiency, agencies shall identify in their agency NEPA procedures categories of actions that normally do not have a significant effect on the human environment, and therefore do not require preparation of an [environmental assessment](#) or [environmental impact statement](#).

(b) If an agency determines that a [categorical exclusion](#) identified in its agency NEPA procedures covers a proposed action, the agency shall evaluate the action for extraordinary circumstances in which a normally excluded action may have a significant effect.

Certainly the risk to Chatham's drinking water is an extraordinary circumstance.

(1) If an extraordinary circumstance is present, the agency nevertheless may categorically exclude the proposed action if the agency determines that there are circumstances that lessen the impacts or other conditions sufficient to avoid significant [effects](#).

(2) If the agency cannot categorically exclude the proposed action, the agency shall prepare an [environmental assessment](#) or [environmental impact statement](#), as appropriate.

(a) An agency shall prepare an [environmental assessment](#) for a proposed action that is not likely to have significant [effects](#) or when the significance of the [effects](#) is unknown unless the agency finds that a [categorical exclusion](#) (§ 1501.4) is applicable or has decided to prepare an [environmental impact statement](#).

A reasonable case can be made that the FAA uses categorical exclusions to avoid a review of projects that could have a significant impact on the environment, human and otherwise. It is difficult to understand how the installation of a 10,000 gallon jet fuel tank over Chatham's sole source water supply, or eminent domain takings of aviation easements over residential properties do not call for a full EIS. And what effect on the human environment will a near doubling of the hangar capacity (with little or no documentation) have on residential neighborhoods surrounding the airport. Hangar development and the proposed fuel facility are among the candidates for investigation for links to possible public corruption.

(b) An agency may prepare an **environmental assessment** on any action in order to assist agency planning and decision making.

(c) An **environmental assessment** shall:

(1) Briefly provide sufficient evidence and analysis for determining whether to prepare an **environmental impact statement** or a **finding of no significant impact**; and

(2) Briefly discuss the purpose and need for the proposed action, alternatives as required by section 102(2)(E) of NEPA, and the environmental impacts of the proposed action and alternatives, and include a listing of agencies and persons consulted.

(d) For applications to the agency requiring an **environmental assessment**, the agency shall commence the **environmental assessment** as soon as practicable after receiving the application.

(e) Agencies shall involve the public, State, Tribal, and local governments, relevant agencies, and any applicants, to the extent practicable in preparing environmental assessments.

NEPA clearly assigns responsibility for the EA to the FAA, not to the town, airport commission, or consultant. There is no evidence that the FAA has prepared the EA in Chatham. And there is no evidence of the FAA involving the public in its preparation. Regardless, of that, the public has had no role in the preparation of the EA by the airport consultant for that matter.

(a) Responsibility. The agency is responsible for the accuracy, scope (§ 1501.9(e) of this chapter), and content of environmental documents prepared by the agency or by an applicant or contractor under the supervision of the agency.

There exists no evidence of the FAA taking responsibility for the accuracy of the EA and its content. The EA was prepared by the airport consultant under contract with the airport commission, not the FAA.

(b) Information. An agency may require an applicant to submit environmental information for possible use by the agency in preparing an environmental document. An agency also may direct an applicant or authorize a contractor to prepare an environmental document under the supervision of the agency.

Again, there exists no evidence of the FAA requiring the Town to submit environmental information. The EA was prepared by the airport consultant under contract with the airport commission, not the FAA.

(1) The agency should assist the applicant by outlining the types of information required or, for the preparation of environmental documents, shall provide guidance to the applicant or contractor and participate in their preparation.

(2) The **agency shall independently evaluate the information submitted** or the **environmental document** and shall be responsible for its accuracy, **scope**, and contents.

There has been no independent evaluation by the FAA. The EA was prepared by by the airport consultant and approved by the airport commission. This is a blatant conflict of interest not authorized under NEPA.

(3) The agency shall include in the **environmental document** the names and qualifications of the persons preparing **environmental documents**, and conducting the independent evaluation of any information submitted or **environmental documents** prepared by an applicant or contractor, such as in the list of preparers for **environmental impact statements** (§ 1502.18 of this chapter). It is the intent of this paragraph (b)(3) that acceptable work not be redone, but that it be verified by the agency.

(4) Contractors or applicants preparing **environmental assessments** or **environmental impact statements** shall submit a disclosure statement to the **lead agency** that specifies any financial or other interest in the outcome of the action. Such statement need not include privileged or confidential trade secrets or other confidential business information.

There remain issues with respect to the disclosure in this contract. There is a high likelihood given past history that the consultant will benefit financially from project alternative selections in the EA.

National Environmental Policy Act (NEPA)

Implementing Instructions for Airport Actions

Order 5050.4B

The FAA has ignored much of its own policies for implementation of NEPA.

5050.4B

04/28/06

CHAPTER 4. PUBLIC PARTICIPATION

400. PUBLIC PARTICIPATION. Like many infrastructure projects, **most airport development triggers public interest, especially in those areas that would sustain development-related environmental impacts.** It is through this public participation that Federal agencies disclose information about the proposed action, reasonable alternatives, and expected environmental effects. This participation also provides the Federal decision maker with information about issues most important to the public that the proposed action and its reasonable alternative(s) would affect.

401. FAA’S COMMUNITY INVOLVEMENT POLICY. **FAA has a community involvement policy** (FAA-EE-90-03, August 1990). That policy recognizes community involvement as an essential part of FAA programs and decisions. ARP, like each FAA office, must incorporate open, effective community involvement to achieve the following goals and tasks.

- a. Provide active, early, and continuous public involvement and reasonable public access to information that accurately describes a proposed project and its environmental effects.
- b. Ask for and consider public input on plans, proposals, alternatives, impacts, and mitigation.
- c. Use public involvement techniques designed to meet the needs of different interest groups and individuals.
- d. Promote an active public role to lessen potentially adverse community reaction to agency actions needed for safe, efficient aviation.

FAA outreach in Chatham in the EA process has been non-existent.

402. PUBLIC PARTICIPATION UNDER THE AIRPORT IMPROVEMENT PROGRAM (AIP). An airport sponsor submitting an application for AIP funding to build one of the airport projects listed in paragraphs 402.a – c must afford the public with an opportunity for a hearing under 49 USC 47106(c)(1)(A)(i). The sponsor must certify to the Secretary of Transportation that it has provided the public an opportunity for a public hearing to consider the economic, social and environmental effects of its actions (see paragraph 404.b). The responsible FAA official should ensure an environmental document prepared for the actions listed below discusses the airport sponsor’s steps to comply with section 47106(c)(1)(A)(i).

1. **A new airport.**
2. **A new runway. or**
3. **A major runway extension.**

4-1

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To streamline the public involvement activities, ARP uses its NEPA public involvement process as “framework” to comply with this requirement.

403. PUBLIC PARTICIPATION REQUIREMENTS UNDER NEPA AND SPECIAL PURPOSE LAWS. CEQ gives Federal agencies instructions on NEPA’s public involvement process at 40 CFR 1506.6. In addition, many special purpose laws applicable to airport projects (see paragraph 9.t of this Order) require notice and opportunity for public involvement. **One way to effectively meet public participation requirements is to conduct a public hearing** (see paragraph 404).

Many of Chatham’s residents have concerns over the environment impacts of the proposed projects and would welcome a public hearing. No such hearing has been proposed.

a. Factors to consider when deciding if a public hearing is warranted for NEPA purposes. A public hearing is a gathering under the direction of a designated hearing officer for the purpose of allowing interested parties to speak and hear about issues of concern to interested parties. **Title 40 CFR 1506.6(c), states that public hearings should be held whenever appropriate** or to meet statutory requirements applicable to an agency. To determine if a public hearing is warranted under NEPA, the responsible FAA official or airport sponsor should consider these following factors:

(1) Is there substantial environmental controversy concerning the proposed action or is there substantial interest in holding the hearing (CEQ 1506.6(c)(1))?

There is substantial environmental controversy over proposed projects including tree cuttings on public and private property, threat to drinking water supply, noise, etc. that call for a public hearing.

(2) Has another agency with jurisdiction over the action requested a public hearing, and has that agency supported its request with reasons a hearing would be helpful (CEQ 1506.6(c)(2))?

Not only has the FAA ignored the fact that the Airport Commission did not coordinate the preparation of its AMPU with the MPO and local planning agencies, the Cape Cod Commission, as required in the AMPU grant by the FAA, Cape Cod Commission regulations require a public hearing for all Developments of Regional Impact. The AMPU is a DRI by definition under the regulations. The AMPU must be evaluated by the CCC in its entirety and not piecemeal as has been done in the case of the EA. The Airport Commission has continually ignored suggestions that the AMPU calls for DRI review and public hearing.

b. Public participation and hearings for special purpose laws. In addition to NEPA, **airport projects may trigger other public participation requirements of various special purpose laws.** For example, Executive Orders on Floodplains and Wetlands, 11988 and 11990, respectively, and regulations addressing National Register-listed or eligible historic properties at 36 CFR Part 800 require an opportunity for public review of actions that could affect those resources. Often, ARP uses its NEPA public involvement process as the “framework” to coordinate the various public involvement requirements of these special purpose laws. In addition, the sponsor or responsible FAA official may conduct a hearing during State, local, or Tribal review processes that paragraphs 302 and 303 discuss. If those processes occur before the hearing occurs, the airport sponsor or the responsible FAA official should make the comments they received from State or local agencies, or Tribes available at the hearing.

Note previous comment above.

404. NOTICE OF OPPORTUNITY FOR A PUBLIC HEARING. When a sponsor provides an opportunity for a public hearing to comply with 49 USC 47106(c)(1)(A)(i) the following must occur:

a. Publish notice. The airport sponsor must publish a “Notice of Opportunity for a Public Hearing.” The notice must appear in an area-wide or local newspaper having general circulation. The notice should contain the following information:

(1) A statement of the sponsor's intent to undertake the proposed action.

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(2) A concise description of the proposed action.

(3) A concise statement that the hearing's purpose is to address the proposed actions, potential economic, social, and environmental and the project's consistency with the goals and objectives of each affected area's land use or planning strategy.

(4) The locations and times where the draft environmental assessment (EA) or draft environmental impact statement (DEIS) will be available for public review to allow the public to prepare for the public hearing. The draft documents must be available for review at least 30 days before the hearing occurs.

(a) Environmental assessment (EA). When an airport sponsor is preparing an (EA), the sponsor should file a draft EA with FAA for review before a public hearing occurs. After changing the EA to reflect FAA's concerns, the sponsor must make the draft available for public review before the public hearing occurs. This ensures that the EA the public will review accurately reflects FAA policy and concerns.

In Chatham neither the sponsor nor the FAA followed the process outlined above. In fact, there is an ongoing and unresolved controversy in Chatham over what agency serves as airport sponsor. Federal aeronautics law states it is the Town. But the Town in Chatham has illegally signed away all rights and powers to ensure compliance with federal grant assurances to the Airport Commission. It is not all clear which agency has responsibility in Chatham due to conflicting contractual agreements between the Town and either the FAA or MassDOT. It is this confusion of agency responsibilities that undermines the legitimacy of airport related documents such as the EA.

(b) Environmental impact statement. The responsible FAA official should ensure the DEIS FAA prepares for an action meets the requirements of this order and other applicable Federal environmental requirements. This ensures the EIS accurately reflects FAA policy and concerns. and

(5) A statement that anyone interested in the project has up to 15 days from the date the Notice of Opportunity for a Public Hearing is issued to request a hearing.

I an unaware of any such notice.

b. Hearing opportunity to meet NEPA or special purpose law public involvement requirements. The responsible FAA official or airport sponsor should follow the procedures in paragraph 404.a if a public hearing or meeting will be held to meet public involvement requirements. If the sponsor or the responsible FAA official provides an offer for public hearing for an action but no one requests a hearing the sponsor or FAA official should follow the instructions in paragraph 405.

405. WHEN THERE IS NO REQUEST FOR A HEARING. Sometimes, the airport sponsor or the responsible FAA official provides an opportunity for public hearing, but no one requests a hearing.

a. When the sponsor offers the meeting to comply with 49 USC 47106(c)(1)(A)(i). The sponsor must certify to the responsible FAA official in its grant application that it published a "Notice of Opportunity for a Public Hearing." The responsible FAA official should place the certification in the project's Administrative Record.

b. When the FAA or airport sponsor offered the opportunity for a public hearing to meet NEPA or special purpose law requirement. The responsible FAA

5050.4B 04/28/06

official should include in the Administrative Record a copy of the hearing notice and the reasons the hearing was not held.

406. RESPONSIBILITIES WHEN A PUBLIC HEARING WILL OCCUR.

a. Benefits of public hearings. During a public hearing or meeting, agencies, the public, or Tribes having an interest in a proposed Federal action gather information about a proposed action and other issues related to the action. For example, a hearing or meeting provides those parties with a forum to discuss preliminary information concerning an action's potential economic, social, and environmental effects. Hearings or meetings also provide occasions to consult with a Metropolitan Planning Organization and discuss an action's reasonable consistency with the affected community's completed or proposed planning objectives.

b. Notice of Public Hearing. When, a public hearing is deemed appropriate, the deciding party should publish a "Notice of Public Hearing." This notice informs the public that a hearing will occur. This notice must appear in the same newspaper(s) that published the "Notice of Opportunity for a Public Hearing" and must appear at least 30 days before the date the hearing will occur. The "Notice of Public Hearing" must include all of the following:

- (1) The information discussed in paragraphs 404.a(1) – (4).
- (2) The hearing's date, time, and location. If, for some reason, the Notice of Public Hearing does not contain this information, the sponsor or FAA must publish this scheduling information at least 15 days before the date the hearing will occur.
- (3) Based on information in the draft EA or EIS available for public review (see paragraph 404.a(4), a list of potentially affected environmental resources.
- (4) A statement that interested parties should send written comments to the sponsor or FAA within the 10-day period following the date the hearing occurs or by the end of the NEPA document comment period, whichever is later.

c. Hearing transcripts and comments. Decision makers need accurate information about major public concerns made during public hearings. Public hearing transcripts are ways to provide that information. Therefore, the airport sponsor must place a copy of the hearing transcript in the project record. The airport sponsor must provide FAA a copy of the transcript when asked to do so. If FAA conducts a public hearing, FAA will provide the sponsor a copy of the meeting transcript. The responsible FAA official should file the transcript in the project's Administrative Record.

d. Summarize issues. An appendix accompanying the final version of an EA or EIS should include a detailed summary of issues raised during the public hearing and responses to those issues. Neither document needs to contain a hearing transcript.

407. - 499. RESERVED.

Terry Whalen

From: Gloria Freeman <freeannie@comcast.net>
Sent: Tuesday, July 06, 2021 1:43 PM
To: Airport Commission
Subject: EA for AMPU

Hello - Where can I find the correspondence you have received regarding the Environmental Assessment in conjunction with the AMPU Plan?

Thank you.

Gloria Freeman

Terry Whalen

From: mtbhayman@aol.com
Sent: Tuesday, July 06, 2021 1:58 PM
To: Airport Commission
Subject: PROPOSED AIRPORT EXPANSION

Commission Members,

I am a fourteen year summer resident and am not opposed to the existence of Chatham Airport. To the contrary, I think it is a valuable asset!

I am, however, very much opposed to the both the physical and operational expansion which is being proposed for the following reasons:

-Environmental impact of increasing the runway clearance which affects the woods and vernal ponds.

-Easements which affect numerous abutting property owners' value and trees which would be removed but mainly,

-Increased air traffic and the accompanying noise and safety issues which are a quality of life factor for many in Chatham, not just those at each end of the runway.

This contentious issue has been dragging on for years but I urge each of you to hit the reset and consider what is truly best for the community as a whole.

Respectfully,

Marc Hayman
88 Old Main St.
Chatham

Terry Whalen

From: Joe Tischler <jtischler1@gmail.com>
Sent: Tuesday, July 06, 2021 2:17 PM
To: Airport Commission
Subject: Environmental Assessment

As a twenty year homeowner in West Chatham, I wish to strongly challenge and protest the Gale Associates recommendation for long term changes at CQX.

If enacted, the so called "safety changes" at the airport would potentially create extremely "unsafe" environmental conditions in West Chatham. Water quality, already under stress, would dramatically be jeopardized by increased jet fuel usage. With VFR air traffic going to 24 hour IFR traffic, noise levels will render West Chatham uninhabitable to residents. The recommendation for a perpetual right of access to surrounding airport homes under Avigation Easements will sink property values and reduce tax receipts to the Town.

If the Gale recommendations are enacted, Chatham will face many years of costly legal and environmental challenges and the death of its current reputation as a wonderful community to live and visit. I encourage the AC to scrap the Gale ideas and have a new citizen supported commision to create the long term plan for CQX.

Sincerely,
Joseph Tischler
West Chatham

Terry Whalen

From: Joanne Hinesley <chatham7@hotmail.com>
Sent: Tuesday, July 06, 2021 3:47 PM
To: Airport Commission
Subject: Airport expansion

Dear sirs

Please do not allow any more expansion of the airport we are a small town with a fragile ecosystem you've already destroyed lots of trees if they need to fly in to Hyannis it's no big deal the only thing this town wanted to do during Covid is overcome the will of the people enough is enough we do not need any more going on in Chatham the planes that come in are fine we don't need jets we don't need commercial airlines coming in and don't lie you wouldn't be putting all that fuel and if you didn't anticipate it

Sent from my iPhone

Terry Whalen

From: rick.fiery@verizon.net
Sent: Tuesday, July 06, 2021 4:14 PM
To: Airport Commission
Subject: Fiery Comments to draft EA

Comments on Draft EA for CQX Airport

I am a full-time Chatham resident and recently moved to N Skyline Drive on Great Hill. Before that, from 2009, I lived at Katie Ford Rd, right next to the airport. I am an instrument-rated private pilot and have been flying into Chatham since 2009. As someone who has intentionally lived by the airport and experienced everything from skydiving to the busy season during the summer, and the minimal aviation traffic during the winter, I would like to add my perspective.

Additionally, I would like to mention my professional background as it is supportive for my observations on approach design. A company I founded many years ago developed 3-Dimensional civil engineering design software to model different types of projects including airports. Our software was used to model in 3-D the runways, taxiways, and earthwork at Denver International Airport, Honk Kong International, Kuala Lumpur International and Heathrow's Terminal 5 expansion, among others. More specifically, we also built a prototype app for the US Air Force to rapidly design approaches for forward operating bases. We modeled approach paths, and all the layers of safety zones, to determine obstacle conflicts. Interestingly, each runway has multiple intersecting zones of protection for each approach type resulting in very complex surface analysis algorithms to determine obstacle penetrations.

My house on Great Hill has been mentioned in past airport commission meetings as being at risk for being removed with an avigation easement – the reality is that these calculations cannot be done on the back of an envelope. There is much more to TERPS design than the untrained person can possibly be aware of and draw appropriate conclusions. I do look forward to seeing the final design and hope that I will have the opportunity to ask questions when it is complete - my house, and a few nearby neighbors (not all of Great Hill) are at the most risk for a poorly designed LPV approach. If nothing is done, ALL airport neighbors will share the extra risk, and the higher noise levels, of the current outdated circle-to-land or NDB procedures in the vicinity of the airport that are currently the only option.

Given that preamble, I would like to make some specific comments on the EA:

- 1) **GPS Approach Design** - For the LPV approach, I would like to request that the designers consider a steeper than 3-degree gradient for the glideslope for runway 24 rather than a displaced threshold approach. Category B are the largest planes that can get into Chatham, and it looks as if the Glideslope could be as great as 4.2 degrees per the regs. This would accomplish several things: provide for a greater clearance over Great Hill (depending upon the derived Minimum Descent Altitude of course), it would pull the Initial Approach Fix (IAF) closer to shore, away from the sharks, increase the likelihood for a safe glide to landing if an engine were to fail and reduce the amount of tree trimming required for the approach.
- 2) **Displaced Threshold** - Please do not consider a displaced threshold for either runway. The often-gusty conditions require a higher approach speed, which increases the likelihood of floating down the runway and thus requiring more runway to stop. A shorter runway will absolutely reduce safety for any planes that land at CQX. Furthermore, the runway itself is crested in the middle with downslopes in each direction. A displaced threshold will force people to land and/or decelerate on the downhill portion of the runway. In wet or snowy conditions, the chance for an overrun into the bike path will increase significantly. Anyone who drives a vehicle and has tried to stop downhill in wet or slippery conditions should be able to understand the physics of this. Finally, if (1) above is considered, it will minimize the need for tree trimming, but it cannot be paired with a displaced threshold as well, due to the steeper glidepath and higher potential runway threshold speeds.
- 3) **Lower Minimums** - I am concerned that some people are implying that potentially lower approaches (MDA's) are less safe than higher circling approaches. This is absolutely incorrect. A simple google search will provide backup to this

statement showing all the research that has been done on this topic by aviation authorities worldwide. Straight in LPV approaches, using the modern technology available to pilots today, are safer and quieter than the current approaches we have into Chatham. The science and data are unequivocal.

- 4) **Increased Access for Medevac** – I am not a helicopter pilot, but I understand that helicopters have lagged fixed-wing aviation in adopting GPS approaches because they can mainly operate under VFR with lower ceiling and visibility requirements. In 2015, Boston Medflight received approval to fly GPS approaches to the major hospitals in the city of Boston <https://bit.ly/3hH5DAV>. They have equipped some of their helicopters with GPS and autopilot capabilities in 2018 <https://bit.ly/2UuhlqB>. So clearly, they are looking for ways to improve safety and increase accessibility.

There is guidance from the FAA for Medevac operators to develop and follow risk matrices to determine go/no-go decisions that include the availability of a published instrument approach in the area as part of the analysis. As a resident of Chatham, and for our broader surrounding communities, anything we can do to make it easier to get immediate emergency transport from a somewhat medically isolated location can only make sense. I will submit that the above assumptions should be fact-checked and verified with Boston Medflight and the Coast Guard as well. It is a very complex topic, much like TERPS design.

- 5) **Environmental Impact** - I do recognize the need for the airport to minimize its impact on the environment. The Airport Commission should consider exploring ways to minimize environmental impact and replace any vegetation removed for the approaches by offsetting with plantings in other parts of the airport property, or on other town land. This offset technique is typically how many civil engineering projects compensate for environmental issues such as wetland mitigation, stormwater runoff, or greenhouse gas implications and they are considered part of the cost for the project. Net-zero is a buzzword today that is very complex in implementation, but is certainly something that should be strived for.
- 6) **Avigation Easements** - I do not ascribe to the idea that avigation easements will significantly affect property value. I would not have been able to purchase my house, at the price I purchased it, anywhere else in Chatham. The price reflected the fact that it is already on the flightpath. The same goes for the house I purchased at Katie Ford Rd in 2009. Everyone I met in that neighborhood knew the airport was a neighbor, enjoyed the vibe of the airport and likely bought their house at a lower price. That said, arguing that removal of some of the trees may change the character of the property is certainly valid. People should be compensated for this. To me, avigation easements notify any unwary buyers that an airport is nearby, and they should take that into consideration before purchasing. That seems like ethical disclosure to me. This, of course, is just my opinion.
- 7) **Hangars** – I support the development of additional hangars – the airport needs revenue to minimize the burden on taxpayers. More revenue will allow the airport to become cash generative and give it the ability to take on further projects to increase safety and minimize its impact on the community and the environment.

I will end with a request for the Airport Commission to move forward immediately and without delay with Option 4 for the approaches in the EA with the addition of offsetting the vegetation removal with remediation in an appropriate form. This needs to be done expeditiously as my family and my adjacent neighbors are directly on the flightpath for the current outdated and less safe approaches to CQX.

Rick Fiery
N Skyline Drive
Chatham, MA

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Tuesday, July 06, 2021 4:22 PM
To: Airport Commission
Cc: Jill Goldsmith; Terry Whalen
Subject: EA concerns reinforced by fuel truck practices

Today while driving past the airport I noticed that airport officials have yet again resumed the practice of parking the 3000 gallon jet fuel truck along the perimeter fence abutting the George Ryder Road sidewalk and unprotected grass strip. While the use of the truck was approved by the Commission for fueling purposes, it appears the truck is serving a dual purpose as an advertising platform for private on-site businesses. The truck is not parked in the designated fuel spill area. I also noticed that there appeared to be no absorbent pads in use for spill protection while the truck was used to fill a PC12 tank.

This truck has been a continuing source of controversy. It was approved by the Commission despite opposition from the public, and we thought it was approved with the condition it be safely stored in the spill contamination area in order to protect our water supply in the event of a spill. The truck has also been routinely parked in the FAA funded SRE building.

The truck is owned, i believe by Cape Cod Flying Circus, the airport FBO under contract with the Commission to manage the airport. CCFC is owned by Tim Howard who also serves as the airport manager appointed by the Commission under Mass c. 90 law. The airport manager is responsible for observing compliance with state and federal laws and regulations and is required to report observed violations to proper oversight agencies. Manager Howard's private financial interests potentially, and in my opinion and observation often do, conflict with his manager duties.

Whether or not the placement of the truck violates federal, state, or local rules I can not say. But knowing the sensitivity of the subject and potential risk to drinking water supplies, it is astounding to me that the manager continues to so brazenly park his vehicle at this location.

This is but one example of how conflicts of interest might play out at the airport and why so many of us feel the need for an investigation into possible ethics laws violations in the management of this airport. Repeated notifications to the airport commission over several years regarding the parking of the truck remain unanswered.

It is this kind of action that leads the public to have little faith In the validity and integrity of the EA document.

David Bixby



Sent from my iPhone

Terry Whalen

From: Helene Tischler <htischler1@comcast.net>
Sent: Tuesday, July 06, 2021 4:37 PM
To: Airport Commission
Subject: Environmental Assessment

As a long-time homeowner/taxpayer in West Chatham, I object strongly to the so-called "safety changes" put forward by Gale Associates and a small group of pilots who continue to distort the true negative impact of the long-term changes to CQX on the residents of Chatham. Chatham Airport does not need to expand! Our selectmen and the Commission need to protect Chatham residents-our environment, our property values, our trees as well as the peaceful enjoyment of our homes here. The citizens of Chatham and any officials who claim to represent our interests, must insist that the citizens, not special interest groups, have direct input to determine the future and any long range plan for CQX. To benefit the few at the expense of the many is contrary to our ideals as a community and as Americans.

Sincerely,
Helene Tischler
West Chatham

Sent from my iPhone



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
5 POST OFFICE SQUARE SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

July 6, 2021

Richard Doucette
Federal Aviation Administration
1200 District Avenue
Burlington, Massachusetts 01803

Re: Review of Draft Environmental Assessment for the Chatham Municipal Airport, Chatham, Massachusetts (Airport Improvement Program - No. 3-25-0015-026-2020, April 2021)

Dear Mr. Doucette:

We are writing in response to the Draft Environmental Assessment (EA) for the Chatham Municipal Airport project located in the Town of Chatham, Barnstable County, MA. We submit the following response to the EA in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act and the Safe Drinking Water Act.

The Capital Improvement Plan described in the EA includes airspace vegetation management activities, such as selective tree cutting to remove obstructions to allow for the safe movement of aircraft and the construction of two (2) T-Hangar Buildings (approximately 22 units) with vehicle parking. These projects include work on both municipal airport property as well as parcels near the airport runways. The work is proposed to help the airport meet Federal Aviation Administration (FAA) airport safety design standards and aeronautical needs.

Sole Source Aquifer Review

In conjunction with our review of the EA we also reviewed the project under the 1974 Safe Drinking Water Act (SDWA) Section 1424(e). The SDWA provides EPA authority to review proposed projects within Sole Source Aquifers. Any project receiving federal funding in a designated Sole Source Aquifer requires EPA review. In this case EPA conducted a Sole Source Aquifer Review of the Chatham Municipal Airport project because a portion of the funding for the project is being supplied by the FAA. The Cape Cod Sole Source Aquifer was designated on July 13, 1982 (Federal Register Notice: 47 FR 30282). For more information: <https://www3.epa.gov/region1/eco/drinkwater/solecape.html>

Based on our review of the EA we offer the following comments and recommendations regarding the project for your consideration:

Aquifer Protection

EPA notes that Section 6.7 Water Resources – Ground Water (page 15) does not provide any information about the depth to groundwater or groundwater flow directions.

Recommendation: We recommend that a map showing groundwater contours and flow directions be provided to better describe the context and existing environment for the proposed project. This map should show the location of monitoring wells and provide information on how the groundwater contours were developed.

EPA notes that the discussion of past contamination and measures to protect the sole source aquifer from airport operations is not included in the EA.

Recommendation: We recommend that the discussion in Section 5.2 be expanded to provide more specific information about how the aquifer will be protected. We specifically recommend additional detail regarding how the airport will protect groundwater from runoff, spills, or accidents at the airport.

Public Drinking Water - Coordination with Chatham Water District on Wellhead Protection Areas

The EA states that the airport and vegetation management areas are located within the Cape Cod Sole Source Aquifer and within three (3) MADEP Approved Zone II Wellhead Protection Areas for the Indian Hill well (0.2 miles east), Well 8 (0.35 miles north), and the Training Field well (0.4 miles north).

Recommendation: We strongly encourage the airport to coordinate with the Chatham Water District regarding any potential for increased water demands from the project and safeguards for the Zone II groundwater protection areas. Please contact the Chatham DPW Director Thomas Temple at (508) 945-5155.

Spill Prevention Control and Countermeasure Plan

The EA states that a spill prevention plan will be developed (Mitigation, page 17) prior to construction of the two proposed hangars at the airport. The EA would benefit from a general description of the likely measures that will be incorporated into the plan to address construction and operation of the hangars.

Recommendation: Given the location of the proposed project within a Sole Source Aquifer and the extent of construction proposed at the site, EPA recommends that the airport's Spill Prevention, Control and Countermeasure (SPCC) Plan be updated prior to construction. For more specific information about requirements with the SPCC rule, refer to www.epa.gov/oil-spills-prevention-and-preparedness-regulations/spill-prevention-control-and-countermeasure-19. Questions regarding the SPCC rule should be directed to EPA's Joe Canzano at canzano.joseph@epa.gov or 617-918-1763.

Stormwater Management

The EA mentions the implementation of an erosion and sediment control plan, including stormwater runoff controls and Best Management Practices (BMPs) that will be developed to mitigate the proposed construction activities for the two (2) proposed hangars.

Recommendation: Given the location of the proposed construction project within a Sole Source Aquifer and the site's proximity to public drinking water wells, EPA recommends that the airport's erosion and sediment control plan, including stormwater runoff controls and Best Management Practices (BMPs) include consideration of the ground water resources at the site, including monitoring wells and

advanced stormwater BMPs which account for spill control. These stormwater BMPs should include pretreatment capabilities as required by Massachusetts stormwater requirements. The EA should describe the stormwater management strategy and how specific BMPs will be implemented to address these requirements.

Underground Injection Control (UIC) program

EPA's Underground Injection Control (UIC) program is administered by MassDEP and, as such, UIC systems are regulated by MassDEP. Infiltration best management practices (BMPs) used to drain stormwater runoff are regulated as "Class V" underground injection wells under Massachusetts UIC regulations (310 CMR 27.02) if they include any of the following:

- a bored, drilled, or driven shaft, a dug hole, or seepage pit whose depth is greater than its largest surface dimension; or,
- an improved sinkhole; or,
- any subsurface structure that has a soil absorption system (SAS) with a subsurface fluid distribution line and aggregate. Note: This refers to subsurface infiltration enhancement systems but does not include underdrains designed to collect and convey stormwater to a surface outfall or a storm drain network.

Recommendation: The EA should explain whether underground injection is proposed as part of the proposed project. If so, we recommend that questions regarding UIC regulations be directed to Joe Cerutti, the MassDEP UIC Program Coordinator, at joseph.cerutti@state.ma.us or 617-292-5859.

Provided that the project meets all applicable federal, state and local environmental protection standards, EPA does not believe that the Chatham Municipal Airport project described in the draft EA will pose a significant threat of ground water contamination which could pose a health hazard. Please note, however, that EPA reserves the right to inspect and/or take enforcement action pursuant to the Clean Water Act, and other applicable laws. This includes the right to seek penalties, for any past, current, or future violations detected at the Chatham Municipal Airport.

We would like to be kept informed about any activities that might affect the Sole Source Aquifer during project construction or operation. Also please note that we recommend close coordination with EPA should the airport decide to pursue development of a new fuel depot in the future. Please communicate directly with the EPA Region 1 Sole Source Aquifer Coordinator, Kira Jacobs. She can be reached at jacobs.kira@epa.gov or 617-918-1817.

Sincerely,



Timothy Timmermann, Director
Office of Environmental Review

cc:

Thomas Temple, Town of Chatham, DPW Director
Jill Goldsmith, Town of Chatham, Town Manager
Jonathan Hobill, MA DEP-SERO

Terry Whalen

From: Edyth Tuxbury <ewtuxbury@comcast.net>
Sent: Tuesday, July 06, 2021 4:59 PM
To: Airport Commission
Cc: William Tuxbury
Subject: Environmental Assessment

The Chatham Airport Environmental Assessment should be conducted by an independent consulting firm with no business connection with the Chatham Airport.

Any expansion of this small airport in our small town will have a negative effect on many environmental issues including:

- *Noise
- * Visual effects
- *Wetlands
- *Biological Resource

Chatham is fortunate to have the Hyannis Airport in close vicinity where airplanes carrying more than four passengers can take off and land safely. Let's keep Chatham Airport for two to four passenger airplanes to take off and land safely.

Edyth and William Tuxbury
91 George Ryder Road South
Chatham, MA

Copy to Peter Cocolis
Chatham Select Board
Sent from my iPad

Terry Whalen

From: Paul White <pdwhite824@gmail.com>
Sent: Tuesday, July 06, 2021 5:06 PM
To: Airport Commission
Subject: Environmental Assessment

To whom it may concern,

We are property owners on Great Hill in Chatham located close to the Chatham airport. I am very disappointed to read the Airport Commission's recent Environmental Assessment draft. It minimizes the many environmental issues that we as homeowners face - not just from likely increased air traffic and larger airplanes, and extensive tree cutting - but to avigation easements on property owners.

The impact of increased carbon emissions is all too clear but minimized or ignored in this document. The addition of a 10,000 gallon jet fuel tank and its impact on the sole water source (aquifer) is also clear but hardly mentioned. The increased noise from more and larger aircraft will have substantial impact on our quality of life as well as the environment. This document seems to give little credence to actual environmental and property impact and instead seems to only encourage expanding the airport and air traffic which by definition impacts the environment.

The cutting of large swarths of trees in general is an issue and impact on quality of life here in this small town. It also impacts many home owners whose property would be impacted without their consent through the removal to trees. As a property owner I will strongly object to any attempt to place any form of avigation easement on our property. This is not only an impact on the environment but our rights as a property owner as well.

Sincerely,

Paul & Ann Marie White
227 Horizon Drive
Chatham MA 02633

Terry Whalen

From: Terence A Zemetis <terence.zemetis@gmail.com>
Sent: Tuesday, July 06, 2021 5:47 PM
To: Shanna Nealy; Airport Commission
Subject: Draft EA for Chatham Airport

Dear Members of the Select Board and Airport Commission,

Please support and approve Alternative or Option #4 of the EA because of safety for aircraft occupants and those of us living under the flight path to Chatham Airport.

Objections because of inconvenience, nuisance and economic harm are secondary to the duty to safeguard the traveling public and those on the ground beneath the flight path. FAA approved approach and departure procedures, assisted by GPS navigation, substantially improve the safety of airport users and those people beneath the flight path.

The FAA designed procedures provide vertical and horizontal guidance for pilots to keep the aircraft safely on course whether landing or departing. The proposed procedures are adopted across the nation - Chatham is well behind the times.

In 1994 we purchased our home on 18 Lake Shore Lane Chatham - lakeside at the bottom of Great Hill, beneath the flight path on the northeasterly end of the airport. We knew of the airport and its flight path - ignorance of the obvious would admit a lack of due diligence or stupidity.

More than simply aware, we've been entertained and entranced by the flights above us. Occasionally, on an early summer's morning, the roar of the departing aircraft is an aviation 'alarm clock', but that's a rare event.

We have family and friends living and visiting us, in fair and foul weather, and desire those pilots to guide their aircraft with the most modern and safe equipment available. Our lives depend upon it.

My neighbor's feigned 'surprise' and 'fright' of aircraft arriving and departing is incredible. Our neighbors' education (the leaders of the airport 'opposition' hold Phd and M.D. degrees), professional and personal experience and their exercise of due diligence before buying expensive housing near the airport and beneath the flight path belies 'surprise', 'shock' and 'fright' claims. Their repeated willful departure from the truth, orally and in print, prove their inability to muster truth supporting their objections. If they had substantive proof, they'd rely upon truth instead of lies. Their efforts to create public hysteria, whether about the airport, motor vehicle traffic control (round-about), or placement of the Chatham Senior Center, suggests their motivations are ego-centric and not substantive. They crave attention - good or bad - simply attention, reminiscent of a recent national public servant.

As a former, now-retired, CT Superior Court judge I presided over many contentious legal and factual trials and disputes. Manipulation of the facts to create a climate of hysteria – such as claims of 'clear cutting all the trees' of neighbors adjoining the airport, lengthening the runway, preparing for use by jet aircraft, contaminating the community well water, etc. and objections to the propriety of the administrative process and the environmental study or its authors' competence, thoroughness or accuracy, are familiar tactics of one seeking to obfuscate the truth.

The stakeholders' claims have contested merit, but safety for those legally using the airport and those on the ground adjacent to the airport should receive your priority concern.

Please support EA Alternative #4.

Yours very truly,

Terence A. Zemetis
Barbara I. Zemetis
18 Lake Shore Lane
Chatham, MA

Terry Whalen

From: david bixby <dbixby48@icloud.com>
Sent: Tuesday, July 06, 2021 8:54 PM
To: Airport Commission
Cc: Jill Goldsmith; Terry Whalen
Subject: Comment on EA - undercounting of pc12s in Chatham

Airport Commission,

In two days of very casual observations I have identified three PC12 aircraft on the CQX tarmac. None of these are tracked by FlightAware due to owner/operator request. This morning there were reports of three PC12 aircraft flying into Chatham before 6:30 am. Operations at Chatham by PC12 aircraft appear to be rapidly expanding, even before the EA is even completed.

Which begs the question, why is the PC12 not the chosen runway design aircraft in the EA? The PC12 appears to be well on its way to reaching the threshold of 500 annual operations this year alone, let alone over the 20 year AMPU planning period, and yet the EA has selected an aircraft in the order of only roughly 50 annual options.

Who is profiting from the PC12 use of the airport? It is my understanding that no fees go to the airport. How much money is involved here? Does the failure to select the PC12 as the design aircraft have anything to do with Pilatus fees and fuel sale profits not going to the airport?

Another PC12 not available for tracking contributing to undercounting of PC12s in Chatham.

N489JG on the tarmac getting fuel around 3:30.

Owner
DUMONT ASSOCIATES INC
MORRIS PLAINS , NJ, US
(Corporation)

DUMONT ASSOCIATES INC (MORRIS PLAINS NJ)

This aircraft ([N489JG](#)) is not available for tracking per request from the owner/operator

Terry Whalen

From: Thomas Jones <tom.jones@gibsonsir.com>
Sent: Tuesday, July 06, 2021 11:34 PM
To: Airport Commission
Subject: Environmental Assessment

To whom it may concern:

It is my feeling that the Town of Chatham has a biased Environmental Assessment report that favors the Airport Master plan by retaining the same firm that developed the original Airport Master Plan for the Chatham Airport to also do the Environmental study. Did Gale Associates really weigh the environmental issues of the Airport property and the abutting neighborhoods in a objective manner, or simply address the issues that would be approved by the FAA?

I have lived at 192 N Skyline Drive for 29 years as a full time resident and was never really bothered by the recreational aircraft and pilots that called Chatham CQX their home, or the sky divers that many have complained about. Although, I am bothered by the Scenic Flights offered in a Biplane owned by the Airport Manager as every time it takes off it is a noise nuisance to all those directly below. The biplane is a similar issue as jet ski boats were to Pleasant Bay. Weren't those outlawed many years ago for noise issues and possible environmental issues as well? Perhaps the Friends of Pleasant Bay could address that issue better than I could.

While I don't object to the airport per se the new master plan appears to be at the expense of residents of Chatham and not just those who live near the airport. Recently on a cloudy overcast day I was working in my side yard when a Pilatus airplane flew directly over my neighbors house at 202 N Skyline lower than any airplane to fly over our roof tops. How close is too close, and who regulates infractions if violations occur? I was so bothered by its approach that I drove down to the airport to learn more about the flight that flew into the Chatham Airport. I spoke to the pilot as he was coming off the tarmac and apparently there were no passengers on the plane. I mentioned to him that I just witnessed his landing and he was really flying exceedingly low over my neighbors house. He said he was following instrumentation guidelines he was given as he could not see the house as he approached the airport. I asked why he wasn't landing in Hyannis given the weather conditions, after-all they have a control tower and are use to dealing with the variables of weather that Chatham can't manage. The pilot mentioned that he was picking up the owner of the Pilatus Aircraft who lives in Chatham. He pointed out the owner who was coming out to the plane and said to me there's the owner, perhaps he is one of your neighbors? I thought to myself that I don't know anyone in the Great Hill neighborhood who owns a 4 million dollar airplane! The difference between the charter pilot who makes a living flying and the local recreational pilot is the local pilot wouldn't be flying in such poor weather conditions; just like recreational boaters who stay onshore during high wind advisory conditions deem its not safe to navigate our waters. They have enough common sense to realize what is safe and when it is appropriate to stay ashore, similar to the private recreational airplane owner. Isn't this what our Airport really is, a fair weather Airport that has never updated to the technology of commercially designed airports?

If that plane that I observed had an error in landing and crashed into the house next door while I was working in my yard, not only would the pilot of perished but I probably would of as well as collateral damage. For what? So one person could be picked up in Chatham vs driving 18 miles to the Hyannis Airport? The trip from his home probably takes 10 min to Chatham CQX, the trip to Hyannis 30 min. So he saves 20 min, but potentially endangers lives of homeowners who live near the airport by requesting his pilot to fly into Chatham in poor weather conditions. Again, for what? To save 20 minuets?

Is this what Chatham wants? Who "Cries Mary" when the weather is questionable? Yet pilots are pressured to land at Chatham Airport because it saves someone 30 minutes of time? As an example of poor pilot judgement see: <https://www.google.com/amp/s/www.nytimes.com/2019/11/30/us/south-dakota-plane-crash.amp.html>

As I mentioned earlier I'm not against the recreational pilot, or the occasional Coast Guard Helicopter, or a potential life saving Medical flight out of Chatham. But is it necessary both from an environmental standpoint as well as safety and noise issues to continue to allow Pilatus PC12 planes fly into Chatham because they now have the technology to do so when the Town of Chatham has allowed residential and commercial growth to build around the airport. Now because of recommendations of Gale Associates, they recommend that Chatham impose Avigation Easements by eminent domain so small commercial charter planes can fly into Chatham when we have a regional airport in Hyannis.

Up until the proposed new Master plan, Avigation Easements we're not in anyone's vocabulary and hundreds of homes have been sold in Chatham without any first hand knowledge that such an easement existed. When is enough a enough.

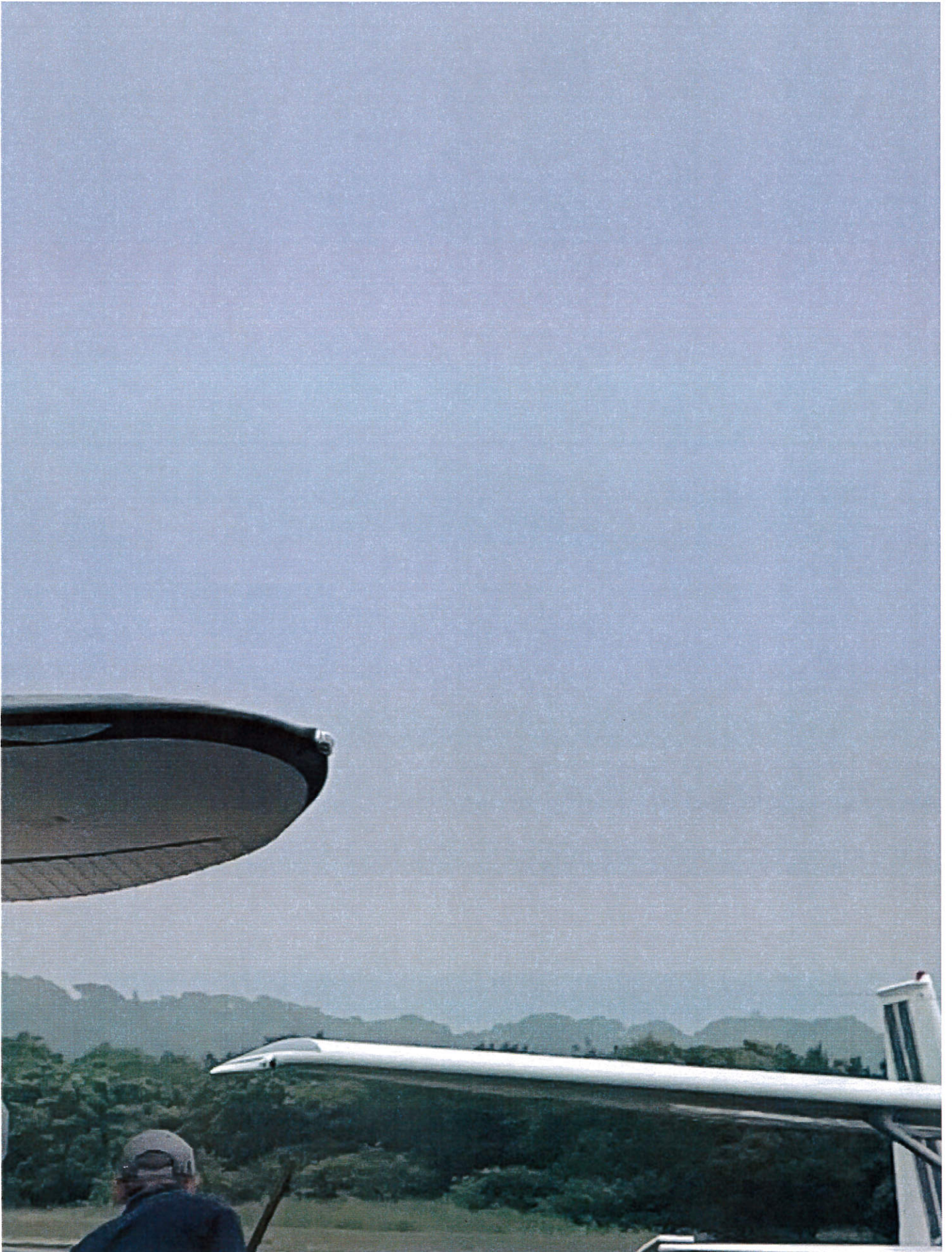
While the Pilatus has carved out a niche for its capabilities to land in small airports. Is it really right for the Chatham Airport? Does the environmental study spell out the issues that our small community Airport has? And is this the sort of development that attracts people to want to live in our community?

It is my opinion the Airport Commission and the Town of Chatham should take a hard look in the mirror and determine if this is what Chatham wants. A new unbiased Environmental Study should be initiated to resolve the many issues the community has in question. Furthermore the Master Plan needs to have more scrutiny than just procedurally being approved by the Airport Commission.

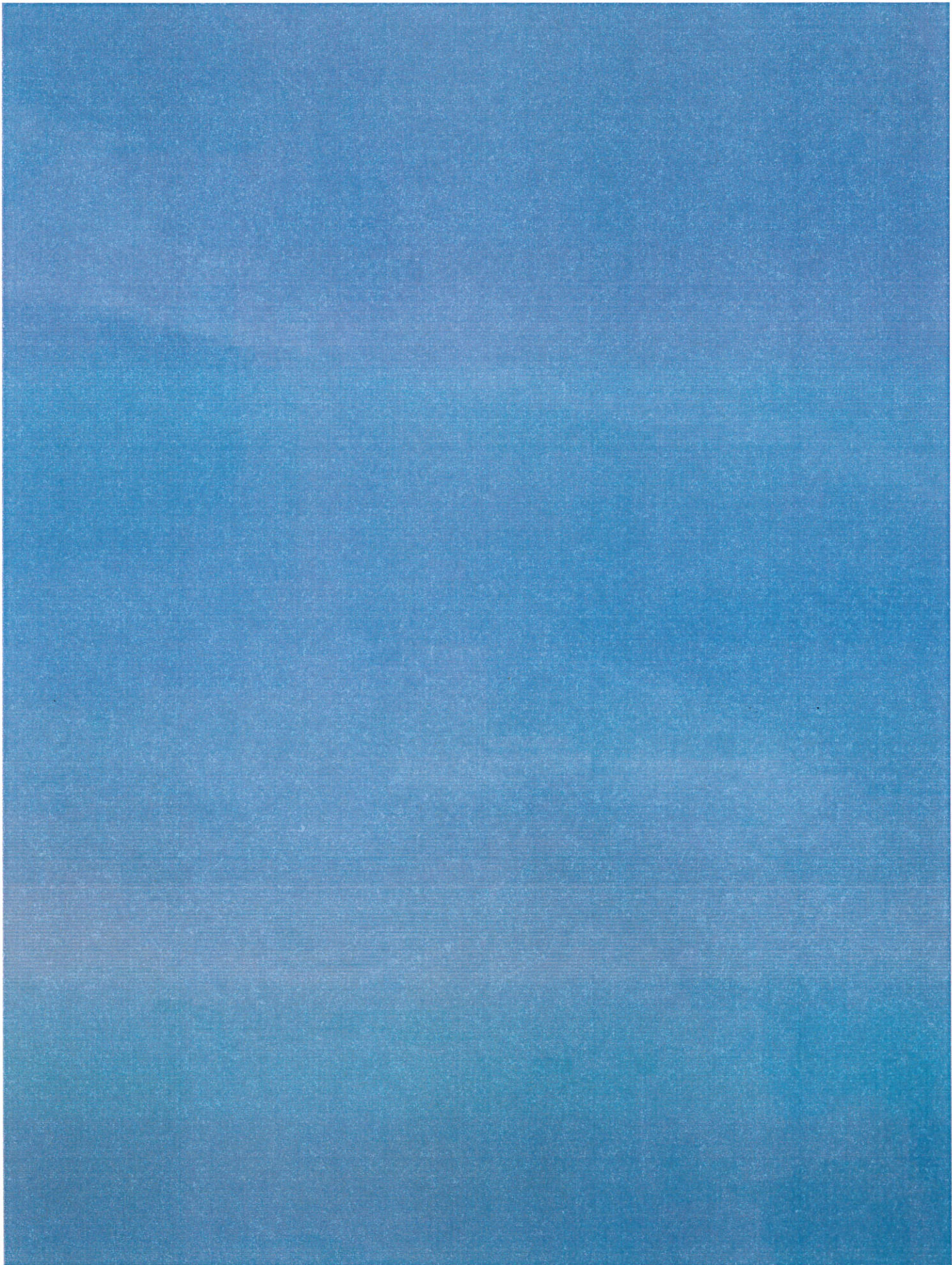
Sincerely,
Tom Jones



This is the plane that flew over my neighbors house.



You could barely see the water tower from the airport the day the Pilatus flew into CQX during poor weather conditions.



This is the water tower on a clear day contrasted to the photograph above.

Sent from my iPhone, please excuse typographical errors.

Thomas R Jones
REALTOR, CRS, ABR
Gibson Sotheby's International Realty
409 Main Street
Chatham, MA 02633

508-237-4877 c

tom.jones@gibsonsi.com



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You could barely see the water tower from the airport the day the Pilatus flew into CQX during poor weather conditions.



This is the water tower on a clear day contrasted to the photograph above.

Terry Whalen

From: Liz and Andrew CUNNIFF <lacunniff@comcast.net>
Sent: Wednesday, July 07, 2021 9:58 AM
To: Airport Commission
Subject: Proposed Changes to Chatham Municipal Airport - Environmental Assessment resident comments

As residents of 404 Old Queen Anne Road Chatham we are educated on the proposed airport expansion plans and associated environmental report are firmly opposed to the these proposed plans to change our airport. We are against for many reasons especially those related to negative environmental impacts. We do not want increased fuel on site harming our ecosystem and poisoning the ground water. We do not want increased air traffic disturbing the peace and poisoning our air. We do not want beautiful trees and wildlife cut back. We do not want our property deeds unjustly tainted with avigation easements. The plan is unjust, unsafe and wrong. Chatham is a beautiful place. Don't ruin it. Keep our airport small and quaint and don't let corruption and greed creep in.

Thank you for your time,
Elizabeth and Andrew Cunniff