JOINT BASE CAPE COD
CAPE COD MASSACHUSETTS

JBCC GROUNDWATER PROTECTION POLICY

MEMORANDUM OF AGREEMENT

BETWEEN

MASSACHUSETTS AIR NATIONAL GUARD, MASSACHUSETTS ARMY NATIONAL GUARD, UNITED STATES AIR FORCE, AND UNITED STATES COAST GUARD

I. PURPOSE: The purpose of this memorandum is to outline the agreement between the Massachusetts Air National Guard, Massachusetts Army National Guard, United States Air Force, and United States Coast Guard (the "Parties") to implement the attached JOINT BASE CAPE COD GROUNDWATER PROTECTION POLICY.

II. GENERAL:

1. SCOPE: The Parties agree to the implementation of the attached Policy and to the respective enforcement of same. The Parties further agree to cooperate in the implementation of the attached Policy. Actions and agreements herein apply only to the participating Parties and are not intended to supersede existing regulations or agreements.

2. AGREEMENT AND ADMINISTRATION:

a. Effective date: This MOA is effective on the date of signature by all Parties.

b. Review requirements: Modification to the Joint Base Cape Cod Groundwater Protection Policy must be reviewed and approved by the Massachusetts Department of Environmental Protection (MassDEP). This MOA is subject to review and renewal once every three years, or more frequently as required, to determine the adequacy of this agreement.

c. Termination date: This MOA is terminated three years from the date of signature by all Parties.

APPROVED:

UNITED STATES AIR FORCE
CAPE COD AIR FORCE STATION
By: _____
Title: Operations Officer, 6 SWS
Date: 8 Jan 2015

UNITED STATES COAST GUARD
BASE CAPE COD
By: M. A. _____ CAPT, USCG
Title: COMMANDING OFFICER
Date: 8 JAN 2015

MASSACHUSETTS ARMY NATIONAL GUARD
CAMP EDWARDS
By: _____
Title: BASE OPERATIONS MANAGER
Date: 8 JAN 2015

MASSACHUSETTS AIR NATIONAL GUARD
OTIS AIR NATIONAL GUARD BASE
By: _____
Title: Commander 102 IW
Date: 8 JAN 2015

JOINT BASE CAPE COD
GROUNDWATER PROTECTION POLICY

January 2015

1. PURPOSE OF THIS POLICY

The purpose of this Groundwater Protection Policy is:

a. to protect future and existing water supplies on Joint Base Cape Cod (JBCC).

b. to control land use within the Groundwater Protection Area, protect designated Zone II and Interim Wellhead Protection Areas (IWPA) including those of neighboring towns.

c. to preserve and improve the ecological integrity of the fresh and marine resources that are interconnected to the groundwater of JBCC and the towns of the Upper Cape.

d. to prevent temporary and permanent contamination of the subsurface environment.

2. SCOPE OF AUTHORITY

This Groundwater Protection Policy shall apply to all operations, new construction, reconstruction or expansion of existing facilities and new or expanded uses or operations by all of the current and future tenants of JBCC located in the groundwater protection area identified on the map entitled JBCC Groundwater Protection Area dated December 2014 and updated as needed.

3. MECHANISM FOR IMPLEMENTATION

The JBCC Environmental Committee shall be responsible for the implementation of this policy. This committee is composed of senior environmental members from each major JBCC command. Each JBCC Commander has concurred with the groundwater policy and has ultimate enforcement authority. Each command has responsibility for implementing policies in accordance with Federal and State laws and regulations. Implementation will be accomplished in the following manner:

a. The Committee will meet on an as needed basis to review any proposed actions, which may affect groundwater at JBCC. Before they can implement, all such proposals are reviewed under the National Environmental Policy Act (NEPA) and/or the Massachusetts Environmental Policy Act (MEPA), as applicable. All Federal agencies have an obligation to comply with statutory criteria for standards of environmental quality and to coordinate or consult with the

appropriate Federal or State agency before taking any actions, which may significantly affect the environment.

b. The Committee will brief the Commanders after each meeting and advise on the outcome of all proposal reviews. The Environmental Committee will maintain records of all proposals that pertain to this policy. Upon a change of command, new Commanders will be briefed and informed of their responsibility to enforce this policy and demonstrate their commitment in writing.

c. The Committee will be responsible for generating a map of JBCC showing the MassDEP approved Zone II and Interim Wellhead Protection Areas. These maps will be generated using current GIS data and will be updated as needed. These maps will be provided to each JBCC Commander and the surrounding towns.

d. The Committee will also be responsible for inspections of Groundwater Protection Areas to ensure compliance with this policy, State and Federal laws and regulations, and for State and Federal response and environmental awareness. They will also identify any existing groundwater threats, evaluate the adequacy of existing protection measures and advise the Commanders on safeguards and Best Management Practices (BMPs), see Section 9. This Committee shall provide comment, if applicable, for any proposed land use changes to the appropriate Command channels and, when applicable, through existing regulatory channels, such as the National Environmental Policy Act (NEPA).

4. DEFINITIONS

For the purposes of this policy, the following words and phrases shall have the following meanings:

Aquifer: Geologic formation composed of rock, sand, or gravel that contains significant amounts of potentially recoverable water.

CFR: Code of Federal Regulation

CMR: Code of Massachusetts Regulation

Groundwater Protection Area: Includes Interim Wellhead Protection Areas and Zone II as defined in 310 CMR 22.00 to existing and potential public water supply wells as shown on the map entitled JBCC Groundwater Protection Area dated December 2014, and as subsequently updated.

Impervious Surface: Material or structure on, above, or below the ground that does not allow precipitation or surface water to penetrate directly to the soil.

Mining: The removal or relocation of geologic material such as topsoil, sand, gravel, metallic ores or bedrock.

NEPA: The National Environmental Policy Act 42 U.S.C., 4321-4370c, and 40 CFR 1500-1508.

Permitted Well: As defined in 310 CMR 36.000.

Potential Public Water Supply Areas: Areas identified through the use of standard pump test procedures that will yield drinking water that meets all requirements of Federal and State laws relating to quality and quantity, as well as MA DEP Policy 88-04a. And to protect potential new sources Preliminary Zone II (IWPA) once notified of inclusion to MA DEP New Source Approval Process.

Recharge Areas: Areas that collect precipitation or surface water and carry it to aquifers. Recharge areas may include areas designated as Zone I, Zone II, and Zone III.

Toxic or Hazardous Material: Any substance or mixture of physical, chemical, or infectious characteristics posing a significant, actual, or potential hazard to water supplies or other hazards to human health or the environment if such substance or mixture were discharged to land or water of JBCC or the Towns of the Upper Cape. Toxic or hazardous material include, without limitation, synthetic organic chemicals, petroleum products, heavy metals, radioactive or infectious wastes, acids and alkalis, and all substances defined as Toxic or Hazardous under Massachusetts General Law (MGL) Chapter 21C and 21E and 310 CMR 30.00.

Zone I: The protective radius required around a public water supply well or wellfield.

Zone II: That area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation), and shall extended up-gradient to its point of intersection with prevailing hydrogeologic boundaries.

5. ESTABLISHMENT AND DELINEATION OF GROUNDWATER PROTECTION AREAS

For purposes of this policy there are established groundwater protection areas located on JBCC and Upper Cape Cod Towns shown on a map entitled JBCC Groundwater Protection Area dated December 2014. This map is on file in each Commands' Environmental and Engineering Offices.

6. BOUNDARY DELINEATION

a. Zone II – If the location of a Zone II boundary is in doubt, resolution of boundary disputes shall be through a petition to MassDEP. The petitioner may engage a professional engineer, hydrologist, geologist, or soil scientist to determine more accurately the boundaries of the Zone II.

b. Groundwater Protection Area – If the location of the Groundwater Protection Area managed by the Massachusetts Army National Guard is in doubt, resolution of the boundary disputes shall be through a petition to the Environmental Management Commission in accordance with the Acts of 2002, Chapter 47.

7. USE REGULATIONS

In the Groundwater Protection Areas the following regulations shall apply:

a. Permitted uses including but not limited to:

i. conservation of soil, water, plants, and wildlife

ii. outdoor recreation, nature study, boating, fishing, and hunting where otherwise legally permitted

iii. foot, bicycle and/or horse paths and bridges

iv. normal operation and maintenance of existing water bodies and dams, splash boards, and other water control, supply and conservation devices

v. maintenance, repair, and/or expansion of existing structures not prohibited by Sections "b" or "c" of this document

vi. residential development not prohibited by Sections "b" or "c" of this document

vii. farming, gardening, nursery, conservation, forestry, harvesting, and grazing activities not prohibited by Sections 'b" or "c" of this document

viii. construction, maintenance, repair, and enlargement of drinking water supply related facilities such as, but not limited to, well, pipelines, aqueducts, and tunnels. Underground Storage Tanks (UST) related to these activities are not categorically permitted.

ix. normal operation and maintenance of existing roads, grounds, buildings, facilities, fire breaks, and fire prevention practices already in place

x. operations, and maintenance, providing that all federal and state regulations are complied with, and BMP's are implemented; and,

xi. emergency generators; provided BMPs are used.

b. Prohibited Uses

i. landfills and open dumps, as defined by 310 CMR19.006

ii. landfills of sludge and septage, as defined in 310 CMR 32.05

iii. storage of liquid petroleum products except as outlined in C.vii.;

iv. automobile graveyards and junkyards, as defined in M.G.L. c. 140B, section 1;

v. stockpiling and disposal of snow and ice removed from highways and streets located outside Zone II that contains sodium chloride, chemically treated abrasives or other chemicals used for snow and ice removal

vi. sewerage disposal systems not in compliance with Title 5.

vii. treatment or disposal works for non-sanitary wastewater that are subject to 314 CMR 5.00, except the following:

1. the replacement or repair of an existing system(s) that will not result in a greater design capacity of the existing system(s); and

2. treatment works approved by the Environmental Protection Agency (EPA) and/or MassDEP designed for the treatment of contaminated ground or surface waters

viii. Facilities that generate, treat, store or dispose of hazardous waste that are subject to M.G.L. c. 21C and 310 CMR 30.00, except for the following:

1. Very small quantity generators as defined under 310 CMR 30.000;

2. Satellite Accumulation Points as defined under 310 CMR 30.000; with the following requirements:

a. designated Satellite Accumulation Point Managers (SAPM)

b. SAPM shall receive annual hazardous waste training

c. SAPM shall inspect hazardous waste and material daily

d. each agency shall designate a Hazardous Waste Coordinator (HWC)

e. HWC shall receive initial and annual hazardous waste training

f. HWC shall conduct weekly inspections of the SAP and provide a written summary

g. SAPM shall employ secondary containment for all liquid waste at all SAPs

h. THESE REQUIREMENTS SHALL APPLY FOR ALL EXISTING AND FUTURE SAPs.

3. Household hazardous waste centers and events under 310 CMR 30.390;

4. Water remediation treatment works approved by MassDEP for treatment of contaminated ground or surface waters

ix. Any floor drainage system in existing facilities, in industrial or commercial process areas or hazardous material and/or hazardous waste storage areas, which discharge to the ground without a MassDEP permit or authorization. Any existing facility with such a drainage system shall be required to either seal the floor drain (in accordance with state plumbing code, 248 CMR 2.00), connect the drain to a municipal sewer system (with all appropriate permits and pre-treatment), or connect the drain to a holding tank meeting the requirements of appropriate MassDEP regulations and policies.

c. Uses Prohibited Unless Designed in Accordance with the Specified Performance Standards

i. Storage of sludge and septage, as defined by 310 CMR 32.05, unless such storage is in compliance with 310 CMR 32.30 and 310 CMR 32.31

ii. Storage of sodium chloride, chemically treated abrasive or other chemicals used for the removal of ice or snow on roads, unless such storage, including loading areas, is within a structure designed to prevent the generation and escape of contaminated runoff or leachate

iii. Storage of commercial fertilizers, as defined in M.G.L. c. 128, p. 64, unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff or leachate

iv. Storage of animal manure, unless such storage is covered or contained in accordance with the specifications of the United States Natural Resources Conservation Service

v. Storage of liquid hazardous materials, unless such storage is either in a free standing container within a building or in a free standing covered container above ground level with protection adequate to contain a spill the size of 110% of the largest storage container

vi. the removal of soil, loam, sand, gravel or any other mineral substances within four feet of the historic high groundwater table elevation (as determined from monitoring wells and historic water table fluctuation data compiled by the United States Geological Survey), unless the substances removed are redeposited within 45 days of removal on site to achieve a final grading greater than four feet above the historical high water mark, except for excavations for the construction of building foundations, the installation of utility works and those required for intrusive investigation and/or remediation

vii. storage of liquid petroleum products, except those incidental to:

1. normal household use and outdoor maintenance or heating of a structure

2. waste oil retention facilities required by M.G.L. c. 21, p. 52A

3. emergency generators required by stature, rule or regulation

4. treatment works approved by MassDEP designed in accordance with 314 CMR 5.00 for the treatment of contaminated ground or surface waters, provided that such storage listed in 310 CMR 22.21 (2) (B) 7.a. through d., is either in a free standing container within a building or in a free standing container above ground level with protection adequate to contain a spill the size of 110% of the largest container

viii. land uses that result in the rendering impervious of more than 15% or 2500 square feet of any lot, whichever is greater, unless a system for artificial recharge of precipitation is provided that will not result in the degradation of groundwater quality

8. REVIEW OF FUTURE LAND USES

In addition to this policy, all Federal Agencies are required to consider environmental impacts of their actions under the National Environmental Policy Act. The NEPA process ensures that information is available for the public before decisions are made and before actions are taken. The NEPA process is intended to assist Federal agencies in making decisions based on understanding of environmental consequences.

9. EXISTING POLLUTION PREVENTION INITIATIVES

Tenants of JBCC are committed to employing pollution prevention techniques to minimize the potential of a hazardous material release. Only through awareness, training, engineering and process management can true prevention be achieved. Pollution prevention is built into our everyday operational missions. The following are existing initiatives or BMPs conducted by various tenants at JBCC:

a. Secondary containment of all liquid hazardous material that has the potential for an adverse effect on human health and the environment.

b. Best management for storm water discharge (aircraft refueling area). Drainage systems with oil water separators collect storm water run off prior to discharge.

c. In place or programmed parking areas complete with secondary containment for aircraft fuel trucks.

d. Removal of underground fuel storage tanks and replacement with above ground tanks with secondary containment. Above ground tanks are visually inspected daily.

e. JBCC maintains a fully capable spill response (first responder level) team. Emergency Response Personnel are trained to recognize, evaluate, and control an incident involving the release of hazardous materials.

f. The JBCC Fire Department maintains a twenty-four hour Emergency Response and Disaster Response Team.

g. Annual Spill Awareness Training (operational personnel). First responders at the awareness levels are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence.

h. Annual Hazardous Waste Management Training. Training includes specific information in the proper handling, storage and disposal of hazardous waste.

i. Annual Hazardous Materials Training. Personnel are trained in proper identification, packaging, labeling, shipping and receiving of hazardous materials.

j. Facility Environmental Instructions establishes the requirements for unit level environmental compliance and hazardous waste management.

k. Environmental awareness brochures are distributed to all troops training at Camp Edwards. The brochure is designed to make soldiers aware of the natural resources around them while training at JBCC.

l. Hazardous Material Pharmacy minimizes the use and storage of hazardous materials and disposal of hazardous waste.

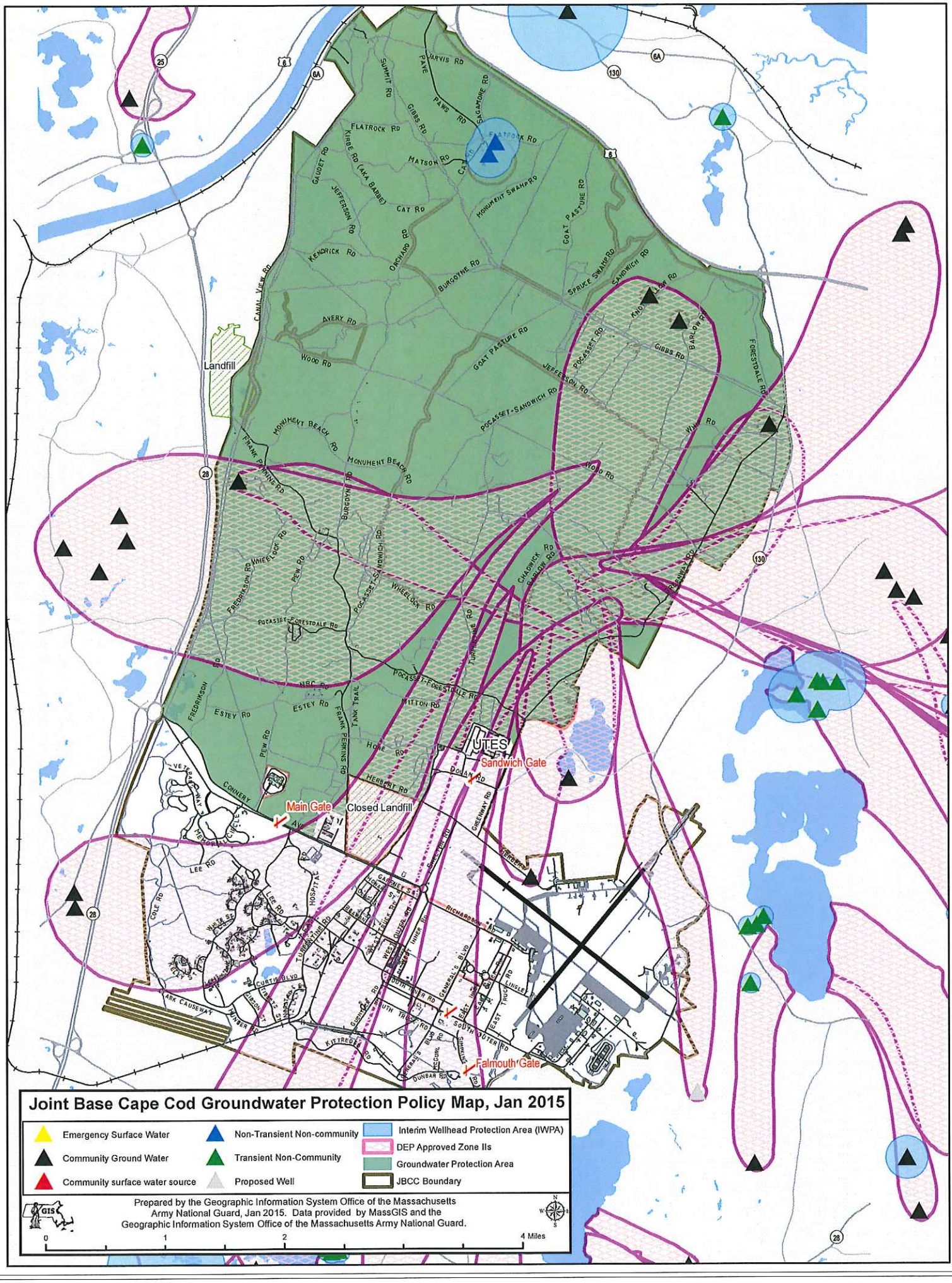
Groundwater Supply Protection Area Definitions

Public Water Supply Protection Areas are defined in the Drinking Water Regulations at 310 CMR 22.02. The regulatory wording is also provided below.

Interim Wellhead Protection Area (IWPA) – for public water systems using wells or wellfields that lack a Department approved Zone II, the Department will apply an interim wellhead protection area. This interim wellhead protection area shall be a one-half mile radius measured from the well or wellfield for sources whose approved pumping rate is 100,000 gpd or greater. For wells or wellfields that pump less than 100,000 gpd, the IWPA radius is proportional to the approved pumping rate which may be calculated according to the following equation: IWPA radius in feet = (32 x pumping rate in gallons per minute) ÷ 400. A default IWPA radius or an IWPA radius otherwise computed and determined by the Department shall be applied to transient non-community (TNC) and non-transient non-community (NTNC) wells when there is no metered rate of withdrawal or no approved pumping rate. The default IWPA radius shall be 500 feet for TNC wells and 750 feet for NTNC wells.

Zone I – the protective radius required around a public water supply well or wellfield. For public water system wells with approved yields of 100,000 gpd or greater, the protective radius is 400 feet. Tubular wellfields require a 250-foot protective radius. Protective radii for all other public water system wells are determined by the following equation: Zone I radius in feet = (150 x log of pumping rate in gpd) – 350. This equation is equivalent to the chart in the Guidelines and Policies for Public Water Systems. A default Zone I radius or a Zone I radius otherwise computed and determined by the Department shall be applied to transient non-community (TNC) and non-transient non-community (NTNC) wells when there is no metered rate of withdrawal or no approved pumping rate. In no case shall the Zone I radius be less than 100 feet. The default Zone I radius shall be 100 feet for TNC wells and 250 feet for NTNC wells.

Zone II – that area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation). It is bounded by the groundwater divides that result from pumping the well and by the contact of the aquifer with less permeable materials such as till or bedrock. In some cases, streams or lakes may act as recharge boundaries. In all cases, Zone II shall extend upgradient to its point of intersection with prevailing hydrogeologic boundaries (a groundwater flow divide, a contact with till or bedrock, or a recharge boundary).


Landfill
UTES
Sandwich Gate
Main Gate
Closed Landfill
Falmouth Gate
Joint Base Cape Cod Groundwater Protection Policy Map, Jan 2015
Emergency Surface Water
Community Ground Water
Community surface water source
Non-Transient Non-community
Transient Non-Community
Proposed Well
Interim Wellhead Protection Area (IWPA)
DEP Approved Zone IIs
Groundwater Protection Area
JBCC Boundary
Prepared by the Geographic Information System Office of the Massachusetts Army National Guard, Jan 2015. Data provided by MassGIS and the Geographic Information System Office of the Massachusetts Army National Guard.
0
1
2
4 Miles