Exhibits – Section 3

Exhibit 3.A1.a
Forest Cover Types and Ecological Communities

(Extracted from the 2004 Whiteface Unit Management Plan, Section II)

(2) FOREST COVERTYPES AND ECOLOGICAL COMMUNITIES

The 2910-acre Whiteface Mountain Ski Center Intensive Use Area (IUA) is situated in the Adirondack High Peaks Ecozone, as identified by the New York Natural Heritage Program. The IUA is comprised primarily of terrestrial communities with a predominance of forested uplands, and to a lesser extent terrestrial cultural communities of the ski center and the riverine communities of the West Branch Ausable River and its tributaries. The dominant cultural feature in the IUA is the ski center, which utilizes approximately 211 acres or 7% of the IUA total area. Another major cultural feature consists of the summit facilities associated with the Whiteface Mountain Veterans Memorial Highway. However, this use is outside the Whiteface Mountain Ski Center IUA and is in the adjacent Veterans Memorial Highway IUA.

The terrestrial cultural features consisting of the ski center trails and facilities dominate the visual landscape of the IUA. As is shown in Exhibit II-8, the ski center stretches from the upper slopes of the mountain, about 400 feet below the summit of Whiteface Mountain, including the Little Whiteface Summit, down to the existing base lodge facilities adjacent to the West Branch Ausable River. The northern half of the IUA remains essentially wild, with no current ski center trails or facilities, however, the remnants of a former ski trail in an area about 4000 feet due east of the Whiteface Mountain summit are still discernible.

In general, the vegetation of the Ski Center area progresses from a hardwood forest dominated by sugar maple and beech, on the lower slopes of the mountain, to conifer forests with red spruce and balsam fir upwards toward the summit. This is a common progression found on most mountainous terrain throughout the Adirondacks. In previous unit management plans for the Ski Center, vegetation was described in terms of forest covertypes, which is a forestry-oriented approach. Exhibit II-8 - Vegetation Covertype Map, shows the forest covertypes identified by NYSDEC. The vegetation unit boundaries on this map have been altered from previous versions on the basis of in-field observations and interpretation of recent aerial photographs.

Following are descriptions of these covertypes:

a) Northern Hardwood

This forest covertype is composed primarily of sugar maple, American beech and yellow birch. Other associated species are red maple, white ash, black cherry, hemlock, red spruce, paper birch, and red oak. The northern hardwood forest type is a climax forest capable of reproducing itself under its own canopy. As the stand regenerates itself in the natural forest condition, yellow birch will tend to become less important due to its relative intolerance or inability to grow in the shade as compared to maple and beech.

b) Pioneer Hardwood

In the Adirondacks, this forest covertype is normally composed of aspen, paper birch, and pin cherry with occasional red maple and balsam fir. In the Ski Center area, the overstory of this forest type is almost entirely composed of mountain paper birch while the understory is composed of thick balsam fir.

Other associated species, as mentioned above, can be found in this forest covertype. However, the almost pure dominance of mountain paper birch overshadows the importance of the other hardwood species normally found. Pioneer hardwood is a successional forest covertype and over a period of time it will give way to climax forest covertypes due to the intolerance of the species involved. A few places mapped as this covertype are areas of thin soil and bedrock outcrops, and are not likely to progress quickly to climax forest.

c) Spruce-Fir

The species composition of this forest covertype normally consists of balsam fir, red spruce, and black spruce, which are sometimes associated with tamarack, hemlock and white cedar. The spruce-fir forest covertype on Whiteface Mountain is composed almost entirely of balsam fir and red spruce. Balsam fir is the more numerous of the two species. The presence of a heavy understory consisting of balsam fir and red spruce mixed with an overstory of the same species is evidence of a spruce-fir climax forest covertype. As shown on Exhibit II-8, the highly significant Alpine Krummholz Zone is found within the area mapped as spruce-fir forest covertype, and is dominated by stunted balsam fir and birch.

d) Pioneer Hardwood-Spruce-Fir

This combination of forest covertypes occupies an important transition niche on Whiteface Mountain, although pioneer hardwood-spruce-fir is not usually designated as a separate forest covertype. Species composition consist of mountain paper birch, balsam fir and red spruce overstory with a thick spruce-fir understory. There is a higher percentage of balsam fir in both the understory and overstory of this forest covertype than the associated red spruce. This type lies between the pioneer hardwood and spruce-fir types previously described and is a transition between the intermediate pioneer hardwood type and the climax spruce-fir type.

e) White Pine–Red Pine

This forest covertype is dominated by eastern white pine and red pine. Associated species are balsam fir, red spruce, hemlock, aspen, red maple and white birch.

f) Red Pine

A pure forest covertype of red pine exists in a small area on Whiteface Mountain. Pure natural red pine is considered a unique forest covertype due to the fact that red pine is almost always associated with white pine in unplanted situations. The red pine forest covertype is located on the rocky crest of a ridge, at an elevation of about 2400 feet.

g) Hemlock

This forest covertype occurs in the southern part of the Ski Center, immediately adjacent to the West Branch of the Ausable River. The Eastern hemlock stand is dense and very heavy with just a few associated species consisting of white birch, yellow birch, and American beech. Hemlock is a climax forest covertype capable of reproducing itself under its own shade.

This vegetation covertype classification is less useful when assessing the significance of the vegetation in the context of New York State as a whole. The New York Natural Heritage Program (NYNHP) of NYSDEC has defined and classified the ecological communities of New York State, and has ranked them in terms of their comparative rarity (Reschke, 1990). Table II-3 lists the forest covertypes identified at Whiteface Mountain, the corresponding

ecological communities defined by NYNHP, and the state element rank of each community.

In some cases, the forest covertype has more than one corresponding ecological community (See Table II-3). For instance, the spruce-fir covertype includes the mountain spruce-fir forest, mountain fir forest, and alpine krummholz ecological communities. The mountain spruce-fir forest occurs in the lower part of the area mapped as the spruce-fir covertype, and is dominated by red spruce and balsam fir, with lesser amounts of mountain paper birch, mountain ash, and pin cherry. Around 3500 feet elevation, this community grades upward into mountain fir forest, which has a tree layer composed almost entirely of balsam fir, with small amounts of mountain paper birch, and scattered individuals of red spruce. Above mountain fir forest, at elevations higher than about 4500 feet, to the summit of Whiteface Mountain, is the alpine krummholz community, a stunted woodland dominated by balsam fir. The extent of the alpine krummholz community is mapped on Exhibit II-8.

TABLE II-3
FOREST COVERTYPES AND CORRESPONDING ECOLOGICAL COMMUNITIES

Forest Covertype	Ecological Community
Northern Hardwood	Beech-Maple Mesic Forest Spruce–Northern Hardwood Forest
Pioneer Hardwood	Successional Northern Hardwoods
Spruce-Fir	Mountain Spruce-Fir Forest Mountain Fir Forest Alpine Krummholz
Pioneer Hardwood–Spruce-Fir	(successional stage leading towards Mountain Spruce-Fir Forest)
White Pine–Red Pine	Pine–Northern Hardwood Forest
Red Pine	
Hemlock	Hemlock–Northern Hardwood Forest

Mapping of the boundary of the "alpine krummholz ecozone" shown in Exhibit II-8 started with "Resource Composite Map B39" from the 1995 Whiteface Mountain Comprehensive Management and Planning Review and Unit Management Plan. A map of the location which was included with a

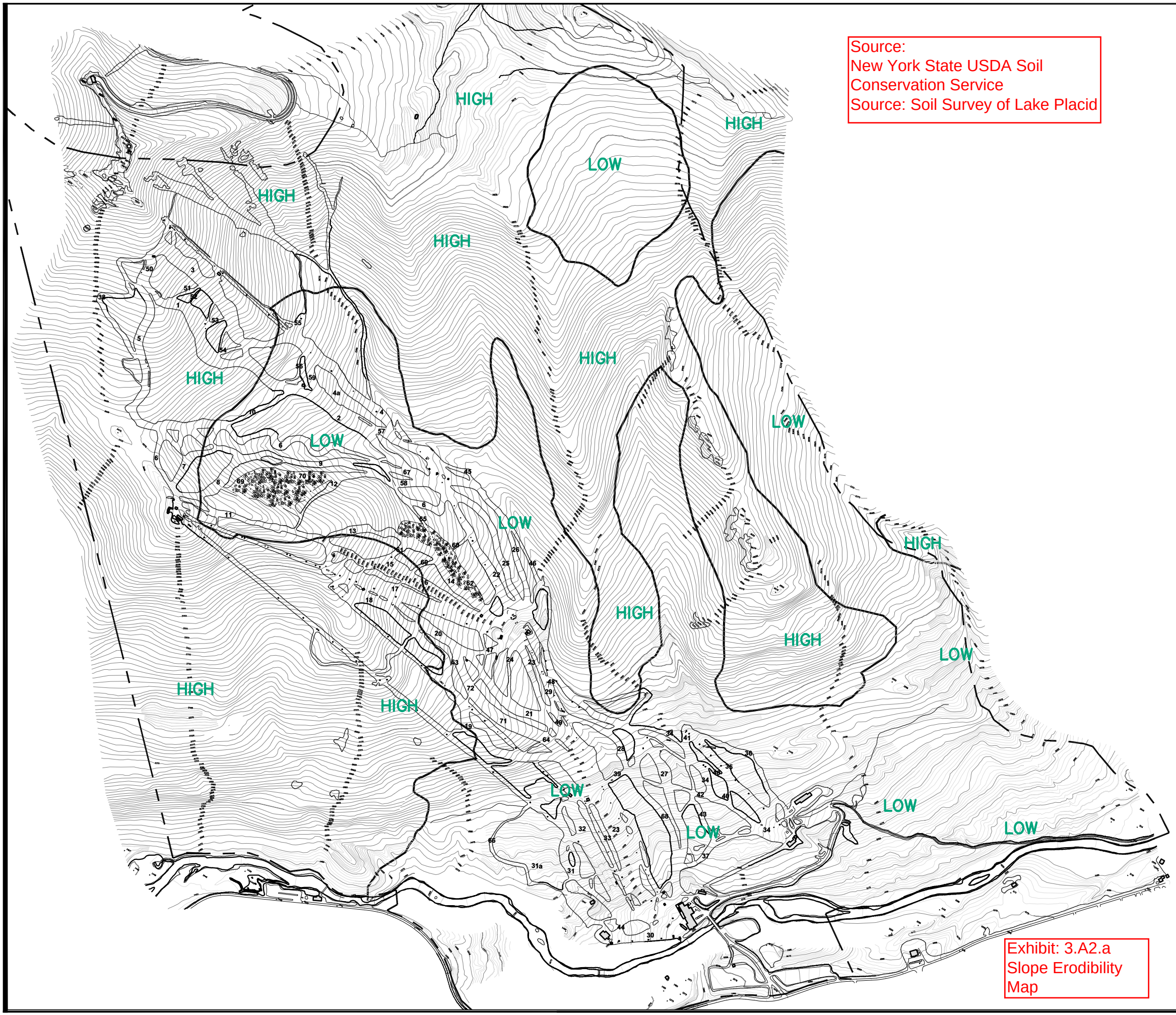
letter dated September 13, 2001, from Heidi J. Krahling of the NY Natural Heritage program showed essentially an identical boundary for this community. LA Group Biologists verified this boundary and refined it slightly through examination of aerial photographs supplemented by field investigations at the summit area of Whiteface Mountain on December 10, 2001. That slightly revised boundary is shown on the Vegetation Covertype Map, Exhibit II-8. On the basis of this boundary, the area of the alpine krummholz community within the UMP area is measured at 7.18 acres (see Table V-2).

The pioneer hardwoods and pioneer hardwoods–spruce–fir covertypes are successional vegetation units that appear to be trending towards the mountain spruce-fir forest community, or possibly towards the spruce–northern hardwood forest in their lower reaches, below about 2800 feet.

The northern hardwood forest covertype is also represented by two ecological communities. The beech-maple mesic forest community, which is dominated by sugar maple and beech, occupies the lower slopes. At higher elevations, red spruce becomes a more significant component among the hardwoods (mainly sugar maple, beech, yellow birch, and red maple), forming the spruce–northern hardwoods forest.

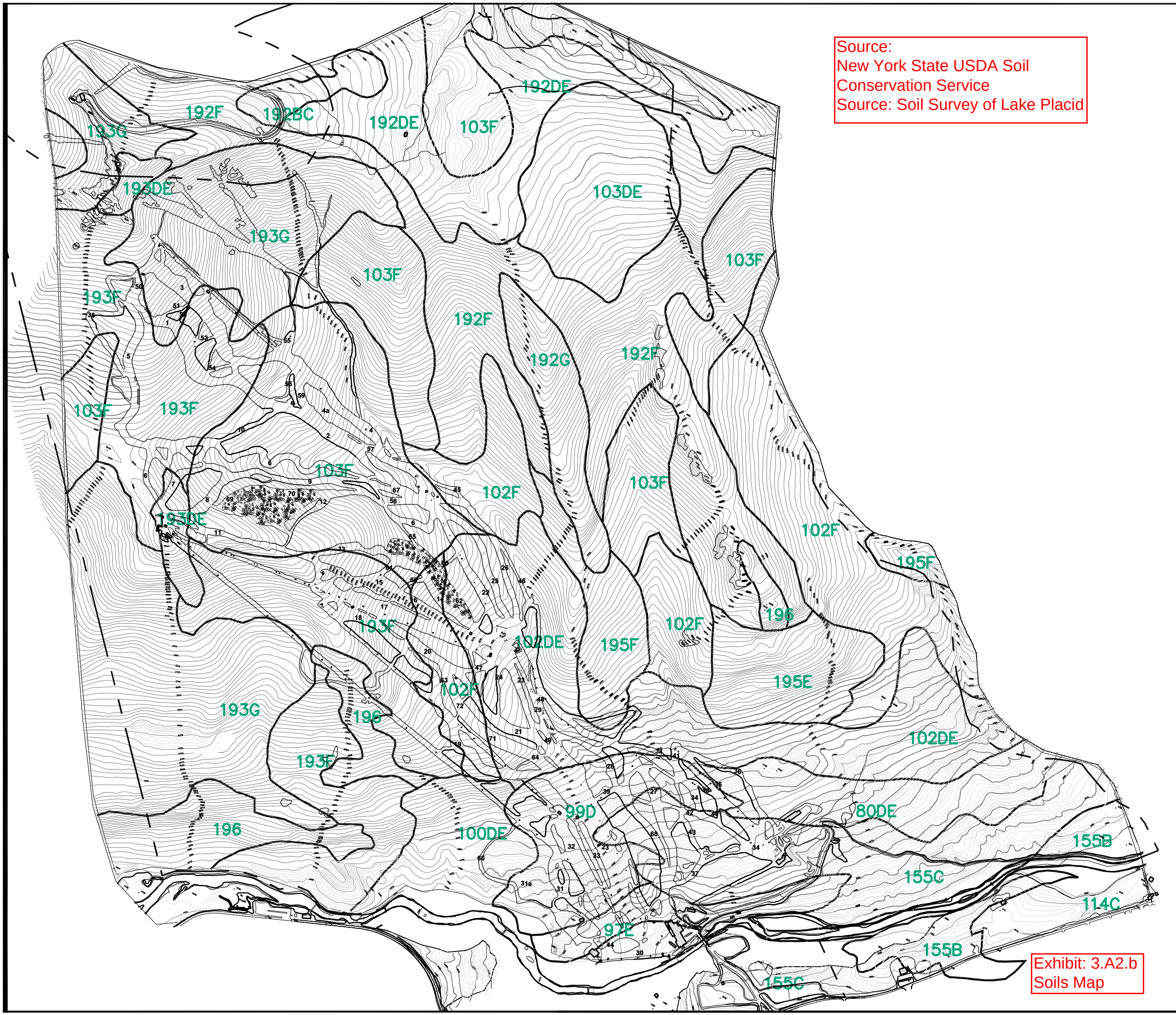
Hemlock forest covertype corresponds with the hemlock-northern hardwood forest community, which varies from nearly pure stands of hemlock to mixtures of hemlock, white pine, beech, sugar maple, red maple, red oak, and other hardwoods. The white pine–red pine covertype is equivalent to the pine–northern hardwoods community, which is dominated by white pine, usually with a significant amount of red pine, mixed with some paper birch, aspens, other hardwoods, red spruce, and balsam fir.

The one covertype for which there is no equivalent ecological community defined by NYNHP (Reschke, 1990) is red pine forest. This consists of one stand of about 5 acres on the top of a dry, rocky ridge. Red pine is by far the most abundant tree, with smaller numbers of red spruce, white cedar, white pine, and balsam fir. According to Greg Edinger, ecologist for NYNHP



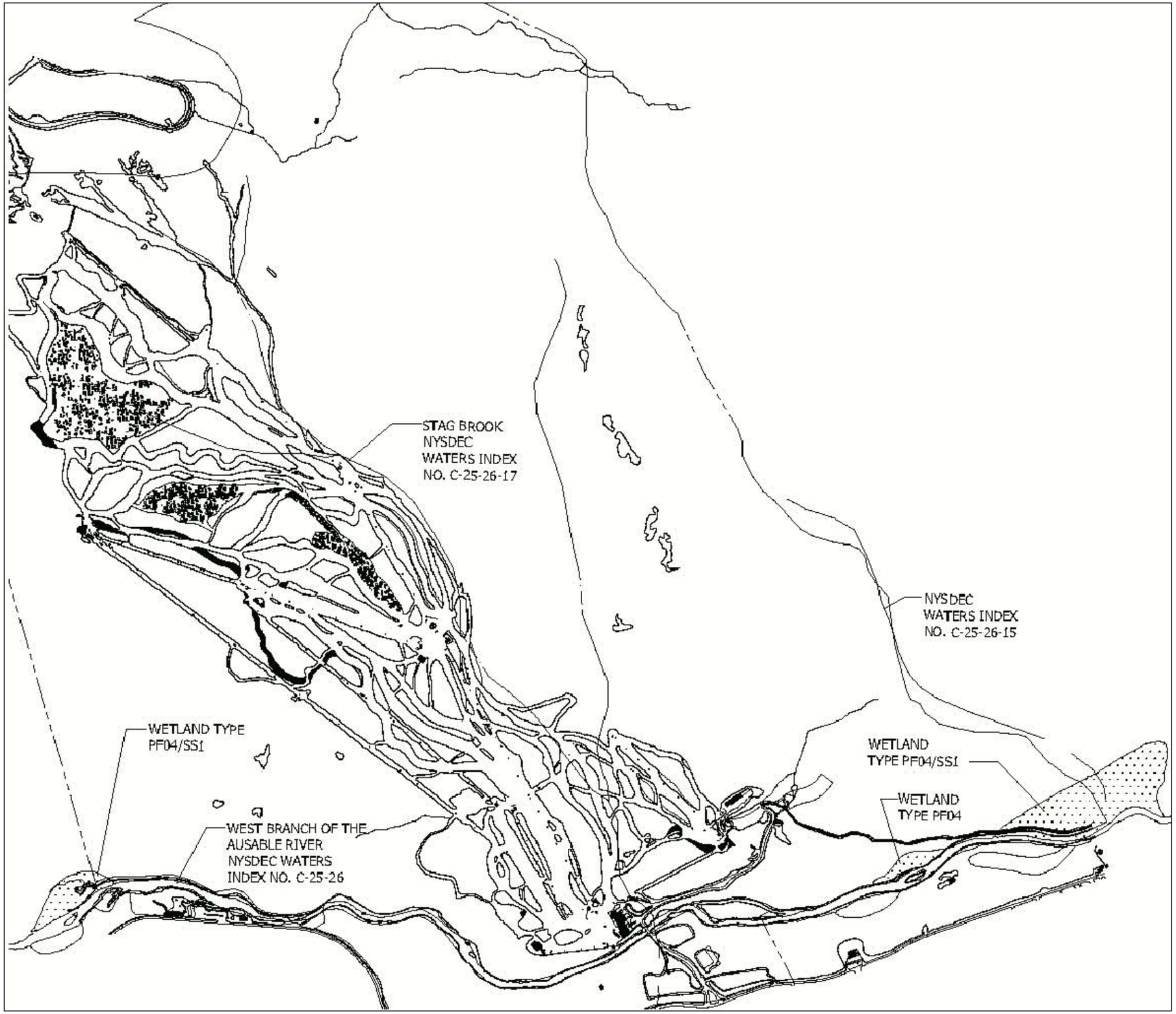
Source:
New York State USDA Soil Conservation Service
Source: Soil Survey of Lake Placid

Exhibit: 3.A2.a
Slope Erodibility Map



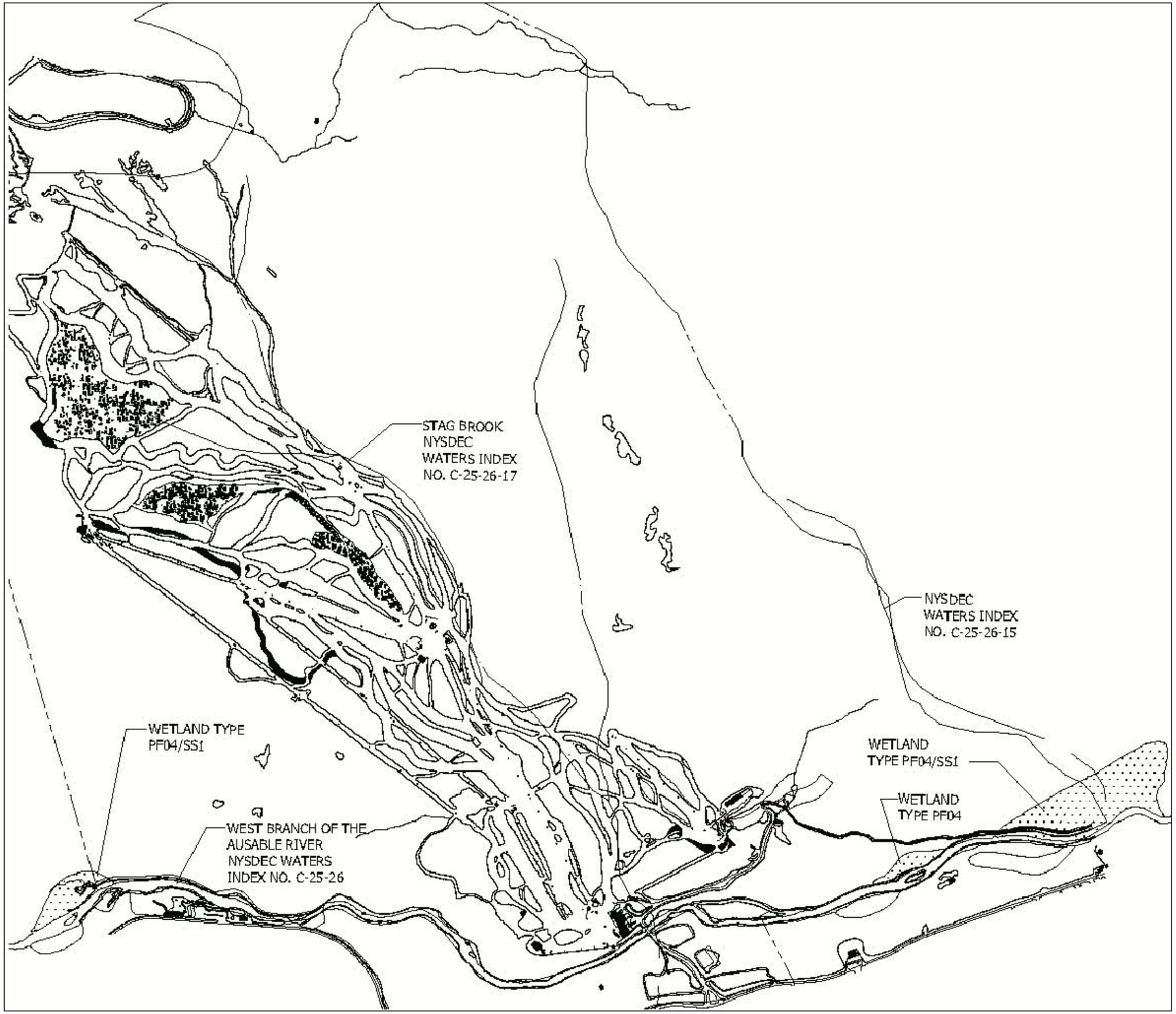
Source:
New York State USDA Soil Conservation Service
Source: Soil Survey of Lake Placid

Exhibit: 3.A2.b
Soils Map



2013 UMP AMENDMENT

TITLE:	SCALE:
WETLANDS MAP	NTS
	EXHIBIT: 3.A3.a



2013 UMP AMENDMENT

TITLE:	SCALE:
HYDROLOGY MAP	NTS
	EXHIBIT: 3.A4.a