

**The City of New York
Department of Environmental Protection**

**Emily Lloyd
Commissioner**

Bureau of Environmental Planning & Analysis



**ENVIRONMENTAL ASSESSMENT
ATTACHMENT 2**

ENVIRONMENTAL ASSESSMENT

JULY 2008

Prepared by:



A Joint Venture

ATTACHMENT 2. ENVIRONMENTAL ASSESSMENT

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2.1. LAND USE

2.1.1. Existing Conditions

Land Use analyses have been performed for the Dam reconstruction project to assess potential effects on existing land uses; identify the project's consistency with underlying zoning, if any; and determine whether the proposed project would adhere to the applicable policies, if any. Land surrounding the Reservoir is predominantly forested with occasional parcels of land used for agriculture. Private residences and businesses are located intermittently along NYS Route 990V and NYS Route 30. This area is characterized by a quiet, rural setting (Figure 2.1-1). The Gilboa Town Hall and Post Office are located near the Gilboa Dam along NYS Route 990V. A NYCDEP Police Precinct is also located along NYS Route 990V. This facility provides security to the Reservoir, the associated water supply system, and the surrounding community.

Following consultation with Schoharie County (County) and the Town of Gilboa (Town) the proposed Dam reconstruction project was not found to be subject to local zoning regulations and comprehensive plans. Although there would be activities associated with the proposed reconstruction project within the Town's designated floodplain, there would be no new development within the floodplain as a result of the reconstruction project. Therefore, the Town of Gilboa's Floodplain Damage Prevention Law would not apply to this proposed project. Consultation with the Town has identified that no local zoning, planning decision, or other discretionary actions are anticipated for this project.

2.1.2. Temporary Reconstruction Impacts

In order to temporarily accommodate heavy reconstruction equipment, trees and land would need to be cleared and graded to the clearing limits illustrated in Figure 2.1-2 to establish a staging area from which all work for the Dam reconstruction would be organized and executed. Following the completion of land disturbance activities as a result of reconstruction in different portions of the project site (i.e., the West Access Road), these areas would be restored with natural vegetation. Please refer to The Natural Resources Restoration Plan in Section 2.6, Natural Resources.

2.1.3. Potential Project Impacts

Upon completion of the proposed Dam reconstruction work, the staging area and work site would be regraded and re-vegetated to recreate the original topography and flora present prior to reconstruction. The Dam would continue to function as a water storage dam albeit with improved structural integrity, enhanced flood attenuation capability, and a repaired façade. Any areas that were required to be temporarily cleared during reconstruction would be restored upon completion of the project, which would reestablish an enhanced upland and wetland habitats at the project area.

Restoration in response to the temporary impacts to natural resources would be undertaken. The restoration would include reforestation and wetland restoration as described in general terms below.

2.1.3.1. Reforestation

It is the objective of NYCDEP to provide a more diverse and functional ecosystem for habitat lost during reconstruction at the Dam project site. Forest habitat lost due to reconstruction activities would be replaced in-kind through reforestation efforts that would include the replanting of canopy, sub-canopy and herbaceous layers. The Natural Resources Restoration Plan would include plant communities indigenous to the area and of a size that would provide for long-term success of the reforestation efforts.

2.1.3.2. Wetland Restoration

NYCDEP would replace the wetlands to be disturbed under the proposed project. The Natural Resources Restoration Plan would include the creation of new wetlands that provide the same functions and values as those disturbed. The wetlands on the Gilboa project site provide stormwater attenuation, water quality improvement, and wildlife habitat.

2.1.3.3. Tree Removal and Protection

Prior to any reconstruction activities (such as clearing, grading, or excavation) tree protection fencing would be installed.

Please see the proposed Natural Resources Restoration Plan in [Section 2.6.6, Natural Resources Restoration Plan](#) for further description of the above restoration activities.

2.1.4. Conclusions

The proposed action is compatible with surrounding land uses, which include water supply uses, forests, and agricultural land. Further, any land disturbance would be temporary in nature and the bulk of the project site would be restored to a natural state following the completion of reconstruction activities. Therefore, the proposed project is not anticipated to have any adverse impacts on surrounding land uses.

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Project Area Vicinity

Figure 2.1-1



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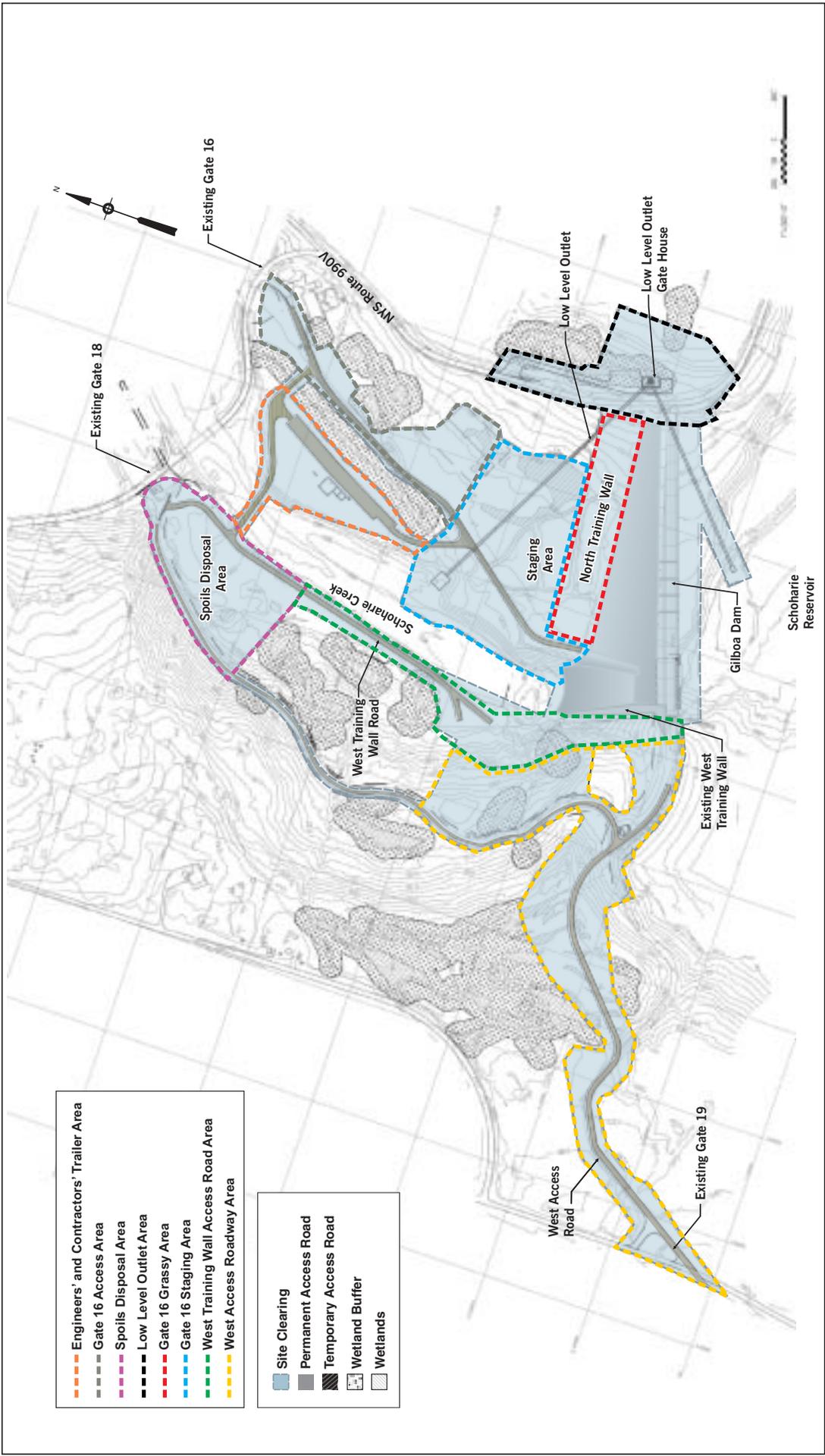
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- Engineers' and Contractors' Trailer Area
- Gate 16 Access Area
- Spoils Disposal Area
- Low Level Outlet Area
- Gate 16 Grassy Area
- Gate 16 Staging Area
- West Training Wall Access Road Area
- West Access Roadway Area

- Site Clearing
- Permanent Access Road
- Temporary Access Road
- Wetland Buffer
- Wetlands

Gilboa Dam Reconstruction Work Site and Staging Area

Figure 2.1-1-2

2.2. OPEN SPACE AND RECREATION

2.2.1. Existing Conditions

Open space is privately or publicly owned land that is accessible to the public for leisure, play, sport, or that has been dedicated as a buffer to protecting the natural environment of an area. The purpose of the open space analysis for the Dam reconstruction project is to characterize existing open space conditions and to evaluate impacts upon open space resources during reconstruction activities. Within the project area, a Scenic Public Overlook Area is located on the eastern edge of the Reservoir near the Dam. This area is accessible to the public, off of NYS Route 990V, and provides scenic views of the Dam, the Reservoir, and the surrounding area. Land surrounding the Reservoir is predominantly forested, with occasional parcels of land used for agriculture. Private residences and businesses are located intermittently along NYS Route 990V and NYS Route 30. The surrounding area is characterized by a quiet, rural setting. The closest park, Mine Kill State Park, is located approximately three miles northwest of the Town of Gilboa.

This region provides thousands of acres of open space that offer many recreational opportunities (e.g., hiking, camping, fishing, hunting, biking, and cross-country skiing) for the public. Recreation also plays an important role in the local economy, with fishing (in Schoharie Creek and Schoharie Reservoir), hunting, hiking, and bicycling being the primary components of the local economy's recreational sector.

A unique outdoor, educational display of nine fossil trees, dating back 370 million years and the oldest ever discovered, is located in Gilboa near the Town Hall, a half mile from the Scenic Public Overlook Area at the Dam. The trees were part of the Gilboa Forest, located on the shores of a tropical ocean in the Devonian Period (see [Section 2.5, Historic and Archeological Resources](#) for a more detailed discussion of these resources).

The project area is located within City-owned watershed lands. While a large percentage of the City-owned watershed lands are accessible for public use and enjoyment, (see [Figure 2.2-1](#)), portions of the City's property around the Reservoir infrastructure facilities and the Dam itself are restricted to the public for Watershed protection and security.

2.2.2. Temporary Reconstruction Impacts

During reconstruction, it is anticipated that the reconstruction workforce would spend their lunch breaks onsite. Moreover, the closest parks, such as the Mine Kill State Park, are not within walking distance, further minimizing the likelihood that reconstruction workers would create new demand for open space.

The existing Scenic Public Overlook Area would be closed to the public and used for reconstruction staging. However, the reconstruction period is temporary and the Scenic Public Overlook Area would be reopened in its original condition following reconstruction.

In addition, a portion of the Reservoir would be temporarily off-limits to fishing during the proposed Dam reconstruction. Restricted access to a portion of the Reservoir would occur due to the nature of the proposed project; the loss of recreation space would be minimal and temporary in the surrounding area (Figure 2.2-1). There is an additional 30,000 acres of City-owned and publicly accessible open space in the surrounding area as well as thousands of acres of additional public and private land in the Catskill region available for recreational activities. Therefore, it is not anticipated that the proposed reconstruction project would cause any permanent change to open spaces or recreational activities in the vicinity of the Dam and the surrounding area

2.2.3. Potential Project Impacts

Although closed during the reconstruction of the Dam, the Scenic Public Overlook Area would be improved for reopening. General landscaping would be implemented, fencing would be installed, and the viewing platform would be reinforced. The Scenic Public Overlook Area would be reopened after the reconstruction of the Dam is complete and full access would be restored.

A portion of the Reservoir would be temporarily off-limits to fishing during the proposed Dam reconstruction. Restricted access to a portion of the Reservoir would also occur due to the nature of the proposed project but all access would be restored once the reconstruction activities are complete.

2.2.4. Conclusions

Once completed, the proposed project is not anticipated to induce any loss or change in open space directly or indirectly due to reconstruction of the Dam. It is also anticipated that there would not be adverse impacts to the recreational users of the Reservoir, Schoharie Creek, and other City-owned lands (in particular fishing and hunting recreational users).

Given this information, it is not anticipated that there would be any adverse direct or indirect impact on open space and recreation due to the proposed project.

Legend

- Boat Storage Areas
- Hunting and Hiking Areas
- Hunting Only Areas

Scenic Public
Overlook Area

GILBOA
DAM

Off Limits to Fishing
During Reconstruction
Activities - Remainder of
Reservoir Open to Fishing
and Boating Activities

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NYC Lands Available for Recreational Use in the Vicinity of Gilboa Dam



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Figure 2.2-1

2.3. AESTHETIC AND VISUAL RESOURCES

2.3.1. Existing Conditions

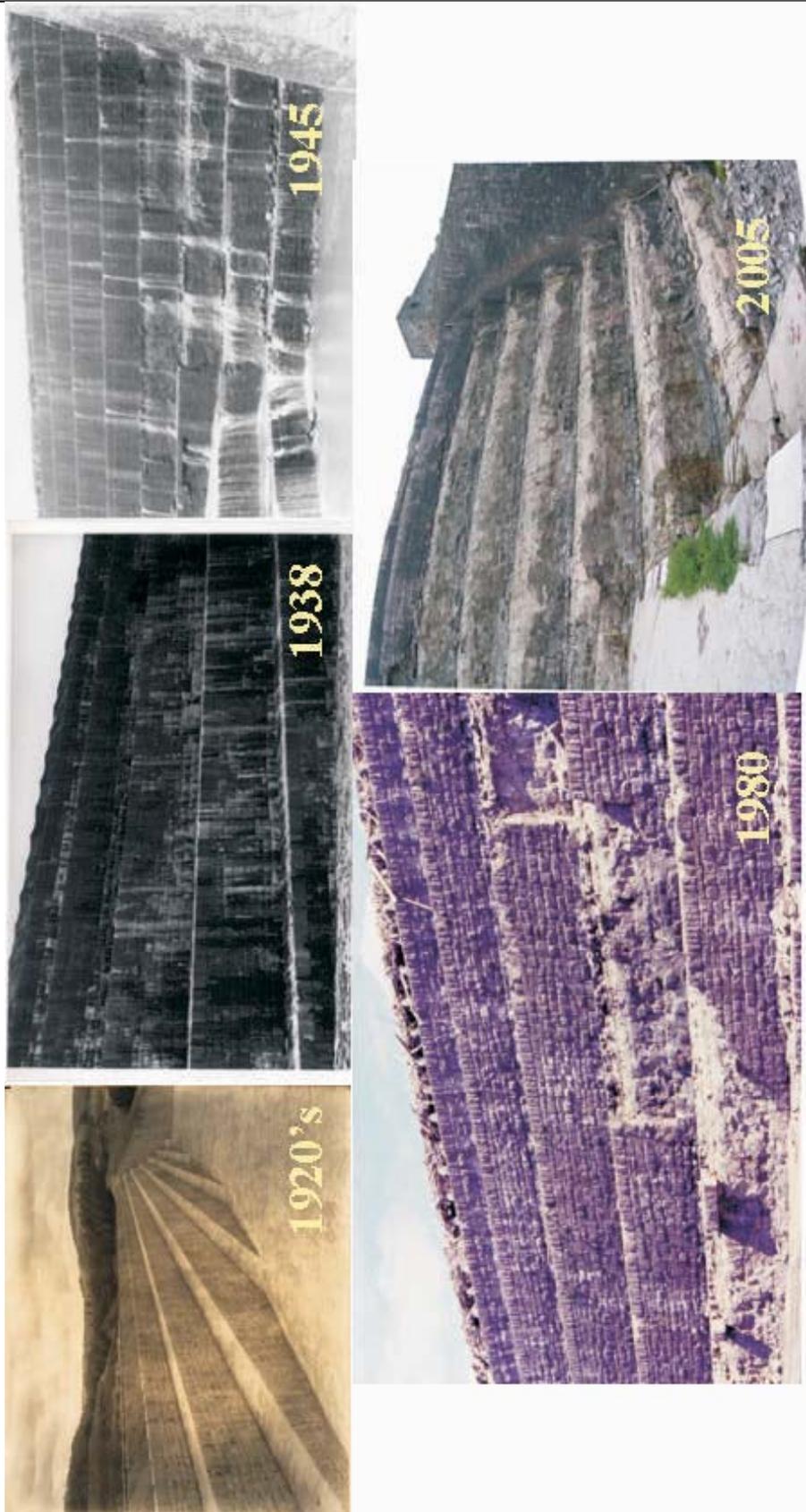
This section examines the potential effects of the proposed Dam reconstruction project on the existing aesthetic quality and character of the Dam site and surrounding study area. The most prominent visual resources in the project area are the Dam and the Reservoir. The Dam, constructed between 1919 and 1927, is a classic NYCDEP gravity dam design, consisting of a 160-foot high by 1,326-foot long Spillway constructed of mass cyclopean concrete with a 3-5 foot thick ashlar masonry façade (square stone) of dark gray-brown sandstone. The Reservoir was first filled in 1927 following the completion of the Dam and is a prominent visual resource from the associated Scenic Public Overlook Area. Not long after the completion of the Dam, erosion damage to the Spillway's stone veneer was caused by a combination of harsh winter weather conditions and forceful seasonal flows over the Spillway crest. This damage became visible on the Dam's south façade ([Figure 2.3-1](#)). To address this issue, the City of New York implemented a costly and time consuming maintenance program which entailed repointing the damaged mortar joints and replacing damaged, broken or missing stones. This practice continued through the 1970's but by 1977 the maintenance program could no longer keep pace with the seasonal cycle of damage to the Dam's façade.

Over the past 30 years, increasing amounts of the stone façade have been lost due to erosion. Currently the majority of the stone façade on the Stair-Stepped overflow structure has been delaminated or lost entirely; exposing approximately 50 percent of the cyclopean concrete substructure, which has dramatically reduced the aesthetic quality of the Dam (see [Figure 2.3-1](#)). Further damage from water, erosion and weather can also be seen in other areas of the Dam including the Side Channel and the West Training Wall. This further damage has reduced the hydraulic energy dissipating capability of the spillway.

A Scenic Public Overlook Area (see [Figure 2.3-2](#)) is located on the eastern edge of the Reservoir near the Dam and consists of several parking spaces, a platform for viewing the Reservoir and spillway, and a kiosk that describes the history of the Town of Gilboa and surrounding environment. The Scenic Public Overlook Area is accessible from NYS Route 990V, and provides the primary source of scenic views of the Dam, Reservoir, and surrounding area as views of these features are limited from the surrounding roadways.

Emergency repairs to the Dam commenced in December 2005 to ensure that the Dam satisfied NYSDEC dam safety criteria for the stability of the gravity section in advance of the proposed reconstruction project. The primary emergency structural improvement to the Dam was the installation of post-tensioned anchors in the spillway and its foundation, which improved the stability of the structure and ensured compliance with current dam safety guidelines for existing concrete dams. Other measures taken directly at the Dam included the installation of a debris boom across the Reservoir to protect the work area; temporary siphons to help regulate Reservoir levels; and a rectangular spillway notch in the spillway crest to facilitate anchor installation. These emergency remedial measures were completed in December 2006.

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Facade Deterioration

Figure 2.3-1



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Scenic Public Overlook Area



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Figure 2.3-2

2.3.2. Temporary Reconstruction Impacts

The proposed reconstruction of the Dam would require clearing of approximately 62.7 acres of land (60.1 acres of primarily forested habitat and 2.6 acres of wetlands) for the development of the reconstruction staging and lay down areas, and West Access Road reconstruction. The loss of forested and wetland habitat associated with reconstruction of the Dam would represent a temporary negative effect to local aesthetic resources. The proposed Natural Resources Restoration Plan would replant a majority of the cleared areas (approximately 56 acres) with high value ecological communities dominated by native species ([Section 2.6.6, Natural Resources Restoration Plan](#) includes description of work to be performed). While the visual aesthetics of the proposed project area would be temporarily modified by the reconstruction-related activities, no adverse impacts to aesthetic resources on a long-term basis are anticipated.

During the proposed reconstruction of the Dam, the Scenic Public Overlook Area would be used for temporary reconstruction staging and as an access point for reconstruction-related equipment. Therefore, the Scenic Public Overlook Area would be closed to the public due to security concerns. This would, in effect, have temporary impacts to local aesthetic resources during reconstruction activities as views of the Dam are limited from surrounding roadways.

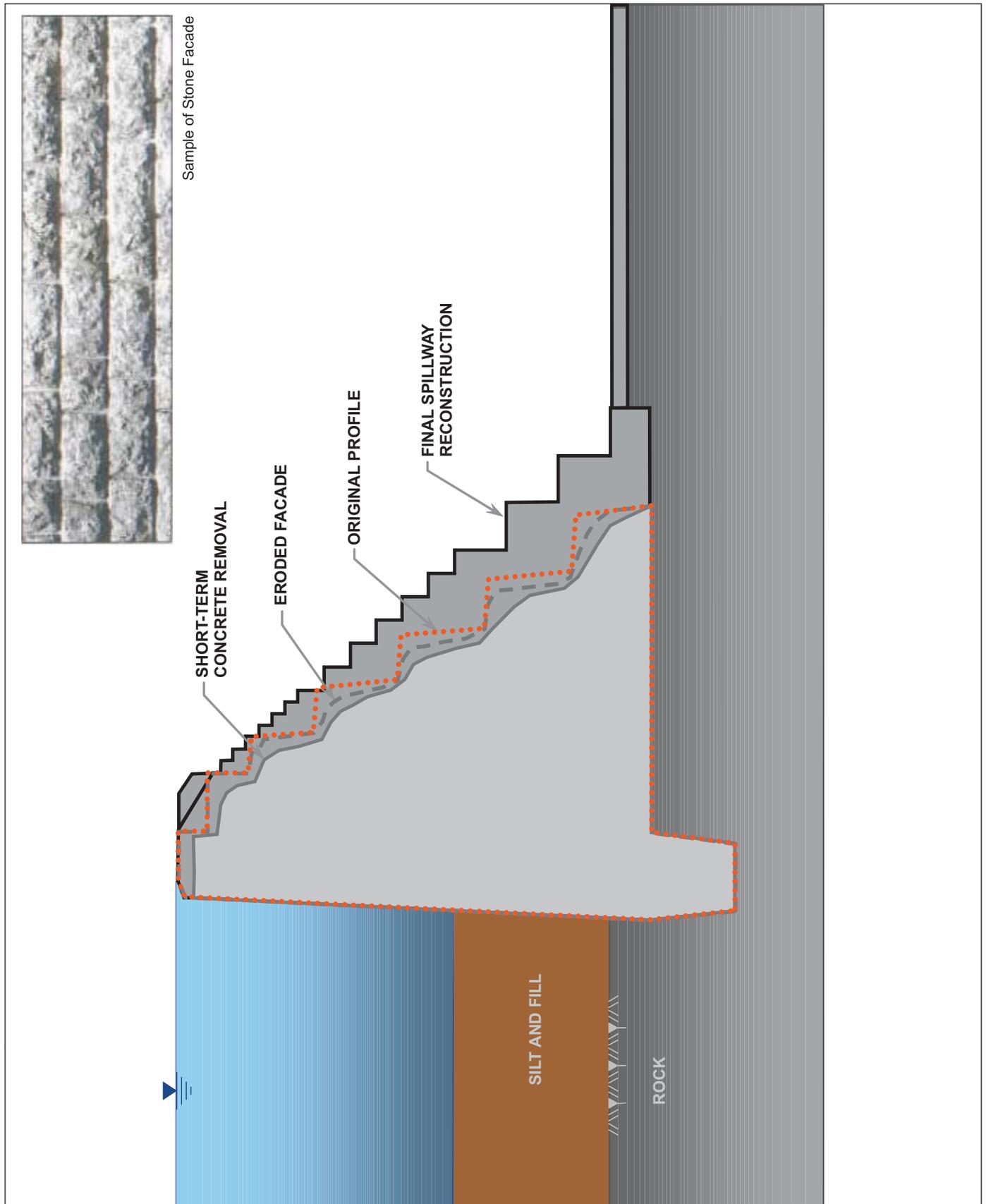
2.3.3. Potential Project Impacts

2.3.3.1. *Gilboa Dam*

During the proposed reconstruction, approximately 90,000 cubic yards of the existing deteriorated stone façade from the Spillway, Stair-Step, Plunge Pool, Side Channel, West Training Wall and overflow structures would be removed and replaced with new high-strength concrete produced onsite. In addition, the West Training Wall would be extended to provide additional protection to Schoharie Creek from potential landslides, as described in [Section 1.5.5.2 of the Project Description](#). The existing deteriorated stone façade would be replaced with a new stone façade that would simulate the original look. The new façade would represent a significant improvement to the aesthetic appearance of the Dam and its associated structures (see [Figure 2.3-3](#)).

A Memorandum of Agreement (MOA) is being negotiated between NYCDEP and the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) which would stipulate measures to protect historic materials associated with the Dam reconstruction project. During reconstruction, the NYCDEP shall recover and retain excavated bluestone facing from the Dam's spillway for potential use in the proposed onsite North Training Wall berm ([Section 1.5.5.3, Project Description](#)). The NYCDEP will also investigate the feasibility of using recovered bluestone facing within the Scenic Public Overlook Area to the Reservoir. Refer to [Section 2.5, Historic and Archaeological Resources](#) for further details.

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Stone Facade Reconstruction

Figure 2.3-3

2.3.3.2. Crest Gates

As part of the proposed project, crest gates would be installed in the existing spillway notch and would slightly alter the physical appearance of the Dam. The crest gates could be described as a row of stainless steel gate panels supported on their downstream side by inflatable air bladders (Figure 2.3-4). The dimensions of the crest gates would be 5.5 feet high in the vertical direction when fully inflated and 220 feet long. When upright with the air bladders fully inflated, the crest gates would be flush with the top of the spillway. When fully deflated, the crest gates would rest flat on the notch invert. The crest gates could also be positioned at any point between these two extremes, depending on the desired pool elevation within the Reservoir. A conceptual rendering of crest gates is presented in Figure 2.3-5. Figure 2.3-6 illustrates the extent of the existing spillway notch where the crest gates would be installed. Although the visual appearance of the Dam from the Scenic Public Overlook Area (a distance of approximately 1,200 ft) would be modified somewhat by the installation of the crest gates, the visual impact would be minimal and confined to a 220-foot long area of the western most portion of the 1,326-foot spillway.



FIGURE 2.3-4. TYPICAL INSTALLATION OF CREST GATES

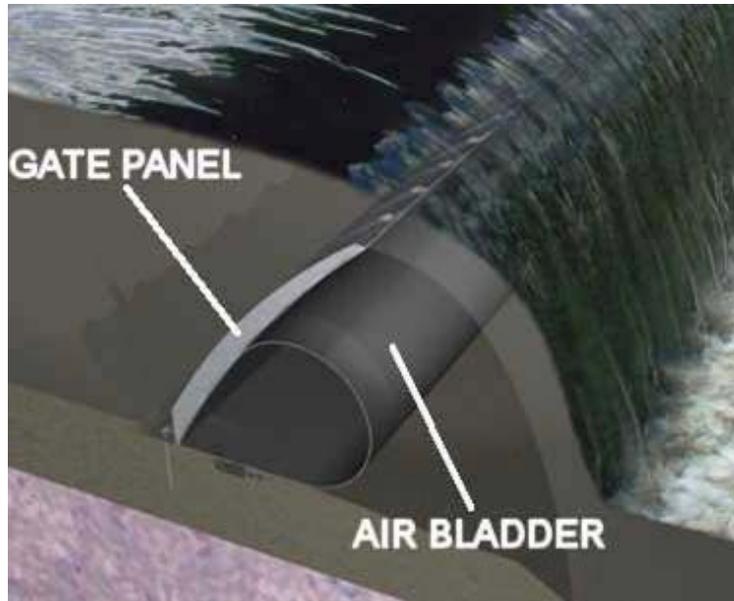


FIGURE 2.3-5. CONCEPTUAL RENDERING OF THE PROPOSED CREST GATES

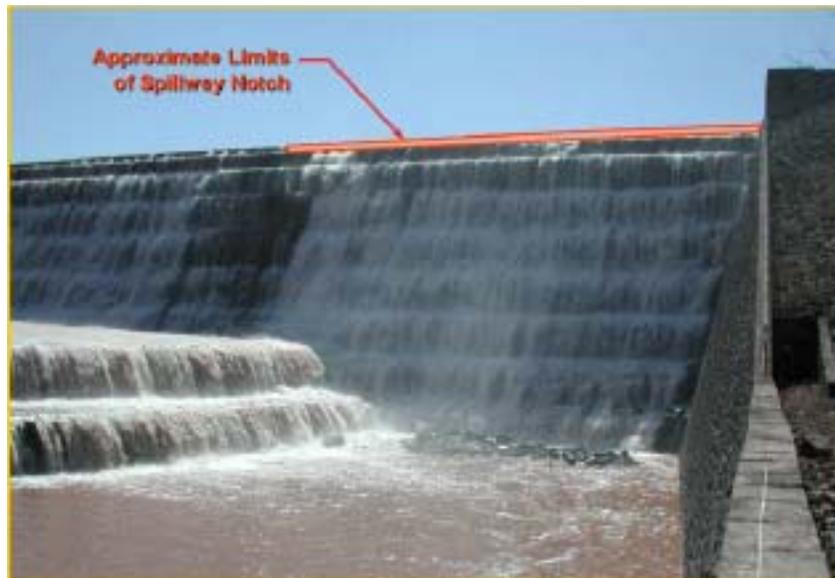


FIGURE 2.3-6. PROPOSED CREST GATES INSTALLATION AT GILBOA DAM

2.3.4. Conclusions

Following reconstruction of the Dam, most of the temporarily affected areas would be restored and improved. The few structural changes and additions necessary for the proposed Dam reconstruction, as noted above, would be minimal within the context of their corresponding structural components and therefore no change in the overall aesthetic character of the area would occur. Therefore no adverse impacts to aesthetic and visual resources are anticipated.

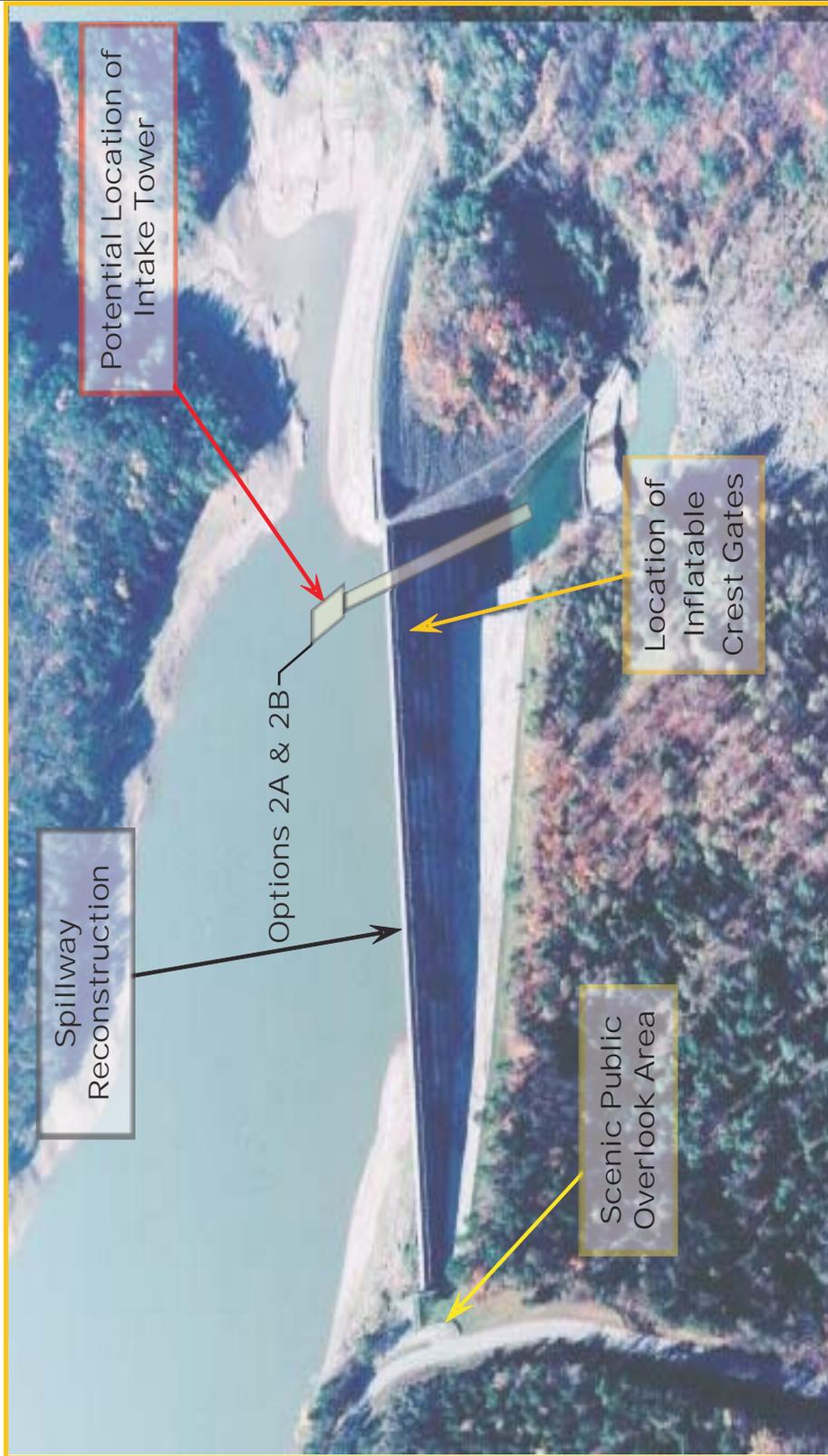
2.3.3.3. Scenic Public Overlook Area

The Scenic Public Overlook Area is positioned on the eastern edge of the Spillway and consists of several parking spaces, a platform for viewing the Reservoir and Spillway, and a kiosk that presents the Town of Gilboa history. The area is overgrown with vegetation and the fencing is failing. NYCDEP is currently working to shift the existing parking area slightly north from its current position. Under the proposed project, general landscaping would be done, new and improved fencing would be installed, and the platform would be reinforced to ensure continued safety. In addition, the NYCDEP would investigate the feasibility of using recovered bluestone facing within the Scenic Public Overlook Area to the Schoharie Reservoir for historical preservation purposes as per the MOA with NYSOPRHP. The proposed changes to the Scenic Public Overlook Area would greatly improve its visual aesthetics and provide the opportunity to view the improved aesthetic appearance of the Dam and its associated structures after reconstruction.

2.3.3.4. Low Level Outlet

In order to comply with current dam safety and operation guidelines, the Dam must meet certain reservoir draining and drawdown capabilities. Therefore, new outlet works have been included in the proposed reconstruction of the Gilboa Dam project. This new LLO would facilitate Reservoir drawdown, as needed to suitably respond to Dam safety emergencies, and to allow for periodic maintenance of the Dam where partial or full dewatering of the Reservoir is required. A secondary potential use of the LLO would be as a component of snowpack-based reservoir management (further discussed in [Section 1.5.1.3 of the Project Description](#)) that could be incorporated into the operational plan for the Dam.

The final design of the LLO is incomplete at the issuing of this EA and is dependent on the results of a continuing boring program. There are currently six options being considered for the placement of the new LLO (see [Section 1.5.1.2.3, Project Description](#)) for the Reservoir. The options that would have the greatest effect on the area's aesthetic resources are assessed in this section. Options 2A and 2B of LLO installation consist of constructing a new intake tower within the Reservoir on the upstream side of the Dam and would potentially have the greatest visual influence of all six alternatives under consideration (see [Figure 2.3-7](#)). These options would necessitate the installation of an intake tower located close to the Dam that would be visible from the Scenic Public Overlook Area, creating a visual change from this vantage point. Because the intake tower would be consistent with the architecture of the surrounding structures the change is anticipated to be minimal. In addition, when the Reservoir is at full capacity, only the upper-most portion of the tower would be visible from the Scenic Public Overlook Area. Under options 2A and 2B, a small control building would be provided to house the controls of the LLO. In addition, a concrete basin-like structure would be installed at the LLO discharge into Schoharie Creek. The building's design shall be consistent with surrounding NYCDEP architecture and views would not be considered adverse to aesthetic resources since they would fit the context of the surrounding area.



Low Level Outlet Options 2A & 2B



Engineering Design Services and Design During Construction
for the Reconstruction of Catskill Watershed Dams and Associated Facilities



Gonnott Fleming

HAZEN AND SAWYER
Environmental Engineers & Scientists

A Joint Venture

Figure 2.3-7

2.4. GROWTH INDUCEMENT AND NEIGHBORHOOD CHARACTER

2.4.1. Existing Conditions

The growth inducement analysis for the proposed Dam reconstruction examines the potential for the proposed project to increase the rate of growth, including population growth and associated residential development. The proposed project area provides thousands of acres of open space that offer many recreational opportunities (e.g., hiking, camping, fishing, hunting, biking, and cross-country skiing) for local residents and visitors. However, while a large percentage of the City-owned watershed lands are accessible for public use and enjoyment, portions of the City's property are restricted to the public for watershed protection and security reasons.

Land surrounding the Reservoir is predominantly forested with occasional parcels of land used for agriculture. Private residences and businesses are located intermittently along NYS 990V and NYS Route 30. This area is characterized by a quiet, rural setting.

2.4.2. Temporary Reconstruction Impacts

It is estimated that approximately 120 construction workers would be onsite during the peak reconstruction period, 80 workers in the first or dayshift and 40 workers in the second or nightshift. The workers that would be employed at the proposed site would likely be beneficial to the local economy through their visits to area businesses (i.e., gas stations, convenience stores, restaurants and lodging). It should be noted that the economic benefits would likely affect a region larger than the proposed project area, since reconstruction and support materials needed for the proposed project may be purchased outside of local limits. Localized economic benefits generated by this project are a possibility, but these indirect effects would be temporary and generated only during the reconstruction period. As a result of the proposed project, some changes in neighborhood character and growth inducement in the surrounding area may be realized although any lasting effect would likely be incidental.

2.4.3. Potential Project Impacts

Following the proposed Dam reconstruction, the City of New York would continue to have a presence in the project area. It is not anticipated that the proposed project would result in future development in this area. The proposed project is anticipated to improve the operation of a City-owned facility without disrupting community, emergency services or local facilities.

Under the proposed project, general landscaping would be completed at the Scenic Public Overlook Area; new and improved fencing would be installed and the viewing platform would be reinforced (see [Section 2.3, Aesthetic Resources](#), for a more detailed discussion of the Scenic Public Overlook Area). This work would improve the appearance of the Scenic Public Overlook Area and provide the surrounding neighborhood with enhanced public space.

2.4.4. Conclusions

Following reconstruction, the project area would be restored to its current condition and any changes to the socioeconomic structure of the community would likely revert to existing conditions once the proposed project is completed. Therefore, it is not anticipated that the proposed project would cause any permanent change to the neighborhood character or growth inducement in the vicinity of the Dam.