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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)
This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.

The examination of documents and a visual inspection of the Mill Brook Site 1 Dam did not reveal conditions which constitute a hazard to human life or property.
The total discharge capacity of the spillways is adequate to impound and safely discharge the floodwaters resulting from the Probable Maximum Flood (PMF).

Several minor deficiencies were noted which should be corrected within 6 months of the date of final approval of this report. The required actions are establishing a good grass cover on the upstream slope, repairing the sloughing on the outer auxiliary spillway slope, and regrading the eroded area at the end of the rock sill on the downstream end of the auxiliary spillway channel. In addition, an emergency action plan for notification of downstream residents should be developed within the same time frame.
SUSQUEHANNA RIVER BASIN

MILLBROOK WATERSHED PROJECT

SITE I

CHENANGO COUNTY, NEW YORK

INVENTORY NO. N.Y. 71.5

PHASE I INSPECTION REPORT

NATIONAL DAM SAFETY PROGRAM

NEW YORK DISTRICT CORPS OF ENGINEERS

AUGUST, 1980

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PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.
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PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam: Mill Brook Watershed Project Site 1
I.D. No. NY-715
State Located: New York
County Located: Chenango
Watershed: Susquehanna River Basin
Date of Inspection: July 31, 1980

ASSESSMENT

The examination of documents and a visual inspection of the Mill Brook Site 1 Dam did not reveal conditions which constitute a hazard to human life or property.

The total discharge capacity of the spillways is adequate to impound and safely discharge the floodwaters resulting from the Probable Maximum Flood (PMF).

Several minor deficiencies were noted which should be corrected within 6 months of the date of final approval of this report. The required actions are establishing a good grass cover on the upstream slope, repairing the sloughing on the outer auxiliary spillway slope, and regrading the eroded area at the end of the rock sill on the downstream end of the auxiliary spillway channel. In addition, an emergency action plan for notification of downstream residents should be developed within the same time frame.

George Koch
Chief, Dam Safety Section
New York State Department of Environmental Conservation
NY License No. 45937

Approved By:
Colonel W. M. Smith Jr.
New York District Engineer

Date: 30 Sep 80
SECTION 1:  PROJECT INFORMATION

1.1 GENERAL

a. Authority
The Phase I inspection reported herein was authorized by the Department of the Army, New York District, Corps of Engineers, to fulfill the requirements of the National Dam Inspection Act, Public Law 92-367.

b. Purpose of Inspection
This inspection was conducted to evaluate the existing conditions of the dam, to identify deficiencies and hazardous conditions, to determine if these deficiencies constitute hazards to life and property, and to recommend remedial measures where required.

1.2 DESCRIPTION OF PROJECT

a. Description of Dam
The Mill Brook Watershed Project Site 1 Dam consists of an earth dam with a service spillway pipe passing through the embankment and an excavated auxiliary spillway passing around the southern end of the dam.

The dam consists of a compacted earth embankment which is 52 feet high, has a crest length of 475 feet and a crest width of 14 feet. The upstream slope is 1 vertical on 3.5 horizontal with a 10 foot wide berm near the base of the slope. The downstream slope is 1 vertical on 2.5 horizontal with a 12 foot wide berm at approximately the mid-point of the slope. Below the berm, the slope flattens to a 1 on 3 (V:H). The crest and exposed slopes are covered with grass. An earth cutoff trench of varying depth and width keys the embankment into the foundation soils.

The service spillway consists of a rectangular reinforced concrete drop inlet structure, a 30 inch diameter reinforced concrete pipe with anti-seepage collars and a riprapped plunge pool. A reservoir drain consisting of an 18 inch diameter concrete pipe extends from the upstream toe of the embankment to the base of the spillway riser. A vertical slide gate mechanism mounted along the inside of the riser controls the flow through the reservoir drain. The auxiliary spillway is an earth cut with a bottom width of 100 feet.
An internal drainage system consisting of a gravel and stone filter is located at the base of the embankment near the downstream toe. Seepage is conducted through this drain to beyond the toe of the embankment via twin 6 inch diameter asbestos-cement pipes.

b. Location
The Mill Brook Watershed Project Site 1 dam is located off the Sherburne Turnpike in the Town of New Berlin. The structure is approximately 1 mile north-west of the Village of New Berlin.

c. Size Classification
The dam is 52 feet high and has a maximum storage capacity of almost 400 acre-feet. Therefore, the dam is in the intermediate size category as defined by the "Recommended Guidelines for Safety Inspection of Dams."

d. Hazard Classification
This dam is classified as "high" hazard due to the presence of a number of homes in the Village of New Berlin located downstream of the dam.

e. Ownership
The dam is owned by Chenango County, New York. The contracting officer is Mr. Phillip Cummings whose telephone number is (607)334-4632.

f. Purpose of Dam
The dam is a floodwater retarding structure.

g. Design and Construction History
The dam was designed by the U.S. Department of Agriculture, Soil Conservation Service (SCS). The SCS office at the Broome County Airport has a design folder containing hydrologic, hydraulic and structural design information. The dam was constructed between 1977 and 1979 by J.R. Hall, Inc. of Waterville, New York. The Howdy Jones Construction Company was the earthwork subcontractor for the structure.

h. Normal Operating Procedures
Normal flows are discharged through the service spillway. This structure has sufficient capacity to store and discharge a 100 year flood without discharge occurring in the auxiliary spillway. For storms in excess of the 100 year flood, discharge through the auxiliary spillway can be expected.

1.3 PERTINENT DATA

<table>
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<th>a. Drainage Area (acres)</th>
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c. Elevation (USGS Datum)

- Top of Dam: 1349.0
- Auxiliary Spillway Crest: 1339.5
- Service Spillway Crest: 1306.3
- Reservoir Drain (invert elevation): 1302.0

d. Reservoir Surface Area (acres)

- Top of Dam: 22.7
- Auxiliary Spillway Crest: 15.0
- Service Spillway Crest: 0.9

e. Storage Capacity (acre-feet)

- Top of Dam: 397.9
- Auxiliary Spillway Crest: 222.6
- Service Spillway Crest: 2.2

f. Dam

- Embankment type: A compacted earth fill with a keyed earth cut-off trench, and a drain parallel to the axis of dam
- Embankment length (ft): 475
- Slopes - Upstream: 1 vertical on 3.5 horizontal
- Downstream: 1 vertical on 2.5 horizontal
- With 12 foot wide berm - slope below.
- Crest Width (ft): 14

f. Service Spillway

- Type: Ungated, reinforced concrete drop inlet (2.5 x 7.5 ft), rising 8.3 feet above the invert of the 30 inch diameter concrete conduit; length of conduit 340 feet
- Weir length (ft): 15

h. Auxiliary Spillway

- Type: An excavated, trapezoidal channel with a grass lining.
- Bottom Width (ft): 100
- Side Slopes (V:H): 1:3
- Exit Slope (ft/ft): 0.02

i. Reservoir Drain

- Type: 18 inch diameter reinforced concrete pipe
- Control: Manually operated vertical slide gate mounted along the inside of the service spillway riser.
SECTION 2: ENGINEERING DATA

2.1 GEOTECHNICAL DATA

a. Geology
The Mill Brook Watershed Project Site 1 Dam is located in the glaciated portion of the Appalachian uplands (northern extreme of the Appalachian Plateau) physiographic province of New York State. These uplands were formed by dissection of the uplifted but flat lying sandstones and shales of the Middle and Upper Catskill Delta. The plateau surface is represented by flat-topped divides with drainage generally southwest toward the Susquehanna River system. The bedrock in the vicinity of this dam is predominantly shale.

The present surficial deposits consist of a thin layer of topsoil over glacial till. There is a small amount of outwash and alluvial gravel in the vicinity of the present stream channel. These deposits have resulted from glaciations during the Cenozoic Era, the last of which was the Wisconsin glaciation.

b. Subsurface Investigations
A subsurface investigation program was conducted by SCS. The initial test pits and drill holes were progressed in 1969 and a supplemental program was undertaken in 1977. A total of 17 borings and 14 test pits were taken at locations along the dam, auxiliary spillway, structural elements and borrow area. Applicable subsurface information has been included in Appendix F.

The centerline of the structure was shifted a short distance downstream from the originally proposed location because of foundation conditions encountered during the drilling program. In general, the foundation consists of glacial till over bedrock. The depth to bedrock in the vicinity of the dam varies from 5 to 50 feet. The soils encountered varied from slightly to moderately permeable.

2.2 DESIGN RECORDS

This dam was designed by the Soil Conservation Service, who prepared a design report. A folder containing the design report and other design information was available at the SCS office at the Broome County Airport. Twenty four drawings, several of which have been included in Appendix F, were prepared for the construction of this dam.

2.3 CONSTRUCTION RECORDS

Complete construction records are available from the SCS office at the Broome County Airport. Several changes from the original design were made during construction. These changes have been indicated on the as-built plans shown in Appendix F. Among the changes were the flattening of the southern cut slope which forms the auxiliary spillway and the addition of rock creases at the embankment-abutment interface.
2.4 OPERATION RECORDS

Since the dam is an uncontrolled, floodwater retarding structure, no operating records are maintained regarding water levels. However, during periods of heavy rainfall, SCS personnel do monitor reservoir levels.

2.5 EVALUATION OF DATA

The data presented in this report has been compiled from information obtained from the Soil Conservation Service as well as the New York State Department of Environmental Conservation files. It appears to be adequate and reliable for Phase I inspection purposes.
SECTION 3: VISUAL INSPECTION

3.1 FINDINGS

a. General
Visual inspection of the Site 1 dam was conducted on July 31, 1980. The weather was clear and the temperature was in the seventies. The water surface at the time of the inspection was 3.74 feet below the top of the concrete riser.

b. Embankment
No signs of distress were observed in the earth embankment and no evidence of seepage, misalignment, subsidence or surface cracking were noted on the embankment. The only deficiencies noted were of a minor nature and most were related to the fact that construction of the dam was completed only last September. The grass cover on the upstream slope had not yet established itself. There was minor rill erosion between the top of the riser and the northern abutment contact. There was also some minor erosion on the lower portion of the downstream slope between the principal spillway outlet pipe and the northern abutment.

An internal drainage system composed of 2 - 6 inch diameter pipes surrounded by drain-fill material provides drainage at the base of the embankment. At the time of the inspection, there was no flow coming from the pipes. However, Gary Page of SCS reported that the drains had operated during the construction of the dam.

c. Service Spillway
The service spillway consists of a vertical drop inlet structure, a reinforced concrete pipe and a plunge pool at the conduit outlet. The elements which were visible appeared to be in good condition. The pipe interior had been closely inspected in June of 1980 by Mr. Page. His inspection indicated that the maximum joint extensibility along the conduit was three-quarters of an inch. This compares favorably with the maximum closure achieved during construction of one-half inch.

d. Auxiliary Spillway
The auxiliary spillway is located in an earth cut at the southern end of the dam. The cut slope on the outside of the channel was sloughing in several areas. This sloughing was caused by water coming out of the hillside. The downstream portion of this slope had been flattened during construction in an attempt to remedy these problems. However, even in the flattened area there were several locations where sloughing was observed. In addition, there was some erosion at the end of the rock sill which extends across the downstream end of the auxiliary spillway channel.

e. Reservoir Drain
The 18 inch diameter reservoir drain and manually operated slide gate may be used to lower the reservoir. The drain was reported to be operational.

f. Reservoir
There were no signs of serious soil instability in the reservoir area. However, there was a minor sedimentation delta in the reservoir from an old haul road which extends into the pool.
g. Downstream Channel
The downstream channel below the plunge pool was gravel and stone filled for a distance. Beyond the area which was disturbed by construction, the channel was cut into natural ground. Trees and heavy brush were growing at the edge of the channel.

3.2 EVALUATION OF OBSERVATIONS

Visual inspection of this dam revealed the following deficiencies:

1. The grass cover on the upstream slope was relatively sparse.

2. There was substantial sloughing on the outside cut slope of the auxiliary spillway channel.

3. There was some erosion at the end of the rock sill at the downstream end of the auxiliary spillway channel.
SECTION 4: OPERATION AND MAINTENANCE PROCEDURES

4.1 PROCEDURES

The normal water surface elevation is at the crest of the principal spillway riser. Downstream flows are limited by flow into the riser, except during periods of extremely heavy runoff when the auxiliary spillway is in service.

4.2 MAINTENANCE OF DAM

The dam is maintained by the owner. Construction of the dam was completed in September 1979. The grass on the upstream slope has not come in uniformly and might need further attention. In other respects, the dam appeared to be satisfactorily maintained.

4.3 WARNING SYSTEM IN EFFECT

There is no warning system in effect.

4.4 EVALUATION

The operation and maintenance procedures for this dam are satisfactory.
SECTION 5: HYDROLOGIC/HYDRAULIC

5.1 DRAINAGE AREA CHARACTERISTICS

Delineation of the 1338 acre watershed of the Site 1 dam was made using the USGS 7.5 minute quadrangles for New Berlin North and Sherburne, New York. The watershed consists of open grassed fields and woodlands. Relief in the drainage area ranges from moderate to steep.

5.2 ANALYSIS CRITERIA

The analysis of the floodwater retarding capability of this dam was performed using the Corps of Engineers HEC-1 computer program, Dam Safety version. This program develops an inflow hydrograph using the Snyder Synthetic Unit Hydrograph method and then uses the "Modified Puls" flood routing procedure. The spillway design flood selected was the Probable Maximum Flood (PMF) in accordance with the Recommended Guidelines of the U.S. Army Corps of Engineers.

5.3 SPILLWAY CAPACITY

The principal and auxiliary spillways are uncontrolled structures. The capacities for both spillways were taken from the stage-discharge data included in the SCS design report.

The spillways have sufficient capacity for discharging the peak outflow from the PMF. For this storm, the peak inflow is 3584 cfs and the peak outflow is 3542 cfs. When the spillways are discharging the peak outflow, the water surface will be 4.5 feet below the top of the dam. Further information concerning this analysis is included in Appendix C.

5.4 RESERVOIR CAPACITY

Normal flood control storage capacity of the reservoir between the principal and auxiliary spillways is 220.4 acre-feet which is equivalent to a runoff depth of 2.0 inches over the drainage area. Surcharge storage capacity to the maximum high water elevation is an additional 175.3 acre-feet, equivalent to a runoff depth over the drainage area of 1.6 inches. Total storage capacity of the dam is 397.9 acre-feet.

5.5 FLOODS OF RECORD

The maximum known flood occurred during March, 1978 while the dam was under construction. The pool level at this time was reported to be about elevation 1323.5. No higher water has been recorded since the dam was completed in September, 1979.

5.6 OVERTOPPING POTENTIAL

Analysis indicates that the total discharge capacity is sufficient to prevent overtopping from the PMF.

5.7 EVALUATION

This dam has sufficient capability to impound and adequately discharge floodwaters expected to result from the PMF.
SECTION 6: STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations
   No signs of distress were observed in connection with the earth embankment.

b. Design and Construction Data
   Design data was obtained from SCS. Stability analyses were performed using
   the Swedish circle method of analysis. Two undrained triaxial shear tests
   were performed on compacted soil samples from the proposed borrow area. These
   tests were used to select soil parameters for use in the analysis. Several
   cases were analyzed on the upstream slope. For rapid drawdown from the
   permanent pool elevation, the minimum factor of safety was 1.45. For rapid-
   drawdown from the water surface which would result from the 100 year storm,
   the factor of safety was 1.2. While this is lower than desirable, it is
   acceptable due to the low frequency of occurrence of this storm. For the
   downstream slope, long term steady seepage was analyzed. The minimum factor
   of safety for this case was 1.34.

c. Seismic Stability
   No records of any seismic stability analysis performed for this structure
   could be located.
SECTION 7: ASSESSMENT/RECOMMENDATIONS

7.1 ASSESSMENT

a. Safety
The Phase I inspection of the Mill Brook Site 1 Dam did not reveal conditions which constitute a hazard to human life or property. The earth embankment is considered to be stable and the spillways are capable of retarding and safely discharging floodwaters resulting from the Probable Maximum Flood (PMF).

b. Adequacy of Information
Information reviewed for Phase I inspection purposes is considered to be adequate.

c. Need for Additional Investigations
No additional investigations are necessary at this time.

7.2 RECOMMENDED MEASURES

The following actions should be taken within 6 months of the date of final approval of this report:

a. Take actions which will assist in the development of a good grass cover on the upstream slope.

b. Investigate the sloughing on the outside cut slope of the auxiliary spillway channel and take actions necessary to correct this problem.

c. Repair the erosion at the end of the rock sill at the downstream end of the auxiliary spillway channel.

. Develop an emergency action plan for notification of downstream residents and the proper authorities in the event of large auxiliary spillway discharges.
APPENDIX A

PHOTOGRAPHS
Service Spillway Riser

Upstream Slope of Dam and Service Spillway Riser
Downstream Slope - Auxiliary Spillway
Channel in Background

Outlets of Principal Spillway Conduit
and Drainage System Pipes
Crest of Dam Looking Across
Auxiliary Spillway Channel

Rock Trench Carrying Flow Off
Road into Pool, Slight Delta Forming at Toe
Auxiliary Spillway Channel Looking Downstream
Note Sloughing on Slope

Sloughing on Outer Slope of Auxiliary Spillway Channel
APPENDIX B

VISUAL INSPECTION CHECKLIST
VISUAL INSPECTION CHECKLIST

1) Basic Data
   a. General
      Name of Dam  MILL BROOK WATERSHED PROJECT SITE 1
      Fed. I.D. #  NY 715        DEC Dam No. 1178-4390
      River Basin  SUSQUEHANNA
      Location: Town NEW BERLIN  County CHENANNO
      Stream Name  MILL BROOK
      Tributary of  UNADILLA RIVER
      Latitude (N)  42° 37.9'  Longitude (W)  75° 20.8'
      Type of Dam  EARTH EMBANKMENT
      Hazard Category  C
      Date(s) of Inspection  JULY 31, 1980
      Weather Conditions  Sunny  75°
      Reservoir Level at Time of Inspection  3.74' BELOW TOP OF RISER
   b. Inspection Personnel  W. LYNICK  R. WARRENDER
   c. Persons Contacted (Including Address & Phone No.)
      GARY PAGE - SCS BROOME CO. AIRPORT OFFICE
      607-773-2751
   d. History:
      Date Constructed  9/79 COMPLETED
      Date(s) Reconstructed
      Designer  SOIL CONSERVATION SERVICE
      Constructed By  J.R. HALL INC.-WATERVILLE, N.Y.  SUB- HOWAY JONES CONST
                     (EARTH)
      Owner  CHENANGO COUNTY
2) Embankment
   a. Characteristics
      (1) Embankment Material **COMPACTED TILL**
      (2) Cutoff Type **COMPACTED EARTH**
      (3) Impervious Core **NONE**
      (4) Internal Drainage System **YES**
      (5) Miscellaneous **GRASS COVER - NO CROWNVETCH AVAILABLE AT TIME OF CONSTRUCTION**
   b. Crest
      (1) Vertical Alignment **GOOD**
      (2) Horizontal Alignment **CURVED**
      (3) Surface Cracks **NONE**
      (4) Miscellaneous
   c. Upstream Slope
      (1) Slope (Estimate) (V:H) **1 ON 3**
      (2) Undesirable Growth or Debris, Animal Burrows **NONE - GRASS COVER WAS SOMewhat SPARSE**
      (3) Sloughing, Subsidence or Depressions **MINOR RILL EROSION BETWEEN TOP OF RISER & NORTH ABUTMENT CONTACT & AROUND RISER AREA ON SLOPE**
4. Slope Protection: **NONE**

5. Surface Cracks or Movement at Toe: **NONE**

d. Downstream Slope

1. Slope (Estimate - V:H) **1ON UPPER** **1ON 3 LOWER**

2. Undesirable Growth or Debris, Animal Burrows: **NONE**

3. Sloughing, Subsidence or Depressions: **MINOR EROSION RILL ON LOWER BERM SLOPE (1/2 WAY BETWEEN PIPE & NORTH ABUTMENT)**

4. Surface Cracks or Movement at Toe: **NONE**

5. Seepage: **NONE**

6. External Drainage System (Ditches, Trenches, Blankets): **RIPRAP AT ALL 4 SLOPE-ABUTMENT CONTACTS**

7. Condition Around Outlet Structure: **SATISFACTORY - RIPRAP**

8. Seepage Beyond Toe: **NONE**

e. Abutments - Embankment Contact: **RIPRAP ON CREASES**
(1) Erosion at Contact  **NONE**

(2) Seepage Along Contact  **NONE**

3) **Drainage System**
   a. Description of System  **2"-6" DIAMETER ASBESTOS-CEMENT PIPE WITH ANIMAL GUARDS**

   b. Condition of System  **OKAY- GARY PAGE SAID HIGH WATER DURING CONSTRUCTION CAUSED PIPES TO FLOW SUBSTANTIALLY**

   c. Discharge from Drainage System  **NONE**

4) **Instrumentation** (Monumentation/Surveys, Observation Wells, Weirs, Piezometers, Etc.)
   **NONE**
5) Reservoir
   a. Slopes STEEP WITH BRUSH & TREES
   b. Sedimentation MINOR DELTA AT OLD HAUL ROAD & DITCH
      ENTRANCE FROM RIGHT ABUTMENT AT AUXILIARY SPILLWAY ENTRANCE
   c. Unusual Conditions Which Affect Dam NONE

6) Area Downstream of Dam
   a. Downstream Hazard (No. of Homes, Highways, etc.) VILLAGE OF NEW BERLIN
   b. Seepage, Unusual Growth NONE
   c. Evidence of Movement Beyond Toe of Dam NONE
   d. Condition of Downstream Channel HEAVY BRUSH & TREES IN STREAM

7) Spillway(s) (Including Discharge Conveyance Channel)
   a. General CONCRETE Riser → Conduit → Plunge Pool FOR SERVICE SPILLWAY
      AUXILIARY SPILLWAY - CHANNEL IN EARTH CUT
   b. Condition of Service Spillway SATISFACTORY
      GARY PAGE CRAWLED PIPE IN JUNE, 1980 - HE SAID MAXIMUM JOINT EXTENSIBILITY WAS 3/4" - THE MAXIMUM CLOSURE AT THE TIME OF CONSTRUCTION WAS 1/2".
      MOST OF THE JOINTS HAD < 3/8" GAP.
c. Condition of Auxiliary Spillway: 
Sloughing on Outside Cut Slope (caused by hillside seepage 2 months each year). Slope was flattened during construction on part of channel, but there was still minor sloughing in flat area. Rock sill at outlet to Aux Spillway was eroded at one end.

D. Condition of Discharge Conveyance Channel:
Downstream of site - Heavy brush & trees lining existing stream.

8) Reservoir Drain/Outlet:
Type: Pipe  V Conduit  Other  
Material: Concrete  V Metal  Other  
Size: 18"  Length  30'  
Invert Elevations: Entrance 1302.0  Exit 1302.0  
Physical Condition (Describe): Unobservable  V  
Material: 
Joints:  
Alignment  
Structural Integrity:  
Hydraulic Capability:  
Means of Control: Gate  V Valve  Uncontrolled  
Operation: Operable  V Inoperable  Other  
Present Condition (Describe):  
REPORTED TO BE OPERATIONAL
9) **Structural**

   a. Concrete Surfaces **ALL SATISFACTORY**

   b. Structural Cracking **NONE**

   c. Movement - Horizontal & Vertical Alignment (Settlement) **NONE**

   d. Junctions with Abutments or Embankments **Good**

   e. Drains - Foundation, Joint, Face

   f. Water Passages, Conduits, Sluices **SLIGHT SEPARATION OF SOME JOINTS**

   g. Seepage or Leakage **NONE**
h. Joints - Construction, etc. __________________________________________

   **NONE**

   __________________________________________

i. Foundation **OKAY**

   __________________________________________

j. Abutments **OKAY**

   __________________________________________

k. Control Gates

   __________________________________________

l. Approach & Outlet Channels

   __________________________________________

m. Energy Dissipators (Plunge Pool, etc.) **RIPRAP PLUNGE POOL**

   __________________________________________

n. Intake Structures **Good Condition**

   __________________________________________

o. Stability

   __________________________________________

p. Miscellaneous

   __________________________________________
APPENDIX C

HYDROLOGIC/HYDRAULIC
ENGINEERING DATA AND COMPUTATIONS
## CHECK LIST FOR DAMS

**HYDROLOGIC AND HYDRAULIC ENGINEERING DATA**

### AREA-CAPACITY DATA:

<table>
<thead>
<tr>
<th></th>
<th>Elevation (ft.)</th>
<th>Surface Area (acres)</th>
<th>Storage Capacity (acre-ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Top of Dam</strong></td>
<td>1349.0</td>
<td>22.7</td>
<td>397.9</td>
</tr>
<tr>
<td><strong>2) Design High Water</strong> (Max. Design Pool)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3) Auxiliary Spillway Crest</strong></td>
<td>1339.5</td>
<td>15.0</td>
<td>222.6</td>
</tr>
<tr>
<td><strong>4) Pool Level with Flashboards</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5) Service Spillway Crest</strong></td>
<td>1306.3</td>
<td>0.9</td>
<td>2.2</td>
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</tbody>
</table>

### DISCHARGES

<table>
<thead>
<tr>
<th></th>
<th>Volume (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1) Average Daily</strong></td>
<td></td>
</tr>
<tr>
<td><strong>2) Spillway @ Maximum High Water</strong></td>
<td>158.4</td>
</tr>
<tr>
<td><strong>3) Spillway @ Design High Water</strong></td>
<td></td>
</tr>
<tr>
<td><strong>4) Spillway @ Auxiliary Spillway Crest Elevation</strong></td>
<td>193.5</td>
</tr>
<tr>
<td><strong>5) Low Level Outlet</strong></td>
<td>79.2</td>
</tr>
<tr>
<td><strong>6) Total (of all facilities) @ Maximum High Water</strong></td>
<td>9009</td>
</tr>
<tr>
<td><strong>7) Maximum Known Flood</strong></td>
<td></td>
</tr>
<tr>
<td><strong>8) At Time of Inspection</strong></td>
<td></td>
</tr>
</tbody>
</table>
**CREST:**

<table>
<thead>
<tr>
<th>Type: Grassed Earth</th>
<th>ELEVATION: 1349.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width: 16'</td>
<td>Length: 475'</td>
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</tbody>
</table>

**Spillover:**

<table>
<thead>
<tr>
<th>Auxiliary Channel</th>
</tr>
</thead>
</table>

**Location:** South End of Dam

---

**SPILLWAY:**

<table>
<thead>
<tr>
<th>PRINCIPAL</th>
<th>EMERGENCY</th>
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<tbody>
<tr>
<td>R/C Drop Inlet</td>
<td>R/C Cut Channel</td>
</tr>
<tr>
<td><strong>Elevation</strong></td>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>1306.3</td>
<td>Earth Cut Channel</td>
</tr>
<tr>
<td><strong>Width</strong></td>
<td><strong>Width</strong></td>
</tr>
<tr>
<td><strong>Type of Control</strong></td>
<td><strong>Type of Control</strong></td>
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<td>Uncontrolled</td>
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<td>Controlled</td>
<td>Controlled</td>
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<tr>
<td>Type</td>
<td>Type</td>
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<tr>
<td>(Flashboards; gate)</td>
<td>(Flashboards; gate)</td>
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<tr>
<td>Number</td>
<td>Number</td>
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<tr>
<td>Size/Length</td>
<td>Size/Length</td>
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<tr>
<td>Invert Material</td>
<td>Invert Material</td>
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<tr>
<td>Anticipated Length</td>
<td>Anticipated Length</td>
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<tr>
<td>of operating service</td>
<td>of operating service</td>
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<tr>
<td>Chute Length</td>
<td>Chute Length</td>
</tr>
<tr>
<td>Height Between Spillway Crest &amp; Approach Channel Invert (Weir Flow)</td>
<td>Height Between Spillway Crest &amp; Approach Channel Invert (Weir Flow)</td>
</tr>
</tbody>
</table>
HYDROMETEROLOGICAL GAGES:
Type: **NONE**
Location: ________________________________
Records:
  Date: ________________________________
  Max. Reading: __________________________

FLOOD WATER CONTROL SYSTEM:
Warning System: **NONE**

Method of Controlled Releases (mechanisms):
  **RESERVOIR DRAIN**
DRAINAGE AREA: 2.09 Sq.M.

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: FARMS, WOODLANDS

Terrain - Relief: GRASS - FORESTS

Surface - Soil: TILL

Runoff Potential (existing or planned extensive alterations to existing (surface or subsurface conditions)

NONE

Potential Sedimentation problem areas (natural or man-made; present or future)

CONSTRUCTION ROAD GOES INTO RESERVOIR

Potential Backwater problem areas for levels at maximum storage capacity including surcharge storage:

NONE

Dikes - Floodwalls (overflow & non-overflow) - Low reaches along the Reservoir perimeter:

Location: 

Elevation: 

Reservoir:

Length @ Maximum Pool: (Miles)

Length of Shoreline (@ Spillway Crest): (Miles)
**PROJECT GRID**

**Job**
Mill River Watershed Project

**Subject**
Water Quality

<table>
<thead>
<tr>
<th>Job</th>
<th>Sheet No.</th>
<th>Checked By</th>
<th>Date</th>
<th>Computed By</th>
<th>Date</th>
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<td>Mill River Watershed Project</td>
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**DRAINAGE AREA**

Area = 2.69 sq mi

**HYDRAULIC**

L = 2.46 mi

\[ h_i = (L - L_e)^2 = (2.46 - 2.1)^2 = 0.04 \]

\[ h_f = h_i + 0.25 (h_i + h_e) = 0.04 + 0.25 (0.04 + 0.2) = 0.06 \]

**HR #38**

Rainfall = 3.5 in

\[ V_s = 1 \times 3.5 = 3.5 \]

\[ P_{np} = 20 \text{ in} \]

\[ S_{np} = 12.5 \text{ in} \]

\[ K = 14.2 \text{ in} \]

**RISK OF ERROR**

\[ R = \frac{3.5}{(3.5 + 0.20)} = 0.74 \]

**RATES OF FLOW**

\[ Q = 2.6 \text{ ft/s} \]

**SYMBOLS**

\[ ... \]
MILL BROOK WATERSHED PROJECT SITE 1
ANALYSIS PMF WITH RATIOS

JOB SPECIFICATION

AC MH NHH NMIN IDAY IMP INITH MKHC IPLT IPRT NSTAT
200 0 30 n 0 0 2 0 0
JOPER MWT LROPT TRACR
3 0 0 0 0

MULTI-PERIOD ANALYSES TO BE PERFORMED
RTICS 0.50 1.00

SUB-AREA RUNOFF COMPUTATION

HYDROGRAPH
IHTAG ICMP ICNO ITAPE JPLT IPRT INAME ISTAGE IAUTO
1 0 0 0 0 1 0 0

HYDROGRAPH DATA
IMHG THA SNAP TRSM TRSPC RATIC ISNW ISAME LOCAL
1 2 0 1 0 0 0.74 0 0 1 0

PRECIP DATA
SPFE PBS R6 R12 R24 R48 R72 R96
0 0 20.00 111.00 123.00 132.00 142.00 0 0

LOSS DATA
LROPT STRKR DLTKR RTIQM ERAIN STRKS RTIKM STRTL CNSTL ALSMK RTIMP
0 0 1.00 1.00 1.00 1.00 0.10 0 0

UNIT HYDROGRAPH DATA
TP 2.77 CP 0.63 NTA 0

RECESSION DATA
STRQM 2.00 QPCSM 2.00 RTICR 1.00

UNIT HYDROGRAPH 31 END-OF-PERIOD ORDINATES
LAG 2.79 GPL 0.63 CP 0.63 VOL 1.00

END-OF-PERIOD FLOW
### HYDROGRAPH ROUTING

**ROLLED HYDROGRAPH AT DAM END BREACH**

<table>
<thead>
<tr>
<th>ISTD</th>
<th>ICF</th>
<th>ICDN</th>
<th>ITAPE</th>
<th>JPLT</th>
<th>JPRT</th>
<th>INAME</th>
<th>ISTAGE</th>
<th>IAUTO</th>
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**ROUTING DATA**

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<th>AVG</th>
<th>IRES</th>
<th>ISAME</th>
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| NSTPS | NSTD | LAG | ANSOK | X | TSK | STOR | ISPRAT |
|-------|------|-----|--------| |    |      |        |
| 0     | 0    | 0   | 0      | | 0  | 0    | -1306.6 |

**STAGE**

| 1306.30 | 1337.30 | 1343.10 | 1348.90 |

**FLOW**

| 0.0 | 129.00 | 1834.00 | 9009.00 |

**CAPACITY**

| 223.00 | 281.00 | 398.00 |

**ELEVATION**

| 1300.0 | 1340.0 | 1345.0 | 1364.0 |

**DAM DATA**

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<th>COOP</th>
<th>EXPD</th>
<th>DAMHIC</th>
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<td>1346.9</td>
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**STATION**

1% PLAN 1% RATIO 1%

### END-OF-PERIOD HYDROGRAPH ORDINATES

#### OUTFLOW

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#### STORAGE

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PEAK OUTFLOW IS 3542, AT TIME 42.50 HOURS

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PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS

FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)
AREA IN SQUARE MILES (SQUARE KILOMETERS)

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<th>STATION</th>
<th>AREA</th>
<th>PLAN RATIO</th>
<th>RATIO 1</th>
<th>RATIO 2</th>
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### SUMMARY OF DAM SAFETY ANALYSIS

#### PLAN 1

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<th>DEPT</th>
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<th>MAXIMUM STORAGE</th>
<th>MAXI4LP OUTFLCH</th>
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APPENDIX D

STABILITY COMPUTATIONS
New York  
MILL BLOC - SITE 1  
Dew  5-12  5-13-77 NY -2682-D  
Slope Stability - Homogenous Fill  

Borrow materials will consist of G M 1 SM 2 GM - GC from  
the emergency spillway excavation.  

Typically the materials are represented by samples  
by field samples 3.1, 203.1 \frac{1}{2} 206.1  

These materials contain:  

42 - 45% Fine  
LL = 18 - 25  
PI = 1 - 9  

24 - 41% Sands  

25 - 35% Gravel  

Density - ASTM D 698, method A  

\( \rho_d = 117.5 - 121.0 \, \text{pcf} \)  
@ opt moisture = 11.5%  

Shear Strength -  

@ 95% of \( \rho_d \)  

\{  

a. Total Stress: \( \phi = 12^\circ - 13.5^\circ \)  
\( c = 325 \, \text{psf} \)  

b. Effective Stress: \( \phi = 30^\circ - 30.5^\circ \)  
\( c = 125 \, \text{psf} \)  

\}

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<td>2. Deadweight w/Sabic</td>
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<td>( \phi = 30^\circ )</td>
<td>( c = 125 )</td>
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The structure is located Chenango County, N.Y., which is  
located Zone I, therefore a seismic coefficient of 0.05 will  
be used.  

Drainage will be assumed to take place from the 1% peak  
area.
Slope Stability

@ 95% of Std. \( \gamma_d = 119.5 \text{pcf} \)

45% \( \gamma_d = 113.5 \text{pcf} \)

let \( w \) be \( \pm 2\% \) or 9.5% to 13.5%

\[ \gamma = \frac{\gamma_m}{1+w} \]

\[ \gamma_m = \gamma_d (1+w) = 119.5 (1.115) = 133.2 \text{pcf} \]

for \( V_{sat} = W_1 + W_\text{wat} = 119.5 + W_\text{wat} \)

and \( V_1 = \frac{W_1}{\gamma_1} = \frac{119.5}{0.9.5} = 0.717 \text{ft}^3 \cdot \text{yd}^3 \)

@ 100% sat. \( V_m = 0.283 \)

and \( W_\text{wat} = 0.283 (62.4) = 17.6 \text{pcf} \)

\[ V_{sat} = 119.5 + 17.6 = 137.1 \text{pcf} \]

Stability = 137.1 - 62.4 = 74.7

---

Foundation Soils

1. Soils are much the same as embankments. Wherever possible, ordinary fill will be taken, densities all good. Therefore use the same soil properties as for the embankment. Surface reserve soils will be removed.

Estimated for ML-CL in foundation:

- \( \phi = 10^\circ \) (sand) \( C = 400 \) (sat. 150)
- \( \phi = 25^\circ \) \( C = 150 \) (clay) \( N_s = 67.6 \)

2. Freeze - Skene and Johnson. For slope stability use \( \beta = 55^\circ \), \( \theta_{sat} = 160 \text{pcf} \) and \( C = 2,000 \text{pcf} \)

Based on slow count, data + preconsolidation in soil state of

Material use \( \theta = 12^\circ \) (sand) \( C = 600 \) (7/11/77)
UPSTREAM FACE.

DRAWDOWN FROM PERM POOL (ELEV 1307)

USING TOTAL STRESS PARAMETERS (CU).

MIN. FS = 1.45 > REqd 1.3

\[ \therefore \text{UPSTREAM FACE OK} \]

NOTE:

FOR UPS. FACE WITH DRAWDOWN FROM 100 WATER SURFACE ELEV (1334.7)

USING TOTAL STRESS (CU) PARAMETERS

\[ FS = 1.16 \]

WITH FAILURE SURFACE ENTIRELY WITHIN EMBANKMENT IN WHICH CASE A FS OF 1.2 IS ALLOWED.

\[ FS 1.16 > 1.2 \]

THIS EMBANKMENT IS CONSIDERED STABLE BECAUSE OF LOW FREQUENCY OF OCCURRENCE OF HIGH WATER CONDITION.
APPENDIX E

REFERENCES


APPENDIX F

DRAWINGS
CONSTRUCTION DETAILS

- WOODED AND BRUSH AREAS UNDER THE DAM AND LEVEE (INCLUDING 15 FEET OUTSIDE THE UPSTREAM AND DOWNSTREAM TIES) SHALL BE CLEARED AND GRUBBED.
- WOODED AND BRUSH AREAS UNDER THE EMERGENCY SPILLWAY INCLUDING 15 FEET OUTSIDE THE CUT SLOPE, SHALL BE CLEARED AND GRUBBED.
- LIMITS TO BE CLEARED AND GRUBBED WILL BE STAKED IN THE FIELD BY THE ENGINEER.
- AREA UPSTREAM FROM THE DAM AND BELOW ELEVATION 1208 SHALL BE CLEARED.
- AREA 100 FEET WIDE LEADING TO THE EMERGENCY SPILLWAY FROM THE SEDIMENT POOL SHALL BE CLEARED.
- WASTE AREA, ACCESS ROAD, AND PRINCIPAL SPILLWAY CULVERT SHALL BE CLEARED.
- LIMITS TO BE CLEARED WILL BE STAKED IN THE FIELD BY THE ENGINEER.
- DEPTHS AND LIMITS OF BORROW EXCAVATION WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- AT COMPLETION OF EARTH FILL OPERATIONS, THE SEDIMENT AND WASTE AREAS SHALL BE LEFT GENTLY SLOPING, GENERALLY 3% AND FREE-CRAINING.
- BOTTOM SECTION OF THE EMERGENCY SPILLWAY SHALL BE COVERED WITH 6 INCHES OF TOPSOIL THROUGH ENTIRE LENGTH.

ACCESS ROAD SECTIONS

ACCESS ROAD PROFILE

DESIGN HIGH WATER ELEV. 1343.1

CONSTRUCTION LIMIT LINE

SEDIMENT ELEV. 13

CUANTITIES
- PPR MODIFICATION 15 6 FT
- EMBANKMENT 1500 CU FT
- 24" CA. COVERT PIPE 841'
TYPICAL SECTION OF CUTOFF TRENCH AND DRAIN TRENCH EXCAVATION
CUT-OFF TRENCH DETAILS

1. THE BOTTOM OF CUT-OFF TRENCH SHOWN IS APPROXIMATE FINAL DEPTH OF EXCAVATION SHALL BE DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION.

2. ALL ROCK SURFACES AT THE BOTTOM OF THE CUT-OFF WILL BE CLEANED OF LOOSE MATERIAL PRIOR TO THE BACK FILLING OPERATION.

AS BUILT
9/19/79
MILLBROOK WATERSHED PROJECT
FLOODWATER RETARDING DAM NO. 1
CHENANGO COUNTY, NEW YORK
CUT-OFF TRENCH EXCAVATION

D. WALKER 4-77
D. ANGELO 5-77
W. R. 7-77
PLAN - TOP

SECTION A - A

MANHOLE ASSEMBLY DETAILS

Cone thru Manhole 6 - 6" 1/2"OD 1/2" ID

Close Cover 23° With Flanges

On Metal 6 - 64.9 - 1/4" ID 1/2" OD 1/4" Steel Tube Screws, or Eqv. 1/4"

The Lifting Device Shall Consist of a

Nock at 5" E of the Lid Casing and a 2" 1/2" OD 1/4" ID 1/4" Steel and a Max 1/2"

at the Assitt E Side

(213.62212.00171.62)

2.5" D Galvanized

Steel Pipe Sleeves

Manhole Frame
**SECTION B-B**

**SLIDE GATE DETAILS**
1. 18" x 48" Flat Frame Slide Gate
   Class 0-20
2. Gate shall Conform to Spec 573 and shall be MHS-1
3. "E" Type Bell Frame 18" Deep
4. Stem shall be Stainless Steel.
   (See Sheet 18, Fig. 3, A. "NASH")

**ASSEMBLY DETAIL**

- A Type Wire Frame
- Gate shall be Square with a
  3" x 3" Flange
- Device shall Consist of a
  3" Gate and
  Drop Ring "A" Fitting

**Construction Details**

- Spigot Ring "A" Fitting
- Detail Sheet 17

**SIDE ELEVATION**
<table>
<thead>
<tr>
<th>Layer</th>
<th>Test Code</th>
<th>Drill Hole</th>
<th>Test Pad</th>
<th>Depth (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- Test pad and drill holes are numbered.
- Depths are measured in feet from the surface.
- Key to drill hole codes (TBD later).
<table>
<thead>
<tr>
<th>Layer</th>
<th>Description</th>
<th>Depth</th>
<th>Sampled</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Gravel - alluvium, clayey</td>
<td>8.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Gravel - alluvium, clayey</td>
<td>7.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Gravel - alluvium, clayey</td>
<td>6.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Gravel - alluvium, sandy</td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Gravel - alluvium, sandy</td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Gravel - alluvium, sandy</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Gravel - alluvium, sandy</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Tilt in wet - saturated between 0.5 to 4.0 ft. Color changes from brown to gray in zone 1.5 to 2.0 ft. Odd: 0.5 ft. Odd: 0.0 ft.

<table>
<thead>
<tr>
<th>Layer</th>
<th>Description</th>
<th>Depth</th>
<th>Sampled</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A</td>
<td>Gravel - alluvium, sandy</td>
<td>6.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2B</td>
<td>Gravel - alluvium, sandy</td>
<td>5.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2C</td>
<td>Gravel - alluvium, sandy</td>
<td>4.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2D</td>
<td>Gravel - alluvium, sandy</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Color of tail from gray to grayish brown, 4.0 ft.

<table>
<thead>
<tr>
<th>Layer</th>
<th>Description</th>
<th>Depth</th>
<th>Sampled</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>Gravel - alluvium, sandy</td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1B</td>
<td>Gravel - alluvium, sandy</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Color of tail from gray to grayish brown, 4.0 ft.

<table>
<thead>
<tr>
<th>Layer</th>
<th>Description</th>
<th>Depth</th>
<th>Sampled</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Gravel - alluvium, sandy</td>
<td>0.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Color of tail from gray to grayish brown, 4.0 ft.
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Priced Per Unit</th>
<th>Total Quantity</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Utilization</td>
<td>Item 1</td>
<td>1,200</td>
<td>312,000</td>
</tr>
<tr>
<td>2</td>
<td>Total</td>
<td></td>
<td>312,000</td>
<td>312,000</td>
</tr>
</tbody>
</table>

**Note:**
- Priced per unit is in dollars.
- Total quantity and cost are calculated from the unit prices.

For each item, there is a description, the pricered per unit, the total quantity, and the total cost.
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Total Quantity</th>
<th>Unit Price</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>Reinforced Concrete Pressure Pipe, 17 FT Diameter</td>
<td>300 L.F.</td>
<td>$17.50</td>
<td>$5,250.00</td>
</tr>
<tr>
<td>17</td>
<td>Reinforced Concrete Pressure Pipe, 18 FT Diameter</td>
<td>300 L.F.</td>
<td>$17.50</td>
<td>$5,250.00</td>
</tr>
<tr>
<td>16</td>
<td>Reinforced Concrete Pressure Pipe, 17 FT Diameter</td>
<td>300 L.F.</td>
<td>$17.50</td>
<td>$5,250.00</td>
</tr>
<tr>
<td>19</td>
<td>Reinforced Concrete Pressure Pipe, 18 FT Diameter</td>
<td>300 L.F.</td>
<td>$17.50</td>
<td>$5,250.00</td>
</tr>
<tr>
<td>18</td>
<td>Reinforced Concrete Pressure Pipe, 17 FT Diameter</td>
<td>300 L.F.</td>
<td>$17.50</td>
<td>$5,250.00</td>
</tr>
<tr>
<td>17</td>
<td>Reinforced Concrete Pressure Pipe, 18 FT Diameter</td>
<td>300 L.F.</td>
<td>$17.50</td>
<td>$5,250.00</td>
</tr>
</tbody>
</table>

Note: The table appears to be a list of items with their quantities and costs, possibly related to construction or manufacturing. The unit price and total cost are calculated for each item.