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# STORM WATER MANAGEMENT AND EROSION CONTROL PLAN

## URBANA LANDFILL SITE URBANA, NY

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February 2001

0001-001-100

Prepared for:  
**Mercury Aircraft, Inc,**  
**Hammondsport, NY**

Prepared by:



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## 1.0 INTRODUCTION

The Urbana Landfill is an inactive landfill located in a rural area northwest of the Village of Hammondsport, Steuben County, New York (Figure 1-1). The landfill, which received municipal and industrial wastes, has been classified by the New York State Department of Environmental Conservation (NYSDEC) as a Class 2 inactive hazardous waste disposal site, indicating that the site poses a significant threat to public health or the environment, and that remedial action is required.

Mercury Aircraft was the largest industrial waste contributor at the site and has been identified by the NYSDEC as a potential responsible party (PRP) for remediation of the property. Since remediation activities are anticipated to disturb more than five acres of land, the Federal Water Pollution Control Act (as amended, 33 U.S.C. 1251 et.seq.) and the New York State Environmental Conservation Law (Article 17, Titles 7 and 8, and Article 70) require that the contractor obtain coverage under the NYSDEC SPDES General Permit for Storm Water Discharges from Construction Activities that are classified as "Associated with Industrial Activity", Permit #GP-98-06 (Construction Storm Water General Permit). A Notice of Intent, Transfer or Termination (NOITT) will be filed with the NYSDEC before initiation of site clearing activities.

This Storm Water Management and Erosion Control Plan (SWM & ECP) was prepared as a supplement to the CQA Plan to describe protocols for the proper handling of storm water runoff and site soil and waste materials during remediation activities. Benchmark will be responsible for all monitoring, implementation and reporting requirements of this plan.

Since storm water and erosion control will be a critical component of preventing the potential migration of contaminants onto adjacent property or into the unnamed stream during remediation of the site, this SWM & ECP was prepared to provide guidance to the subcontractors and NYSDEC during construction activities on the property. This SWM & ECP is a critical component of the CQA Plan. This document is general in nature and provides minimum storm water runoff and erosion control practices to be utilized by the





subcontractors. More stringent or modified procedures may be required as the work proceeds depending on actual site conditions at the time of construction.



## 2.0 PROJECT DESCRIPTION

The Urbana Landfill remediation project generally consists of the closure of the 12-acre landfill. The major elements of the remedial approach include:

- **Enhancements to the existing landfill cover system.** Enhancements will include selective clearing, regrading, burial and/or off-site disposal of debris piles, placement of additional soil to provide a minimum of 24 inches of cover soil, and the installation of deep gas venting wells.
- **Groundwater collection and treatment.** Groundwater will be collected using three existing groundwater pumping wells located along the southwestern portion of the landfill site. The collected groundwater will be treated using advanced oxidation technology (AOT). Groundwater treatment processes will be enclosed in a 20-foot by 12-foot building located south of the landfill. Treated groundwater will be discharged to an infiltration chamber located in the southwestern corner of the site.
- **Soil vapor extraction (SVE) remediation of landfill "Hot Spot 5."** Six vertical SVE wells will be installed in the 150-foot by 200 foot-hot spot to remove volatile organic compounds (VOCs) from the waste and soil materials present within the hot spot. A blower, housed in a portable SVE trailer, will be used to extract the soil vapor from the SVE wells. Collected air will be treated using vapor-phase granular activated carbon prior to discharge.
- **Stream bank protection.** Two sections of stream pass within 15 feet of the limits of waste. Waste along one section will be relocated/regraded to facilitate cover system construction and blend with the remainder of the western slope. The other section of the stream will be rerouted to straighten the stream channel so as to provide a minimum 30-foot setback from the waste.

The remediation work at the Urbana Landfill site will be completed on a design-build basis by Benchmark. A reputable contractor with experience in landfill cover system construction and remediation system subsurface work will be hired to perform the various aspects of the remedial construction work. Detailed plans with appropriate notes for construction purposes along with a Construction Quality Assurance (CQA) Plan have been prepared. The CQA plan contains detailed requirements for cover system construction and testing, installing the deep gas venting system and vertical recovery wells, and constructing





the groundwater treatment system facility. The CQA Plan is also supplemented with construction specifications as necessary to detail the physical requirements of construction as well as general construction requirements to be followed by the contractor.



## 3.0 SITE CONDITIONS

### 3.1 Existing Site Conditions

The Urbana Landfill is located in a hilly, rural terrain consisting primarily of farmland and wooded areas. Nearby surface water features include an unnamed stream and a pond and wooded area located just beyond the northern end of the site. The pond is located in a dammed gully, and is approximately 100 feet by 175 feet. It is fed by underground springs and an artesian well, and discharges to the unnamed stream. Its depth is estimated to be a maximum of 20 feet. The pond is used for recreational purposes, and could potentially be used for fishing and swimming. The landfill itself is on a surface water divide. Most of the site drains to the surrounding fields and forestland; however, the northern and western portion of the site drains directly to the unnamed stream west of the landfill. This stream receives flow from the pond, groundwater discharges, and surface runoff. It flows towards the south for 0.5 miles into Cold Brook, a designated trout stream. Cold Brook eventually flows into Keuka Lake, approximately 1.5 miles south of the landfill.

Existing site conditions are depicted on Figure 3-1. The existing conditions at the site generally consist of the following:

- The landfill is located along a gravel road (Crows Nest Road) in a rural area of Steuben County near the top of a hill. The closest residence (the property owner) is generally located approximately 1000 feet east of the site.
- A poorly graded dirt access road winds along the eastern side of the site.
- The property is vegetated with a mixture of low-lying grasses, brush, and trees.
- A small, unnamed, intermittent stream is located in a wooded area along the western side of the site near the landfill toe-of-slope. The stream flows from north to south and passes under Crows Nest Road.
- Surface slopes on the landfill vary from less than 1 percent to 38 percent. The majority of surface water runoff from the site flows either to the south toward Crows Nest Road or to the west to the unnamed stream.





- There are no drainage structures or other manmade drainage courses on the landfill.
- Occasional, small depressions exist across the site where water can pond during heavy rain events.
- Protruding waste piles exist along the landfill toe-of-slope on the western side of the site within 15 feet of the stream bank.
- Adjacent properties to the east, north and west of the site are wooded, hilly, and undeveloped. A rolling hay field exists across Crows Nest Road to the south.

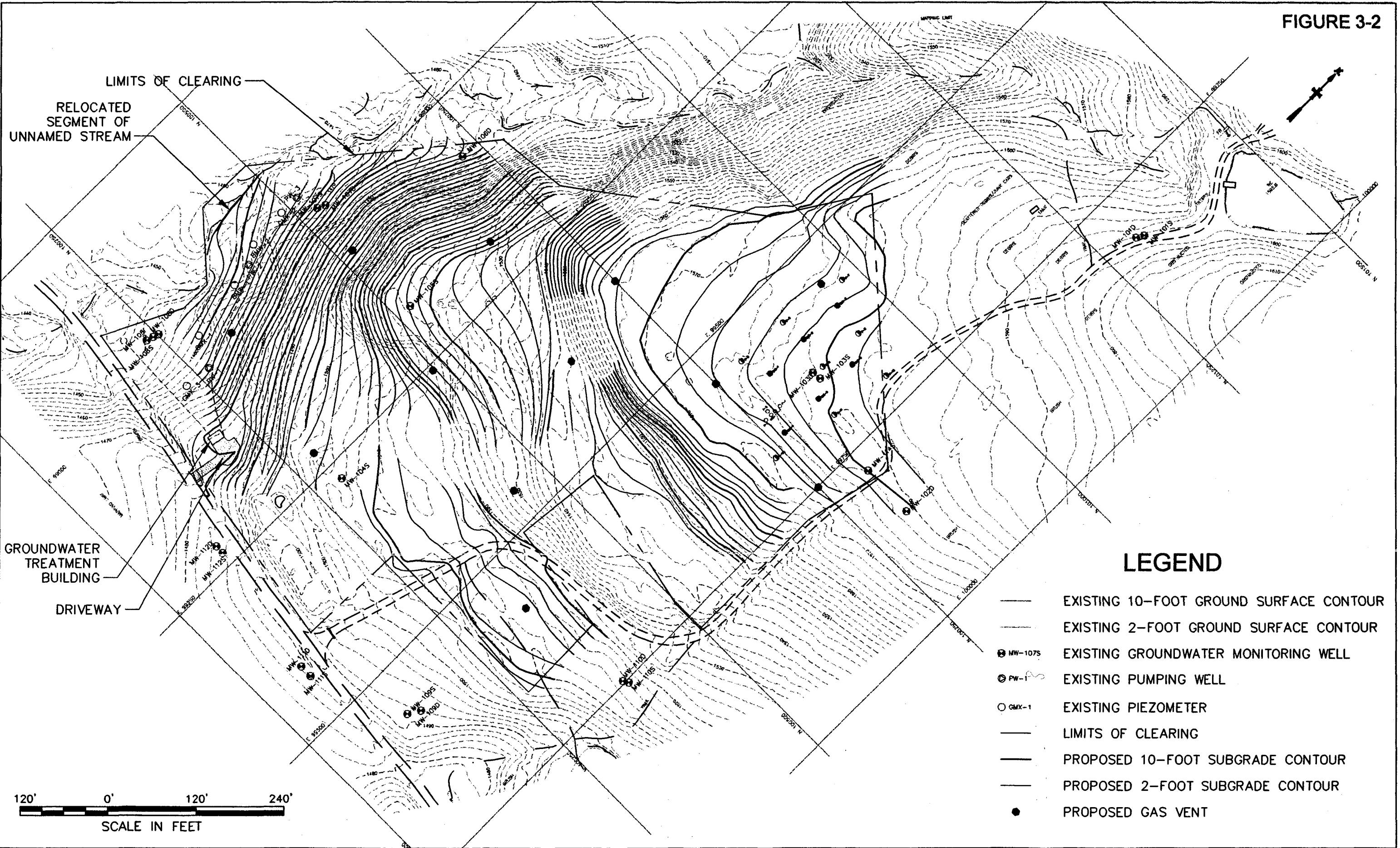
### 3.2 Proposed Future Site Conditions

Proposed future site conditions are depicted on Figure 3-2. Remedial activities at the landfill will generally consist of the following major components:

- An enhanced final cover system will be constructed through the placement of additional soil cover materials on an area-specific basis so that the total thickness is at least 24 inches.
- Low areas of the cover system will be filled in to promote positive surface water runoff and prevent ponding. Final surface slopes will be a minimum of 4 percent.
- A system of deep gas venting wells will be installed at a frequency of one well per acre.
- Contaminated groundwater will be recovered along the western perimeter of the site using a series of vertical recovery wells. The recovered groundwater will be pumped to an on-site groundwater treatment facility. The treatment process will incorporate advanced oxidation technology (AOT). Treated groundwater will be discharged to an infiltration gallery located downgradient of the recovery wells.
- In addition, poplar trees will be planted along the southwestern perimeter of the landfill to provide further treatment of the groundwater by phytoremediation.
- Hot Spot 5, located in the upper terrace of the landfill, will undergo soil vapor extraction (SVE) remediation.
- Two sections of the stream that flows along the western side of the site pass within 15 feet of the limits of the waste, one approximately 30 feet in length and



FIGURE 3-2



**LEGEND**

- EXISTING 10-FOOT GROUND SURFACE CONTOUR
- - - EXISTING 2-FOOT GROUND SURFACE CONTOUR
- ⊗ MW-1075 EXISTING GROUNDWATER MONITORING WELL
- ⊗ PW-1 EXISTING PUMPING WELL
- GMX-1 EXISTING PIEZOMETER
- LIMITS OF CLEARING
- PROPOSED 10-FOOT SUBGRADE CONTOUR
- - - PROPOSED 2-FOOT SUBGRADE CONTOUR
- PROPOSED GAS VENT

120' 0' 120' 240'  
SCALE IN FEET



REVISIONS			
NO.	BY	DATE	DESCRIPTION

URBANA, NEW YORK  
**STORM WATER MANAGEMENT AND  
EROSION CONTROL PLAN**

**PROPOSED FUTURE SITE  
CONDITIONS**

DATE FEBRUARY 2001  
SHEET \_\_\_ OF \_\_\_  
CAD REF. NO. SMM&ECP Fig 3-2.dwg

the other approximately 50 feet in length. Near the shorter section, a large mound of waste adjacent to the stream will be regraded to facilitate cover construction and blend with the remainder of the western landfill slope. In lieu of regrading or relocation of the adjacent waste on the other section of stream, an approximately 100-foot section of stream will be rerouted to straighten the stream channel. This remediation activity will then provide a 30-foot buffer between the stream bank and landfill toe-of-slope.

- All areas of the site disturbed by construction operations will be revegetated as soon as practical or as weather conditions permit.



## 4.0 STORM WATER MANAGEMENT

Storm water management for this project during site remediation activities is generally a function of implementing proper erosion and sediment control measures during construction, the details of which are described in Section 5.0. No new drainage channels or storm water facilities have been incorporated into the project design. The smoothing of contours and filling of low spots in the cover system will alter existing surface runoff drainage patterns slightly. The overall quantity and quality of surface water runoff from the site when comparing pre-remediation to post-remediation conditions will not change significantly.



## 5.0 EROSION AND SEDIMENT CONTROL MEASURES

### 5.1 Background

Standard soil conservation practices have been incorporated into the construction and remediation plans to mitigate soil erosion damage, off-site sediment migration, and water pollution from erosion. These practices combine vegetative and structural measures, many of which will be permanent in nature and become part of the completed project (i.e., placement of riprap and planting of new vegetation). Other measures will be temporary and serve only during the construction stage.

Potential erosion and sediment control items of concern during site remediation activities include the following:

- Brush, trees, and vegetation in the areas of the site that need additional cover soils and in the location of the treatment facility building will need to be stripped and cleared prior to construction. The clearing and grubbing activities associated with this work will require erosion and sediment control measures to prevent surface soils from being washed away.
- Crows Nest Road and the stream adjacent to the site need protection so they do not become impacted by site operations.
- Runoff from soil stockpiles will require erosion controls.
- Surface slopes need to be minimized as much as practical to control sediment transfer.
- Soil and waste excavated during remediation will require proper handling and disposal.
- Waste needs to be relocated from an approximate 30-foot area adjacent to the stream bank and the area regraded. The stream will require protection during this work.
- An approximate 100-foot section of the stream channel will be realigned. The stream bank will need to be stabilized and properly tied into the existing channel to prevent erosion.





Measures that will be implemented to mitigate the potential erosion and sediment control items of concern are described below.

## 5.2 Temporary Erosion Control Measures

Temporary erosion and sedimentation control measures and facilities will be utilized during construction. They will be installed by the subcontractors and will be maintained until they are either no longer needed or until such time as permanent measures are installed and become effective. At a minimum, the following temporary measures will be used as necessary:

- Silt fencing
- Straw/hay bales
- Temporary vegetation/mulching
- Cautious placement, compaction and grading of stockpiles
- Performing the stream realignment work when the potential for erosion is minimal

### 5.2.1 Silt Fencing

Construction and regrading activities may temporarily enhance surface water flow toward Crows Nest Road and the stream along the western side of the site. Silt fencing will be the primary sediment control measure used in these areas. Prior to extensive clearing and grubbing or regrading activities, silt fences will be installed along the perimeter of all construction areas. The orientation of the fencing will be adjusted as necessary as the work proceeds to accommodate changing site conditions.

Intermediate fencing will be utilized upgradient of the perimeter fencing to help lower surface water runoff velocities and reduce the volume of sediment to perimeter fencing. Stockpiles will also be surrounded with silt fencing.



As sediment collects, the silt fences will be cleaned as necessary to maintain their integrity. Removed sediment will be utilized elsewhere on-site as general fill. All perimeter silt fences will remain in place until construction activities in an area are completed and vegetative cover has been established. Silt fences will be installed in accordance with the typical details presented in Appendix A.

### **5.2.2 Straw and/or Hay Bales**

Straw and/or hay bales may be used to intercept sediment laden storm water runoff from small drainage areas and may be used as a check dam in drainage channels during construction. The use of either hay or straw will be based on the availability of materials at the time of construction.

If bales are used, they will be placed at the toe of a slope. Intermediate bales will be placed upgradient of the final barrier to reduce flow velocities and sediment loadings where higher velocities are anticipated.

As with silt fencing, sediment will be removed as necessary from behind the bales and disposed of on-site. Bales that have become laden with sediment or that have lost their structural integrity or effectiveness due to the weather will be replaced. Bales will be installed in accordance with the typical details presented in Appendix A.

### **5.2.3 Temporary Vegetation and Mulching**

Due to the nature of the construction activities and the anticipated project schedule, remediation of the site is expected to occur in phases. As a result, intermediate areas where remediation activities will not occur or resume for an extended period of time (greater than 90 days) will be seeded with a quick germinating variety of grass or covered with a layer of mulch to control fugitive dust and erosion. Soil/fill stockpiles that will not be utilized for an extended period of time will also be vegetated or covered.

Small trees and brush that are cleared from the site during the initial clearing and grubbing operations will be chipped. Mulch generated from this operation may be used for erosion and sediment control measures on the site.



#### **5.2.4 Cautious Placement of Stockpiles**

As remediation occurs, construction activities will produce stockpiles of soil materials. Careful placement and construction of stockpiles will be required to control erosion. Stockpiles will be placed no closer than thirty feet from the stream, roadside, steep slopes, and parcel boundaries. Additionally, stockpiles will be graded and compacted as necessary for positive surface water runoff and dust control.

#### **5.2.5 Limiting Periods of Work in the Stream**

The realignment work in the stream will be performed during the summer months when dry conditions can be expected and stream flows are minimal. The proposed streambed will be excavated and developed in a dry state with native soil barriers being maintained upstream and downstream of the proposed stream channel until work on the proposed channel is complete. Upon completion of work on the proposed stream channel, first the downstream soil barrier will be removed followed by the upstream barrier. Placement of fill in the original streambed will not be performed until all of the stream flow has been diverted to the new stream channel. No stream work will be performed during the period of March 1<sup>st</sup> to June 15<sup>th</sup> (spawning season for fish) unless otherwise approved by the NYSDEC.

### **5.3 Permanent Erosion Control Measures During Site Development**

Permanent erosion and sedimentation control measures will be utilized where practical during construction for long-term erosion protection. Examples of permanent erosion control measures include:

- Incorporating minimum slopes where practical and filling low areas where water could pond to promote positive runoff and limit erosion potential.
- Re-vegetating all areas of the site disturbed by construction activities.



- Limiting runoff flow velocities to the extent practical.
- Performing the stream work according to the following requirements:
  - Limiting the maximum bank slope in stabilized areas east and west of the rerouted stream section to 1V:2H.
  - Incorporating “transition zones” into the design on the upstream and downstream sides of the bank where riprap will be placed. The transition zones will involve excavating into the sides of the stabilization areas so as to blend the riprap into the unprotected bank, thereby preventing erosion due to turbulence where the stone and bank soils meet. Transition zones will be a minimum of six feet long.
  - Providing a visual demarcation barrier consisting of fluorescent polyethylene ribbon placed below any new soils or stabilized areas of the bank to provide for future identification of erosion problems. The barrier will be placed parallel to the stream at approximately five-foot intervals.



## 6.0 CONSTRUCTION MANAGEMENT PRACTICES

In addition to the positive erosion and sediment control measures described in Section 5.0, the following general construction practices will be followed to further mitigate erosion and sedimentation problems during site development activities:

- Clearing and grading only as much area as is necessary to accommodate the construction needs to minimize disturbance of areas subject to erosion (ie. phasing the work).
- Covering exposed or disturbed areas of the site as quickly as practical upon completion of construction activities.
- All erosion and sediment control measures should be installed prior to disturbing the site subgrade.
- Both on-site and off-site tracking of soil by vehicles should be minimized by utilizing routine entry/exit routes.

All erosion and sedimentation controls described in this Plan will be inspected by Benchmark within 24 hours of a heavy rainfall event (greater than 0.5 inches) and repaired or modified as necessary to effectively control erosion or turbidity problems. Inspections will include areas under construction, stockpile areas, erosion control devices (i.e., silt fences, hay bales, etc.) and locations where vehicles enter and leave the site. Routine inspections of the entire site will also be made on a monthly basis during remediation work.

If inspections indicate problems, corrective measures will be implemented within 48 hours of report. A report summarizing the scope of the inspection, name of the inspector, date, observations made, and a description of the corrective actions taken will be completed.

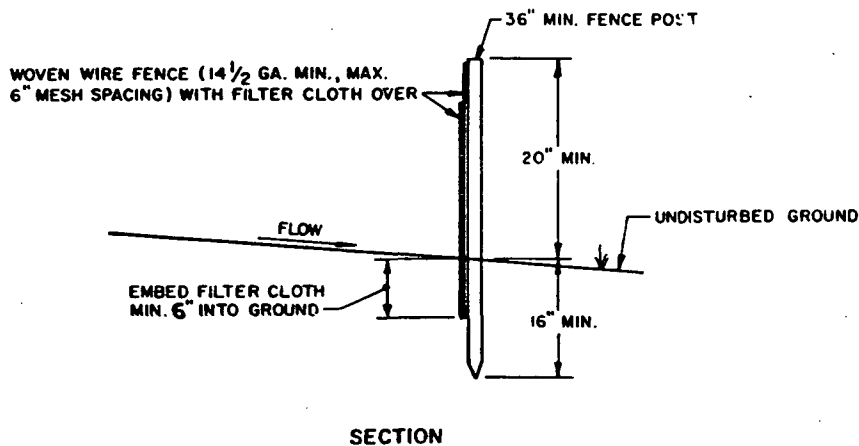
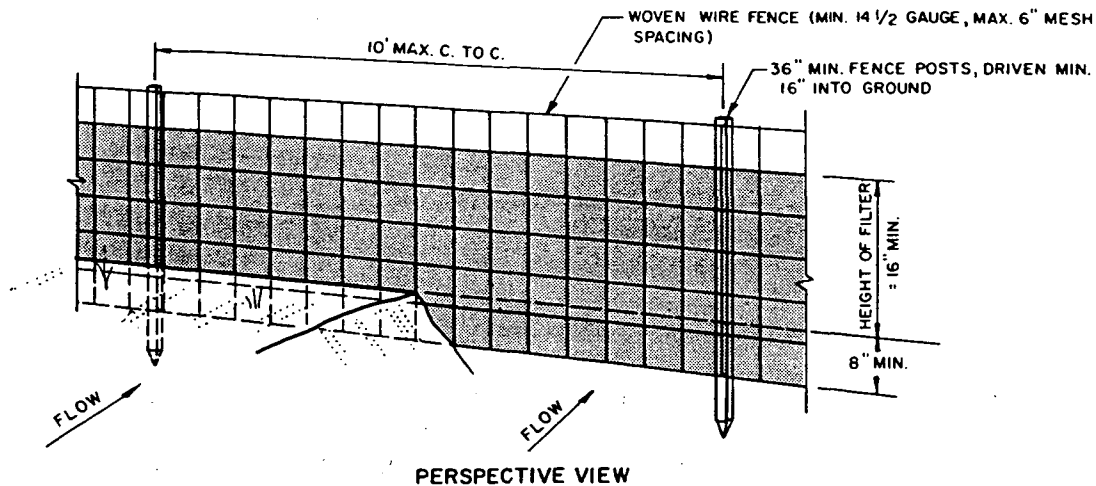


APPENDIX A

Typical Details  
Erosion Control Measures



**Figure 5A.9  
Silt Fence Details**



**CONSTRUCTION NOTES FOR FABRICATED SILT FENCE**

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED.
4. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE

POSTS: STEEL EITHER "T" OR "U" TYPE OR 2" HARDWOOD

FENCE: WOVEN WIRE, 14 1/2 GA. 6" MAX. MESH OPENING

FILTER CLOTH: FILTER X, MIRAFLI 100X, STABILINKA T140N OR APPROVED EQUAL.

PREFABRICATED UNIT: GEOFAB, ENVIROFENCE, OR APPROVED EQUAL.

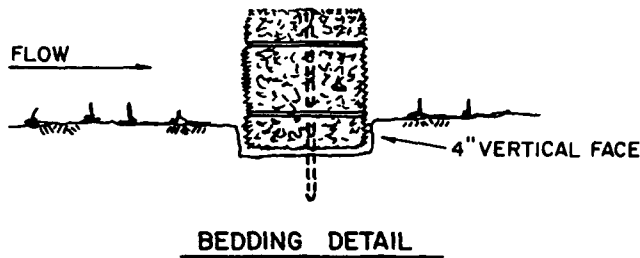
U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
SYRACUSE, NEW YORK

**SILT FENCE**

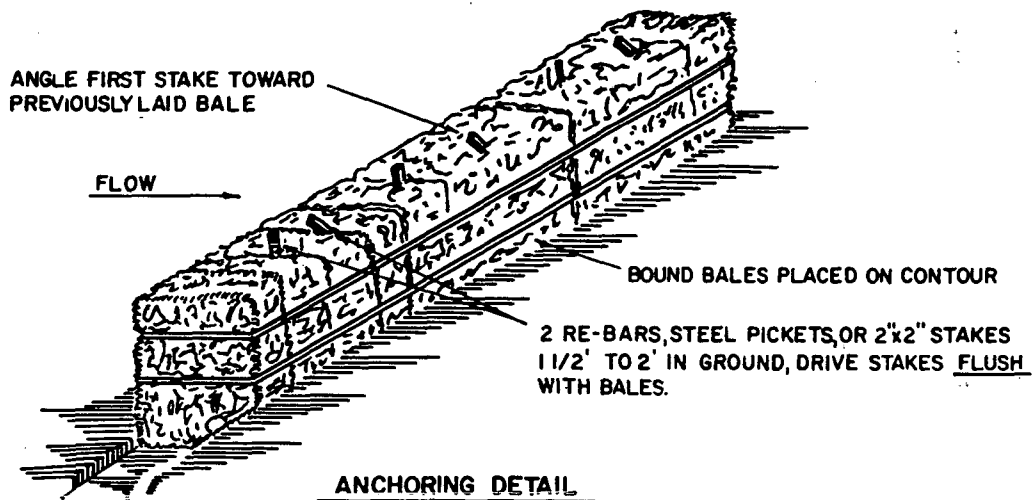
STANDARD SYMBOL



**Figure 5A.8  
Straw Bale Dike Details**



DRAINAGE AREA NO MORE THAN 1/4 ac. PER 100 FEET OF STRAW BALE DIKE  
FOR SLOPES LESS THAN 25%



**CONSTRUCTION SPECIFICATIONS**

1. BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF (4) INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
4. INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
5. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

U.S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
SYRACUSE, NEW YORK

STRAW BALE DIKE

STANDARD SYMBOL

SBD