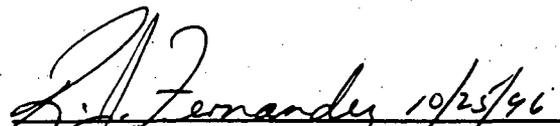

Attachment 54 to PLA-6219
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Control for Electrical Systems Projects, A-118231-5

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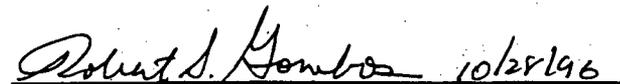
SPECIFICATION
FOR
SOIL EROSION AND SEDIMENTATION CONTROL
FOR
ELECTRICAL SYSTEMS
PROJECTS

PENNSYLVANIA POWER & LIGHT COMPANY
ALLENTOWN, PENNSYLVANIA
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APPROVED



Manager-Electrical Systems Engineering



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SECTION I

INTRODUCTION AND SCOPE

Pennsylvania Power & Light Company (PP&L) has developed the attached "Specification for Soil Erosion and Sedimentation Control for Electrical Systems Projects" to describe the general procedures followed by PP&L during the installation, maintenance, and restoration of PP&L construction activities that include transmission line rights-of-way, substation site clearing and grading and distribution facilities. It also describes the development of PP&L's Erosion Control Plan for these construction activities. When such plans are prepared, submitted to the local conservation district (or Pennsylvania Department of Environmental Protection regional Soils and Waterway Office), reviewed and approved, they comply with Pennsylvania's erosion and sedimentation control program.

The Specification also describes the procedures followed by PP&L for compliance with DEP Chapter 105, regulating stream crossings, and Chapter 106, regulating floodplain obstructions.

(Please note that you can obtain copies of Appendices II and III by requesting them from Electrical Systems Engineering-Transmission.)

SECTION II

SUMMARY OF STATE REGULATIONS

Chapter 102

National Pollutant Discharge Elimination System (NPDES) permits are required under Chapter 102 - Erosion Control as authorized by The Clean Streams Law of Pennsylvania. These permits are required when construction activities discharge storm water from a point source into surface waters of the Commonwealth (including intermittently flowing streams and drainage channels). Construction activities which disturb 5 acres of land or more will be addressed by filing an Individual NPDES Permit for Discharges of Stormwater from Construction Activities. Those construction activities include clearing, grading and excavation activities. For PP&L transmission line construction, the Project Construction Plan, along with this Specification, compose PP&L's Erosion Control Plan to be submitted for each project.

Chapter 105

Water obstruction and encroachment permits are required under Chapter 105 - Dam Safety and Waterway Management as authorized by The Dam Safety and Encroachments Act. These permits are required for the following PP&L construction activities:

1. Aerial line crossings of streams considered (a) "navigable" by DEP or the U. S. Army Corps of Engineers; and (b) designated as a wild or scenic river pursuant to the National Wild and Scenic Rivers Act of 1968 or the Pennsylvania Scenic Rivers Act. Permits are automatically waived for any other streams in which only an aerial crossing is involved.
2. Access roads involving the construction of fords, culverts and bridges across streams having drainage areas of over 320 acres. No DEP reviews or permits are required when utilizing existing stream crossings, except for culverts, fords, bridges, etc., to be rebuilt.
3. Wetland encroachments wherever structures fall within a wetland (as defined by Chapter 105). Additionally, wherever a line route crosses or falls within 300 feet of any wetland over 40 acres in size (or otherwise identified as an "important wetland"), PP&L's transmission line siting application is submitted to DEP for review and determination of permit requirements. Permits are not required for aerial crossings involving total spans of smaller wetlands (less than 40 acres) if no structures or roads fall within the wetland.

As with the earth disturbance permits required under Chapter 102, Chapter 105 permit applications are to be accompanied by PP&L's Project Construction Plan after adding pertinent environmental information.

Chapter 106

Permits are required under Chapter 106 - Floodplain Management as authorized by The Floodplain Management Act and The Clean Streams Law of Pennsylvania. These permits are required when occupying a floodplain (as defined by Chapter 106) with a transmission structure or access road. Permits for routine line maintenance activities which will not "impede, retard, or change flood flows" are not required under this chapter. Under the provisions of this

chapter, a single permit authorizing "in one or more floodplains multiple obstructions or recurrent activities" may be issued by DEP. In PP&L's case, this covers the placement of standard transmission structures and the installation of access roads in floodplains.

This portion of the Specification, containing the transmission structure construction details, has been submitted to DEP as PP&L's single permit application.

SECTION III

GENERAL

The environmental impact of Electrical Systems projects and the extent of soil erosion caused by construction activities, are closely related. As more earthmoving is performed, more soil erosion and general environmental disturbance results. Soil erosion and sedimentation are directly proportional to the amount of root system and vegetation destroyed by the grading operation, and the extent and steepness of the slopes of the disturbed surfaces. Therefore, the selection of access roads, substation and structure site locations that require minimum grading, removal of the least vegetation and ground cover, and minimization of exposed slopes is of utmost importance.

During construction, copies of the approved Erosion Control Plan shall be located in the field and available for use by Mobile Work Force personnel, contractors and for review by county, state and federal agencies.

SECTION IV

TRANSMISSION LINE RIGHTS-OF-WAY

A. PHASES OF INITIAL TRANSMISSION LINE CONSTRUCTION AND ASSOCIATED LINE MAINTENANCE PROCEDURES

The phases of initial construction and future line maintenance procedures during which field conditions may dictate the implementation of erosion control measures include:

1. Initial vegetation clearing of the transmission line right-of-way and off-line access roads.
2. Construction of access roads both on and off the line right-of-way.
3. Grading of structure site areas, marshaling yards/temporary storage areas.
4. Foundation excavation and installation.
5. Wire stringing and associated activities, such as temporary road crossing protection structures.
6. Future line maintenance, both vegetation and structure (i.e., line repair and structural replacement).

Final grading of the transmission right-of-way and structure sites shall be performed so that the original grades shall be simulated at all disturbed locations.

B. DEVELOPMENT OF AN EROSION CONTROL PLAN

1. Overview

The location of the access road and the type of access road construction are determined during the line route siting process. During the route selection process, priority shall be given to construction needs to provide adequate access to each work area. In general, access roads shall be located to preserve the natural terrain and resources and to minimize soil erosion and sedimentation. Where possible, road grades and alignments shall follow the contour of the land with smooth, gradual curves within the limits of the right-of-way. Unless there are overriding environmental constraints (wetlands, floodplains, streams, designated road screens) and/or road construction problems (gradient, rock outcrops, steep side slopes, etc.), the access road shall be constructed as close to the transmission centerline as practicable to facilitate construction site and wire-stringing and future maintenance activities.

2. Line Route Selection And Engineering Design Process

- A transmission line route and associated access roads are selected through the application of PP&L's Transmission Line Siting Procedures. The process starts with an environmental inventory of the project study area. Environmentally sensitive areas such as wetlands, floodplains, streams, and watersheds are identified within the study area. This information is utilized to generate and finally select a line route with minimal environmental impact.
- The final transmission line route and required access roads are then located on a 1"-200' map. All sensitive areas either crossed or paralleled by the final route are also identified on the map for final right-of-way acquisition.
- Upon completion of line right-of-way acquisition, the route is surveyed to develop the Project Construction Plan to perform the transmission line design.
- The transmission line is then engineered and final structure site locations are identified on the Project Construction Plan.
- The project's Electrical Systems Engineering's Siting Coordinator and Transmission Design Engineer then add the final access road locations and detailed soil erosion information onto the Project Construction Plan along with the line Clearing Plan information. The draftsman shall also include approximate percent and direction of slope of existing terrain on the profile portion of the design drawing.
- The final Project Construction Plan with this Specification then becomes the official PP&L Erosion Control Plan for the line to be constructed.

3. Locating Access Roads

The primary goal of locating access roads and mitigating construction disturbances is to provide environmentally acceptable access to each structure site along the transmission line route. The access road must be capable of supporting the various types of equipment required to construct and maintain the line.

The environmental and engineering design factors which dictate the selection of a preferred line route and eventually final location and type of access road are identified during the line route selection and engineering design process. The major categories and associated specific conditions are listed below. A description of how these conditions are considered and factored into the final selection of the access road follows.

CATEGORY	SPECIFIC CONDITIONS
Slopes and Soils	Rock outcrops/disturbed area/land subsidence/percent gradient/depth to bedrock/water table/sinkholes
Natural Features	Streams/wetlands/floodplains/watershed areas/springs/water bodies/unique natural areas
Existing Land Uses	Agricultural and pasture land/recreational areas
Visual and Scenic Features	Unique scenic areas/high points/prominent slopes/ridge lines/panoramic views/highway viewsheds/scenic highways/residential areas
Cultural Resources	Known archeologic or geologic sites/historic sites
Clearing Plan	Applied Vegetation Management Program
Construction Considerations	Structure type/equipment/design voltage/conductor size and number

The access road shall have a minimum fifteen (15) foot width to accommodate construction equipment. During clearing operations, soil disturbance shall be kept to a minimum with rock outcrops and tree stumps remaining in place.

SLOPES AND SOILS

Steep slopes (15% or greater) are avoided where possible to minimize the potential for soil erosion and slower revegetation.

Ideally, given the alternative of routing the access road on flat terrain (0-5% slopes) or a sidehill slope, the access road shall be routed on the flatter terrain to minimize environmental impacts and road construction costs.

In both flat and gentle terrain (5-10% slopes), the access road shall be constructed as close to centerline as practical.

Under moderate terrain conditions (10-15% slopes), it may be necessary to sweep the access road gradually from one edge of the right-of-way to another, minimizing the road grade by crossing the contours diagonally.

Access through large rock outcrop areas should be avoided by routing the road around or by terminating access on one side of the rock outcrop area. The access road then resumes on the other side of the rock outcrop area.

In small areas of rock outcrop, it may be possible to construct the road by routing it immediately around the rock outcrops, thereby eliminating the high removal cost and major disruption of terrain.

NATURAL FEATURES

Stream Crossings

When it is reasonably practical and cost effective to avoid crossing a perennial stream, alternate access shall be selected. A stream crossing as defined in Chapter 105 - Dam Safety and Waterway Management, Section 105.1, is a pipeline, aerial cable or similar structure which is placed in, along, under, across or over the regulated waters of this Commonwealth. The alternate access can either utilize access back along the right-of-way or utilize off right-of-way access. A perennial stream is defined as one which carries a year-round flow and/or supports aquatic life and will be identified on the final Project Construction Plan.

When crossing an intermittent stream or a perennial stream where alternate access is not available, the road crossing shall be made perpendicular to the stream channel at a point which will cause minimum disturbance to the stream bottom, banks, and stream bank vegetation. The appropriate crossing device, as specified on the final Project Construction Plan (i.e., culverts), shall be installed prior to moving equipment across the stream.

All access through the stream and its buffer zone shall be restricted to the designated roadway. Where streams are not crossed by access roads, vehicular traffic shall be restricted a minimum of fifty (50) feet from the stream bank to avoid disturbing these sensitive environmental areas. (Refer to Photo Exhibit 1.)

Wetlands

Access through a wetland shall be avoided by routing the road to higher ground around the wetland or by terminating the access road on either side of the wetland (refer to Photo Exhibit 1). Access through a wetland generally requires more sophisticated road construction techniques than those required in drier areas, such as the use of wooden mats or a flotation fiber and gravel.

When access to a structure within a wetland is required, the road shall enter from the edge of the wetland closest to the structure.

Floodplains

Access through floodplains shall be avoided by routing the road to higher elevations around the floodplain or by terminating the access road on either side of the floodplain.

When access to a structure within a floodplain is required, the road shall enter from the edge of the floodplain closest to the structure. In most cases, access roads in floodplains require no special development or improvements, but there may be cases where road construction techniques, such as flotation fiber and gravel are required. In any case, it is important that no original grade changes be made to avoid new obstructions in the floodplain.

Watershed Areas

Access through watershed areas shall be avoided by routing the road around or by terminating access on either side of the watershed area.

When access to a structure within a watershed area is required, minimal soil disturbance shall be made and special erosion control techniques shall be employed to prevent soil erosion and sedimentation.

EXISTING LAND USES

Agricultural and Pasture Areas

In these areas, the access road shall be routed to minimize the impact on cultivated fields and pasture areas. This shall be accomplished by routing the access along existing field roads or the edges of fields. Generally, no special road construction is required over flat cultivated or pasture areas. In cultivated areas, the property owner shall be consulted on road location to minimize crop damage and soil disturbance. Existing open field drainage ditches and diversion terraces shall be maintained.

Tire ruts and depressions created by construction vehicles shall be corrected and the area maintained to prevent erosion acceleration.

Restorative measures shall be taken within one week after the construction of a transmission line. The disturbed area first shall be disked to loosen the soil, then seeded and mulched to establish a vegetation cover. Seeding shall be done only after consultation with the property owner.

Recreational Areas

The routing of transmission lines through parks, golf courses, ski areas, wildlife preserves and game lands should be avoided where possible. If the route selection process justifies crossing a recreational area, the final route alignment and access road locations will be selected cooperatively with the property owner.

VISUAL AND SCENIC FEATURES

Transmission line routes and associated access roads are located to avoid, wherever possible, unique scenic areas, high points, prominent slopes, ridge lines, panoramic views, highway viewsheds, scenic highways and residential areas. These features are avoided where practical to eliminate or minimize visual intrusion in areas of potentially high visual exposure, especially areas of high scenic quality.

- **CULTURAL RESOURCES**

Access roads shall not be located on historic sites or through areas of archeological or geological significance. These resources are avoided to eliminate visual intrusions on historic settings and to prevent damage to archeological and/or geologic areas.

- **CLEARING PLAN**

PP&L's Vegetation Management Program promotes a stable low-growing plant community on the right-of-way. Such a community is compatible with the overhead conductors, serves as an environmentally acceptable and useful ground cover, and naturally retards the regrowth of tall-growing vegetation which minimizes the frequency of future right-of-way maintenance operations.

The various types of clearing (described in Section C) are used in combinations to prescribe a Vegetation Management Program for each transmission line and are specified on the line Clearing Plan.

As previously discussed, the locations and means of access are determined during the line route selection process. All access roads are shown on the "plan" portion of the line Project Construction Plan, which also serves as the line Clearing Plan and Erosion Control Plan. Areas identified on the Project Construction Plan as environmentally or visually sensitive generally mean that access road construction should be limited within those areas. If the Erosion Control Plan does not designate an access road through a certain area, no equipment should enter that area.

Access roads should be located to avoid existing compatible tree species remaining on the right-of-way. (Refer to Photo Exhibit 2.) When it is necessary to locate an access road through a cluster of trees, the route shall be selected which minimizes tree removal and damage.

If restricted clearing is specified at a major road crossing, the natural growth of the road screen shall be preserved as much as possible when selecting an access entrance. The entrance should also angle through the screen to avoid a long view of the transmission line. All construction vehicles shall utilize the access road entrance to avoid additional disturbance to the road screen.

A tire cleaning area shall be constructed at the access road entrance with a tailored road screen. It shall be constructed of an eight-inch layer of AASHTO No. 1 rock over the width of the road and extend at least 50 feet into the right-of-way from the edge of the road screen (see Figure 1).

Tree root damage caused either by (1) excessive cuts into roots; (2) disposal of fill on top of root zones (which can suffocate the tree); or (3) bark damage caused by scraping the tree trunk, shall be avoided wherever possible. Soil compaction by construction equipment in tree root zones, which can have the same effect as raising the grade, shall be avoided.

• CONSTRUCTION CONSIDERATIONS

Access roads shall be located on grades that can accommodate the equipment required to construct the line. The normal 15-foot width may be exceeded at curves or turnouts (i.e., when tubular steel poles are used for line construction).

The maximum percent of grade of the access road may vary greatly from project to project, depending upon terrain and soil conditions and the type of equipment necessary to construct the line. Generally, the road shall be kept to a grade of 15 percent or less wherever practicable. However, when off-line access is unavailable, it may be necessary to exceed the 15 percent guideline. Those grades in excess of 15 percent shall be kept as short as practicable to minimize the additional stabilization and erosion control costs.

C. RIGHT-OF-WAY CLEARING

The first major activity in the construction of a transmission line is the clearing of vegetated areas within the line right-of-way as specified on the line Clearing Plan. Prior to the initial vegetation clearing, filter fabric fences shall be installed below all areas to be disturbed. Since soil erosion may result during the clearing process, portions of PP&L's Transmission Line Right-of-Way Program for Vegetation Management are included within these Specifications. If the clearing contractor requires an access road, it should be located and constructed as shown on the final Project Construction Plan which also serves as the line Clearing Plan and Erosion Control Plan.

1. Types of Clearing

Two major types of vegetation clearing are used on PP&L transmission line rights-of-way: Selective and Restricted.

In **Selective Clearing**, low-growing trees and shrubs that are compatible with the operation of the line are preserved wherever possible. In most cases, these species do not grow to heights that present a hazard to the line. The preservation of compatible species inhibits the growth of tall-growing (noncompatible) species, helps to prevent erosion, minimizes visual impact of the cleared right-of-way, and provides a useful wildlife habitat.

Selective Clearing is the standard method of clearing used on PP&L transmission line rights-of-way. It is prescribed for all wooded areas, except those more sensitive areas that are designated for Restricted Clearing.

In **Restricted Clearing**, an attempt is made to preserve additional vegetation of even noncompatible species in areas of high environmental sensitivity (i.e., steep slopes, stream banks). The preserved vegetation helps to minimize habitat disruption and short-term environmental impacts of line construction, such as erosion, siltation, and loss of shading, which might result from Selective Clearing practices.

Typically, Restricted Clearing is used:

- a. At designated stream crossings, where the creation of a "buffer" is advisable to preserve existing water quality.
- b. On designated steep slope areas, where erosion may be lessened by limiting cutting on the downhill side of the line.
- c. In designated natural or unique areas not subject to high public visibility.
- d. In ravines, where limited clearing may be done on upper slopes and little or no clearing is required at the bottom.
- e. At selected road crossings or along scenic highways/roads and city streets. The size, use, and the scenic or visual characteristics of the road are considered in designating road screens.
- f. In areas containing cultivated trees or shrubs which have been designated for trimming or topping only.
- g. In protected watersheds and high quality (HQ) or exceptional value (EV) watersheds.

2. **Herbicide Applications to Control Vegetation**

Herbicides are used to eliminate the recurring growth of noncompatible vegetation in transmission line rights-of-way, thereby helping to establish a stable, low-growing vegetation cover. The initial cutting of noncompatible trees alone eliminates vegetation near the line's conductors, but does not prevent the resprouting of such trees. In fact, many hardwood species resprout at a rate much faster than their normal growing rate. In addition, sprouting and/or suckering generally cause the regeneration of a greater number of stems per acre, thus compounding control problems. Herbicides help to eliminate such resprouting.

Although many herbicide applications are currently available for use on rights-of-way, only those that can be applied selectively are used by PP&L to manage vegetation. Because of its non-selectivity, helicopter (broadcast) spraying is not practiced by PP&L.

Four selective methods are currently applied at PP&L: stump treatment, basal spray, foliage spray, and frill and spray. In all of these methods, herbicides are applied using hand-held applicators, spraying only those species which require control, and only in areas originally designated for Selective Clearing.

Stump treatment involves spraying cut stumps with either an oil-based mixture or a ready-mixed non-oil solution. This type of treatment is prescribed when vegetation is cut to the ground line.

The foliage method uses a water-based formulation applied to the entire plant's foliage and stems. Because of its cost-effectiveness (no oil is required), this method is used wherever possible on PP&L rights-of-ways. Generally, lines will be scheduled for foliage spraying so that brush does not exceed 10 feet to 12 feet in height.

The basal treatment method involves spraying the lower part of the stem and the exposed roots of noncompatible vegetation with an oil-based formula.

In the frill and spray method, the bark of noncompatible species is cut with a sharp instrument and herbicide is sprayed into the incision.

D. ACCESS ROAD CONSTRUCTION

1. Types of Access Roads

PP&L transmission line projects normally dictate five types of access road construction: undeveloped roadways, earthen roads, gravel roads, corduroy roads, wooden mat and flotation fiber and gravel roads. These are described below. Also, erosion control measures as described below in **Erosion Control Techniques** shall be followed as appropriate.

- **Undeveloped Roadways**

Terrain Conditions: Flat to gently sloping

Soil Conditions: Shallow to moderate topsoil with stable subsoil

Primarily utilized in cultivated fields and pastures. No road improvement is normally required during winter or summer construction periods. Under wetter soil conditions, as may be experienced during spring or fall construction periods, it may be necessary to excavate the softer topsoil, enabling construction equipment to travel on the more stable subsoil. Excavation shall be made by carefully placing the topsoil along the sides of the roadway and replacing at the time of final restoration to return the roadway to active agriculture (see Figure 2, Detail "A"). If adequate drainage to the ditches cannot be provided, this method should not be used. Such excavation without adequate drainage results in water impounding in the roadway.

In areas of flat terrain and dry soils where adequate drainage to ditches is often difficult, the minimal road construction effort of simply smoothing out high and rough spots shall be made.

- **Earthen Roads**

Terrain Conditions: Gently sloping to steep sidehill

Soil Conditions: Shallow to moderate topsoil with stable subsoil

In gently sloping terrain, the access road frequently may be oriented perpendicular to the contours to facilitate construction. In wooded areas, stumps shall be grubbed and all topsoil excavated and deposited along the sides of the road. Topsoil placed at the sides of roads shall be

graded and seeded to reduce the possibility of erosion. The more stable subsoil shall then be crowned to provide a firm base for construction equipment (see Figure 2, Detail "A"). Drainage ditches and water bars (see Figure 3) shall be installed as required at the time of initial road construction. If, due to seasonal conditions, ditching and water bar installation are impractical, temporary stabilization measures as discussed below under Erosion Control Techniques shall be initiated.

In moderate to steep terrain, the contours shall be crossed diagonally, thereby reducing the grade and creating a sidehill cut. Sidehill cuts may also be necessary over gently sloping terrain where the road must cross the slope parallel to the contours.

All stumps shall be grubbed from sidehill cuts and the topsoil excavated to the subsoil. The subsoil shall be placed on the embankment at the low side of the road. The cut embankment shall be graded to a maximum 1-1/2:1 slope and 1:1 in rock (see Figure 4, Detail "B").

In rock, the cut embankment may be left vertical, provided the rock is not easily erodible. A toe ditch should be installed on the cut embankment side of the road, with water bars installed at the proper spacing (see Figure 3). The fill embankment shall be graded to a maximum 2:1 slope. A toe ditch also shall be created below the fill embankment when the slope is excessive or unstable to trap silt until vegetation can become established.

- **Gravel Roads, Wooden Mat, Flotation Fiber and Gravel Roads**

Terrain Conditions: Flat to gently sloping.

Soil Conditions: Poorly drained and/or unstable soils; wetter (seasonal) soil conditions.

Gravel roads shall be used in slight to moderately wet conditions where gravel alone can provide stability. If soil conditions permit, the softer topsoil shall be excavated and replaced with gravel. Geotextile filter fabric, Class IV, shall be placed on the subsoil. Depending on the subsoil conditions and the type of construction equipment to be used, 12 to 18 inches of gravel shall be placed over the geotextile to form the road. Under wetter, unstable soil conditions where clearing is necessary, a wooden mat may be sufficient for access. The corduroy material shall include material from the clearing operation. Random length logs a minimum of 4 inches in diameter shall be used and oriented parallel to each other and across the access road.

The purpose of the wooden mat is to provide temporary access roads across shallow streams, wetlands and areas of slight to moderate soil moisture conditions. Normally, filter fabric is placed under the mat to prevent mud from pumping up through the openings in the mat (see Figures 6-9).

Obstacles can be worked around by using cribbing. A quantity of cribbing must be used that is sufficient to build a gradual transition over the obstacle.

The purpose of the fiber is to provide gravel road flotation under slight to moderate soil moisture conditions, and to prevent the mixing of fine soil particles of the native soil with the gravel. A minimum of 12 to 18 inches of gravel shall be spread over the fiber to provide a stable access road.

The fiber shall not be used under conditions of high soil moisture and/or highly unstable soil since this material tends to "sink" under these conditions. Furthermore, the flotation fiber sheet shall not be used where clearing has resulted in numerous small stubs, since these tend to puncture the fiber.

2. Erosion Control Techniques

Soil disturbance shall be kept to a minimum and permanent restoration shall be made immediately following grading. All seeded areas will be mulched. Slopes in all cuts and fills and scarred areas shall be hydroseeded as soon as practical with mix B (coarse lawn mix) for slopes less than 3 to 1 or crown vetch for slopes exceeding 3 to 1, to reduce erosion and restore vegetational cover (refer to Photo Exhibit 3). The installation of an erosion control blanket may be required at critical locations where high erosion potential exists and when time of year is not suitable for seeding.

Gravel filters properly placed can be utilized on a temporary basis to:

- (1) decrease water velocity in drainage ditches between water bars;
- (2) establish sediment traps at structure sites and on the high side of access roads and
- (3) establish sedimentation basins where minimal control is required (see Figure 10).

Potential erosion areas will be inspected weekly and immediately after storm events. Ruts shall be smoothed out and gravel spread to stabilize the roadway and prevent erosion.

Water Bars

Water bars (see Figures 3 and 4) shall be a method of controlling water runoff on the access road by collecting and discharging the runoff at a non-erosive velocity to undisturbed, well vegetated areas. When this is not practical, one of the following techniques shall be employed:

1. The water bar can be directed so that it empties into a compacted brush pile or rocky area.
2. When the soil or road embankment is erodible, the end of the water bar may be rip-rapped with logs or stone.

Proper spacing and installation of water bars on sloping terrain will help prevent erosive runoff velocities from developing (see Figure 3).

Water bars shall be placed diagonally across the road at a 2 percent-3 percent bed slope to gradually divert the water from the ditch and across the road. However, this may vary due to terrain conditions and drainage requirements.

Generally, the water bar shall be excavated deep enough to provide drainage, and yet to permit access, generally a total height of 18 inches after compaction (see Figure 4 - Detail "A"). It shall have a minimum width of 36 inches and have an outslope of 2 percent. If the water bar is excavated deeper than 12 inches or break-up of the water bar occurs, a few 3 to 6 inch long logs may be placed in the water bar to reinforce it and to permit smoother access (see Figure 4 - Detail "B").

On steep slopes in excess of 15 percent, the water bar can be further excavated creating a broad base dip effect (see Figure 4 - Detail "C").

When the access road grade slopes toward a public road crossing, drainage ditches and water bars shall be constructed at appropriate intervals to divert runoff across and off the access road before reaching the public road. Whenever possible, the runoff should be directed to the side of the access road that will be downhill of the intersection with the public road.

Settling Basins

A settling basin may be excavated at the end of the water bar to trap sediment carried by runoff before it can enter sensitive stream areas. These may be particularly effective prior to the revegetation of the embankments, ditches, water bars, etc.

The low side of these settling basins may be lined with straw bales, filter fabric fence, and/or clean rock to further trap and filter sediments.

Whenever a particular soil type is conducive to producing excessive siltation or where silt penetration is evident, particularly after the initial installation of straw bales, two single rows of bales placed in a staggered joint arrangement or filter fabric fence should be installed as temporary sediment basins (see Figures 11 and 12).

For effective utilization of straw bales, they must be placed together without voids between or underneath where silt could escape. The rows must also be of sufficient length to contain the anticipated runoff.

Bale anchoring is of the utmost importance. The anchoring trench will be constructed to the required grade and depth shown in Figure 12. Support stakes will be driven to the required depth as shown in Figure 12. The anchoring trench will be backfilled and compacted to a density equal to the undisturbed site soils (greater if fence is being installed on uncompacted fill materials).

All barriers shall be inspected weekly and after each runoff event. Broken earth barriers and deteriorated straw bales or filter fabric fence shall be repaired or replaced within 24 hours.

3. Stream Crossings

Access road construction in the vicinity of streams shall be avoided where possible. Where streams are specified not to be crossed by access roads, vehicular traffic shall be restricted a minimum of fifty (50) feet from the stream banks to avoid disturbance of these sensitive areas.

Where a stream crossing is required, the activity shall be performed in a manner to minimize damage to the natural condition of the area. A temporary road stream crossing should be installed before any equipment or vehicle crosses a flowing stream. All low growing tree varieties and ground cover shall not be disturbed, and grading shall be kept to a minimum.

When it is not possible to prevent sediment from runoff from entering a stream by use of diversions, culverts, or filtration strips, it may be necessary to construct a holding basin to filter out the sediment before the water reaches the stream. Referred to as a debris basin, it may vary from a simple temporary dam impoundment constructed of straw bales to a more permanent earth dam impoundment.

Stream Fords

Stream fords shall be used where infrequent vehicle crossings are required. Generally, the use of fords is not acceptable because oil/mud may be carried by the tires and/or tracks of vehicles/equipment. The stream bottom and approaches shall be rock or be made firm by depositing durable-sized stone (usually R-3 or larger rock) in the crossing area. The roadway surface may be choked with AASHTO No. 1 rock. Rock smaller than AASHTO No. 1 is not recommended. Rock should be provided for the access road surface for a minimum distance of 10 feet back from the top of the stream bank on both sides of the stream. In areas where construction equipment must repeatedly cross streams or where the depth of the stream does not permit fording, culverts of sufficient size and number to adequately carry the stream flow shall be constructed.

Soil-disturbed areas shall be seeded as soon as possible. Where steep slopes make it difficult to establish a vegetational cover, other restorative procedures such as the use of gravel or rock shall be utilized.

Corrugated Steel Pipe Culverts

Corrugated steel pipe culverts shall be used to cross streams where through access is required (see Figure 13). An Electrical Systems civil/structural engineer shall be requested to determine the size of the culvert.

The crossing shall be made at a point where approaches to the stream can be constructed to minimize stream and stream bank disturbance. The road shall cross the stream at a right angle to the direction of stream flow and the pipe shall be aligned so that water enters and exits through the existing stream channel.

In hard bottom streams, the bottom of the culvert shall be set flush with the bottom of the stream with a minimum of excavation, so as to have no water impoundment above the culvert and no "waterfall" effect as the water exits the culvert. In soft bottom streams, the soft material shall be excavated and replaced with clean durable-sized stone fill (usually R-3). The bottom of the culvert shall be set to maintain the natural stream elevation at the inlet and outlet of the culvert. The bedding shall extend 5 feet upstream and downstream from the culvert.

The culvert shall be backfilled with clean stone fill (usually R-3). Culverts 15 inches or less in diameter shall be covered to a depth of 18 inches, 18 inch to 24 inch culverts to a depth of 24 inches, and culverts 27 inches and greater to a depth of 30 inches over the pipe.

E. STRUCTURE SITE PREPARATION

Grading at the structure site for the construction of circular or rectangular work pads shall be kept to the minimum sufficient for equipment turnaround, foundation excavation, and the assembling and erecting of structures (see Figures 14 and 15). Topsoil removed during excavation shall be stockpiled with precautions taken to prevent erosion. After structure erection, the area shall be returned to the original grade, the topsoil redistributed, and the area hydroseeded.

On sidehill and downhill terrain, construction diversion terraces or sediment traps shall be constructed on the high side of the structure site to direct runoff water onto undisturbed terrain. The outlets shall be protected with stone (see Figures 16-19).

Slope - Percent	Maximum Slope Length (ft.) Above Barrier
2 (or less)	250
5	100
10	50
15	35
20	25
25	20
30	15
35	15
40	15
45	10
50	10

Where runoff from structure sites is anticipated to carry excessive sediment, an earthen sediment basin shall be constructed on the low side of the site (see Figures 17 and 18).

Ground water pumped from structural excavations can be spread over well vegetated areas with slopes less than 5 percent and a distance of 50 feet from a stream. In other areas, the water can be pumped into and filtered through a filter pond (see Figure 20) or a filter bag (Figure 21).

Foundation excavation material first shall be utilized to fill any on-site depressions and second to be uniformly spread over the entire excavated site area.

F. CLEANUP

Although maintaining a neat and orderly appearance is encouraged during all phases of construction activities, a general cleanup and restoration program shall be followed after construction.

Cleanup shall include, but is not limited to, the dismantling of buildings, out-buildings and their foundations as required, removal of temporary construction or stringing facilities, litter removal, cleaning out and/or redressing permanent erosion control facilities, removal, regrading and seeding sediment traps, diversion terraces and sedimentation basins. Cleanup shall also include dressing up timber or compacted slash piles, additional required tree trimming or pruning and any regrading required prior to the final seeding operation.

The site(s) shall be left in a safe, clean, acceptable condition to the satisfaction of the responsible authority.

G. SOIL STABILIZATION

The applicable portions of *Pennsylvania Power & Light Company's Vegetation Management Specification, LA-79828* - "Specification for Installing Vegetation on or Adjacent to Electric Line Right-of-Way and for General Landscaping" are as follow:

1. Temporary Soil Stabilization

- If soil will be left for an extended period of time (overnight or longer), straw mulch or a blanket shall be laid over the soil for stabilizing purposes.
- Where permanent soil stabilization measures cannot be installed within 20 days due to inclement weather, drought, or the nongrowing season, a temporary mulch cover shall be employed until such time permanent seeding can take place.

2. Permanent Seeding and Mulching

Soil stabilization shall be effected as soon as possible following the completion of grading. Hydroseeding of vegetative cover shall be the standard method. Stabilization with gravel, native rock, or crushed stone shall be alternate measures where seeding is impractical.

Hydroseeding is the method of installing soil stabilizing vegetative seeds in which the correct proportions of lime, fertilizer, inoculant, and grass or crown vetch seed are blown onto the newly graded erodible slopes of disturbed soil. The machine is self-propelled and utilizes water as the mixing and carrying agent.

Hydroseeding shall progress only under favorable weather conditions, during the proper seasons for such work, and in accordance with locally accepted practices.

a. Soil Supplements

- (1) **Lime** - Lime shall be an approved dolomitic agricultural ground limestone (calcium carbonate) and shall contain not less than 85 percent of total carbonates (total carbonates shall be considered as calcium carbonate). Limestone shall meet the following gradation requirements: at least 50 percent will pass through a 200 mesh sieve, 90 percent will pass through a 100 mesh sieve, 100 percent will pass through a 10 mesh sieve. It shall be stored in a weatherproof place, in such a manner that its effectiveness is not impaired. If requested, ground limestone shall be delivered to the site in original, unopened containers bearing the manufacturer's guaranteed statement of analysis.
- (2) **Fertilizer** - Commercial fertilizer shall be a complete fertilizer and a standard product complying with federal and state fertilizer laws. It shall be uniform in composition, dry, free flowing, and shall have been stored in a weatherproof place in such a manner that its effectiveness is not impaired. Fertilizer which becomes caked or otherwise damaged is unsuitable for use. Commercial fertilizer shall be delivered in original, unopened containers showing weight, analysis and name of manufacturer.

b. Crown Vetch Seed

Seed mixture shall be standard late-crop seed, premixed, and delivered in sealed 50 lb. bags showing weight, analysis, name, vendor and germination tests. Seed which has become wet, moldy, or otherwise damaged shall not be used. Formulation of crown vetch seed mix shall be as follows:

	Lbs./Acre	% Purity	Ready Germ	Hard Seed	Total % Germination
Crown vetch, Scarified, Certified, PA.D of HG. (Coronilla varia, var. Penngift)	10	98	35	35	70
Rye grass (perennial) or	20	95			90
Kentucky 31 Tall Fescue	20	98			85

All seed shall conform to the Pennsylvania Seed Act of 1947, latest revision and shall be tagged or marked in accordance with that Act.

Seed mix may be altered to provide for better turf coverage to suit field conditions.

(1) **Sowing of Crown Vetch Seed** - Crown vetch seeding and mulching shall not be initiated until slope grades have been established and major construction has been completed. The areas designated for seeding shall first be cleared of all debris and foreign material.

(2) **Inoculant** - The inoculant for treating crown vetch seeds shall be a pure culture of nitrogen-fixing bacteria selected for maximum vitality and ability to transform nitrogen from the air to soluble nitrates and deposit them in the soil. Inoculant shall consist of purebred cultures specially selected for crown vetch and shall not be used later than the date on the container. Apply to seed at double rate. Use 4 X 1F hydroseeding.

(3) **Application Method**

- Agricultural pulverized limestone shall be spread uniformly on the ground surface where tests by an approved laboratory indicate the soil to have a pH content less than 6.5. Rate of utilization shall be as indicated by soil tests to develop a minimum pH content of 6.5 to 7.0 in the soil.
- Fertilizer (10-20-20 analysis) shall be distributed uniformly at the rate of 400 pounds per acre.
- The crown vetch seed shall be applied, after inoculation, according to the Specification at the rate of 10 pounds per acre.
- The perennial rye grass seed or tall fescue shall be applied at the rate of 200 pounds per acre.
- The crown vetch and rye grass or fescue seed and soil supplements shall be applied by hydroseeding, or by another approved method.

c. **Grass Seed**

Seed mixture shall be standard late-crop seed, premixed, and delivered in sealed 50 lb. bags showing weight, analysis, name, vendor and germination tests. Seed which has become wet, moldy, or otherwise damaged shall not be used. Formulation of grass seed mix shall be as follows:

Species or Strain	Lbs./Acre	Min. Purity	Min. Germ.	Max. Weed Content
Kentucky 31 Tall Fescue	150	95%	80%	0.2%
Creeping Red Fescue	50	95%	80%	0.2%
Perennial Rye Grass	50	95%	85%	0.2%

d. Mulches

Mulches shall be suitable for horticultural uses and shall be free from insects, scale, diseases, fungi, seeds, soils, admixtures, refuse, sticks and other deleterious materials, and shall be of such character as not to be displaced by wind. They shall be clean, have uniform quality and texture, and shall not contain any toxic substances harmful to soils and plant materials. Mulches shall have been stored in such a manner that their effectiveness is not impaired. Those which become caked or otherwise damaged, making them unsuitable for use, will not be accepted.

- (1) **Straw or Hay Mulch** - This type mulch shall be free from mature seed-bearing stalks or roots of prohibited or noxious weeds, as defined in the Pennsylvania Seed Act of 1947, latest revision. Mulch shall be applied uniformly in a continuous blanket by power equipment at a minimum rate of three (3) tons per acre, or as otherwise specified. Mulch shall be anchored with terre tack applied concurrently by mechanical means.

Jute erosion netting, or other approved anchoring methods, may be substituted.

- (2) **Wood Cellulose Fibre Mulch** - This type mulch should only be used in mowed lawn areas. It shall be applied at the rate of 1,500 pounds per acre, dry weight. Application shall be by mechanical means, utilizing an approved hydroseeder.

H. INSPECTION AND ACCEPTANCE

From the beginning through the completion of all construction activities including cleanup and soil stabilization, the facility shall be inspected by the Company's representative.

Should omissions or discrepancies in complying with this Specification be noted during final inspection, or if any corrections are required by county, state, or federal final audits, the Company's representative shall have them corrected as soon as possible.

I. MAINTENANCE

Electrical Systems shall be responsible for the maintenance of all completed electrical facilities (transmission/distribution lines and substations). Upon acceptance, vegetation maintenance programs will be established and soils on all rights-of-way shall be maintained in a stabilized condition. Visual inspections will be conducted by air or foot annually and by foot on transmission lines every three to five years. Whenever practical, routine maintenance should be scheduled when permanent access roads are firm, dry, or frozen.

SECTION V

SUBSTATION SITE CLEARING AND GRADING

A. PHASES OF SUBSTATION AND ACCESS ROAD CONSTRUCTION AND ASSOCIATED MAINTENANCE PROCEDURES

Prior to the initial vegetation clearing of the access road and substation site, filter fabric fences shall be installed below all areas to be disturbed.

The phases of initial substation and access road construction and associated maintenance procedures during which erosion control measures shall be implemented are:

1. Initial vegetation clearing of the access road and substation site.
2. Construction of access road.
3. Grading of substation site and temporary storage area(s).
4. Foundation excavation and installation.
5. Erection of structures.
6. Final grading and stabilization of the substation site and access road.
7. Future substation site maintenance.

B. DEVELOPMENT OF AN EROSION CONTROL PLAN

The narrative is a part of the sediment and erosion control plan for the project. This narrative is usually found on the second or third sheet of the project's "Location and Grading Plan." The narrative describes the measures that will be taken to avoid soil erosion during the construction process.

The Erosion and Sediment Control Plan Narrative includes the following:

1. General statement of the project.
2. Topographic features of the project.
3. Soils information.
4. Proposed alteration to the area.
5. Staging of earthmoving activities.
6. Temporary control measures and facilities.

7. Permanent control measures.

8. Maintenance.

C. EROSION CONTROL TECHNIQUES

1. Temporary Control Measures and Facilities

- a. Stockpiles shall be used to contain all stripped topsoil in a limited area in order to keep the undisturbed area to a minimum. Stockpiles that will exist between twenty days to twelve months shall be stabilized with a temporary cover of annual rye grass or winter rye in accordance with accepted seeding practices.
- b. Stabilized construction entrances shall be used to keep storm water from flowing unchecked from the site and to collect sediment off construction vehicles.
- c. Protective silt fences shall be located to slow runoff from drainage ways and exposed banks and to prevent sediment from flowing onto adjacent properties.

2. Permanent Control Measures

- a. All disturbed areas that are not to be paved or stoned shall be covered with grass or legume seed in order to minimize erosion.
- b. Straw mulch shall be applied to seeded areas to help establish a permanent grass cover and to prevent erosion.
- c. In areas where the slope exceeds a 3:1 ratio, erosion control mat or fabric shall be installed to prevent erosion.
- d. Rip-rap shall be installed where shown on the plan in order to prevent erosion in those areas where concentrated storm water runoff is anticipated.

SECTION VI

DISTRIBUTION FACILITIES

A. PHASES OF DISTRIBUTION FACILITY INSTALLATION AND ASSOCIATED MAINTENANCE PROCEDURES

The phases of initial distribution facility installation and associated maintenance procedures during which erosion control measures shall be implemented are similar to those for transmission line rights-of-way. They are as follows:

1. Initial vegetation clearing of distribution line right-of-way and off-line access roads.
2. Construction of access roads both on and off the line right-of-way.
3. Grading of pole site areas.
4. Augering for new pole lines and replacement poles.
5. Wire stringing and associated activities, such as temporary road crossing protection structures.
6. Final grading and stabilization of the right-of-way.
7. Future line maintenance, both vegetation and pole (i.e., line repair and structural replacement).

Final grading of the distribution right-of-way and pole sites shall be performed so that the original grades shall be simulated at all disturbed locations.

In addition, similar erosion control practices shall be implemented when earth disturbance takes place during the installation and maintenance of:

1. Underground get-aways from substations.
2. Duct and manhole installation.
3. Manhole and vault installation.

APPENDIX I

CHAPTER 102

EROSION CONTROL

CHAPTER 102. EROSION CONTROL

GENERAL PROVISIONS

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Authority

The provisions of this Chapter 102 issued under sections 5 and 402 of the act of June 22, 1937 (P. L. 1987, No. 394) (35 P. S. §§ 691.5 and 691.402), unless otherwise noted.

Source

The provisions of this Chapter 102 adopted September 29, 1972, effective October 30, 1972, Pa.B. 1796, unless otherwise noted.

Notes of Decisions

The Department of Environmental Resources regulations contained in 25 Pa. Code Chapter 102 (relating to erosion control) provide protection against secondary polluting effects should they become imminent. *De/aware County Community College v. Fox*, 20 Pa. Commw. 335, 354, 342 A.2d 468, 479 (1975).

Cross Reference

This chapter cited in 25 Pa. Code § 71.21 (relating to content of official plans); 25 Pa. Code § 77.108 (relating to general permits for small noncoal operations); 25 Pa. Code § 77.109 (relating to noncoal exploration activities); 25 Pa. Code § 77.110 (relating to permit waiver—oil and gas well site development); 25 Pa. Code § 77.111 (relating to permit waiver—solid waste sites); 25 Pa. Code § 77.458 (relating to erosion and sedimentation control plan); 25 Pa. Code § 77.525 (relating to sediment control measures); 25 Pa. Code § 77.527 (relating to sedimentation ponds); 25 Pa. Code § 78.53 (relating to erosion and sedimentation control); 25 Pa. Code § 85.37 (relating to contents of ordinance and regulations submitted by municipality); 25 Pa. Code § 87.70 (relating to erosion and sedimentation control plan); 25 Pa. Code § 87.102 (relating to hydrologic balance: effluent standards); 25 Pa. Code § 87.106 (relating to hydrologic balance: sediment control measures); 25 Pa. Code § 87.108 (relating to hydrologic balance: sedimentation ponds); 25 Pa. Code § 88.50 (relating to erosion and sedimentation control plan); 25 Pa. Code § 88.92 (relating to hydrologic balance: effluent standards); 25 Pa. Code § 88.96 (relating to hydrologic balance: sediment control measures); 25 Pa. Code § 88.98 (relating to hydrologic balance: sedimentation ponds); 25 Pa. Code § 88.187 (relating to hydrologic balance: effluent standards); 25 Pa. Code § 88.191 (relating to hydrologic balance: sediment control measures); 25 Pa. Code § 88.194 (relating to hydrologic balance: sedimentation ponds); 25 Pa. Code § 88.292 (relating to hydrologic balance: effluent standards); 25 Pa. Code § 88.296 (relating to hydrologic balance: sediment control measures); 25 Pa. Code § 88.298 (relating to hydrologic balance: sedimentation ponds); 25 Pa. Code § 89.11 (relating to general requirements); 25 Pa. Code § 89.21 (relating to erosion and sedimentation control); Pa. Code § 89.52 (relating to water quality standards, effluent limitations and best management practices); 25 Pa. Code § 89.56 (relating to stream channel diversions); 25 Pa. Code § 90.37 (relating to erosion and sedimentation control); 25 Pa. Code § 90.102 (relating to hydrologic balance: water quality standards, effluent limitations and best management practices); 25 Pa. Code § 90.106 (relating to hydrologic balance: erosion and sedimentation control); 25 Pa. Code § 90.108 (relating to hydrologic balance: sedimentation ponds); 25 Pa. Code § 95.6 (relating to discharges to lakes, ponds and impoundments); 25 Pa. Code § 105.13 (relating to permit applications—information and fees); 25 Pa. Code § 105.46 (relating to implementation of erosion and sedimentation control plans); 25 Pa. Code Chapter 105 Appendix A-I (relating to private recreational docks; general permit BDWM-GP-2); 25 Pa. Code Chapter 105 Appendix D (relating to temporary road crossings; general permit

BDWM-C, P-8); 25 Pa. Code § 106.12 (relating to permit applications— information and fees); 25 Pa. Code § 109.503 (relating to public water system permits); 25 102-2 Pa. Code § 264.192 (relating to design requirements); 25 Pa. Code § 264.221 (relating to design requirements— general); 25 Pa. Code § 264.251 (relating to design and operating requirements—general); 25 Pa. Code § 264.273 (relating to design and operating requirements); 25 Pa. Code § 264.301 (relating to design requirements—general); 25 Pa. Code § 273.151 (relating to soil erosion and sedimentation control plan); 25 Pa. Code § 273.242 (relating to soil erosion and sedimentation control); 25 Pa. Code § 273.243 (relating to sedimentation ponds); 25 Pa. Code § 275.107 (relating to surface water information); 25 Pa. Code § 275.205 (relating to erosion control); 25 Pa. Code § 277.151 (relating to soil erosion and sedimentation control plan); 25 Pa. Code § 277.242 (relating to soil erosion and sedimentation control), 25 Pa. Code § 277.243 (relating to sedimentation ponds); 25 Pa. Code § 279.105 (relating to soil plan); 25 Pa. Code § 279.232 (relating to soil erosion and sedimentation control); 25 Pa. Code § 281.132 (relating to soil erosion and sedimentation control); 25 Pa. Code § 281.252 (relating to soil erosion and sedimentation control); 25 Pa. Code § 281.253 (relating to sedimentation ponds); 25 Pa. Code § 283.106 (relating to soil erosion and sedimentation control plan); and 25 Pa. Code § 283.232 (relating to soil erosion and sedimentation control).

GENERAL PROVISIONS

§ 102. 1. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

Accelerated erosion—The removal of the surface of the land through the combined action of man's activities and the natural processes, at a rate greater than would occur because of the natural process alone.

Conservation plan—A plan that identifies conservation practices and, at the very least, includes an erosion and sedimentation control plan.

Department—The Department of Environmental Resources of the Commonwealth.

Diversion terrace—A channel or dike constructed upslope of a project for the purpose of diverting storm water away from the unprotected slope.

Earthmoving activity—A construction or other activity which disturbs the surface of the land, including, but not limited to, excavations, embankments, land development, subdivision development, mineral extraction, and the moving, depositing, or storing of soil, rock or earth.

Embankment or fill—A deposit of soil, rock or other material placed by man.

Erosion—The natural process by which the surface of the land is worn away by the action of water, wind or chemical action.

Erosion and Sedimentation Control Plan—A plan which is designed to minimize accelerated erosion and sedimentation.

Excavation—A cavity formed by digging, quarrying, uncovering, displacing or relocating soil or rock.

Interceptor channel—A channel or dike constructed across a slope for the purpose of intercepting storm water, reducing the velocity of flow and diverting it to outlets where it may be disposed.

Land developer—A person who is engaged in land development as the principal rather than an agent or contractor.

Land development—The constructing, installing, placing, planting or building of surface structures, utility lines, shopping centers and malls, golf course, apartment complexes, schools, roads, highways and parking areas or other similar activity.

Municipality—A county, city, borough, town, township, school district, institution or authority created by any one or more of the foregoing. For purposes of this definition, town shall include an incorporated town.

Person—A natural person, partnership, association or corporation.

Sediment—Soils or other surficial materials transported by surface water as a product of erosion.

Sedimentation—The process by which sediment is deposited on stream bottoms.

Stabilization—The proper placing, grading and covering of soil, rock or earth to insure their resistance to erosion, sliding or other movement.

Subdivision—The division or redivision of a lot, tract or parcel of land by a means into two or more lots, tracts, parcels or other division of land, including changes in existing lot lines for the purpose, whether immediate or future, of lease, transfer of ownership or building or lot development.

Source

The provisions of this § 102.1 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796; amended June 3, 1977, effective June 20, 1977, 7 Pa.B. 1478. Immediately preceding text appears at serial page (17010).

§ 102.2. Scope.

This chapter imposes requirements on earthmoving activities which create accelerated erosion or a danger of accelerated erosion and which require planning and implementation of effective soil conservation measures.

Source

The provisions of this § 102.2 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796.

§102.3. Purpose.

This chapter controls accelerated erosion and the resulting sedimentation of waters of this Commonwealth thereby preventing the pollution of these waters from sediment and from fertilizers, pesticides and other polluting substances carried by sediment.

Source

The provisions of this § 102.3 adopted September 29, 1972, effective October 30, 1972. 2 Pa.B. 1796.

§102.4. General.

(a) Earthmoving activities within this Commonwealth shall be conducted in such a way as to prevent accelerated erosion and the resulting sedimentation. To accomplish this, except as provided in subsection (b), a landowner, person or municipality engaged in earthmoving activities shall develop, implement and maintain erosion and sedimentation control measures which effectively minimize accelerated erosion and sedimentation. These erosion and sedimentation measures shall be set forth in a plan as set forth in § 102.5 (relating to erosion and sedimentation control plan) and be available at all times at the site of the activity. The Department or its designee may, at its discretion, require this plan to be filed with the Department or its designee.

(b) In the case of agricultural plowing and tilling, the landowner shall be responsible for developing and implementing the erosion and sedimentation control plan. The landowner may delegate his obligation to implement the plan or parts thereof, by written agreement, to a tenant or lessee. If an agreement exists, the tenant or lessee shall be responsible for implementing those provisions delegated under the agreement.

Source

The provisions of this § 102.4 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796; amended June 3, 1977, effective June 20, 1977, 7 Pa.B. 1478; amended February 3, 1978, effective February 20, 1978, 8 Pa.B. 288. Immediately preceding text appears at serial pages (30935) to (30936).

Notes of Decisions

Under 25 Pa. Code § 102.4 (relating to general), control measures and regulations are clearly required, even in development activities where permits are not necessary and safeguards are clearly available to protect against possible adverse secondary erosion and sedimentation effects in a watershed. *Community College of Delaware County v. Fox*, 20 Pa. Commw. 335, 354, 342 A.2d 468, 480 (1975).

Failure of the DER to notify operators of the requirements for erosion control plans until one and a half years after adoption of the regulations does not excuse an operator from compliance. *Department of Environmental Resources v. Federal Oil and Gas Company*, 73 Pa. D. & C.2d 148, 162 (1975).

An independent drilling contractor who prepares the gas well drilling site for the lessee of an oil and gas lease is not a person engaged in earth moving activities and cannot be charged with failure to develop and implement an erosion control plan, but will be held jointly and severally liable for discharges of oil and drilling fines from the gas well operation site. *Department of Environmental Resources v. Federal Oil and Gas Company*, 73 Pa. D. & C.2d 148, 162 (1975).

Cross References

This section cited in 25 Pa. Code § 102.51 (relating to effective dates).

§102.5. Erosion and sedimentation control plan.

(a) The erosion and sedimentation control plan shall be prepared by a person trained and experienced in erosion and sedimentation control methods and techniques.

(b) The erosion and sedimentation control plan shall be designed to prevent accelerated erosion and sedimentation and shall consider all factors which contribute to erosion and sedimentation; including, but not limited to, the following:

- (1) The topographic features of the project area.
- (2) The types, depth, slope and areal extent of the soils.
- (3) The proposed alteration to the area.
- (4) The amount of runoff from the project area and the upstream watershed area.
- (5) The staging of earthmoving activities.
- (6) Temporary control measures and facilities for use during earth moving.
- (7) Permanent control measures and facilities for long term protection.
- (8) A maintenance program for the control facilities including disposal of materials removed from the control facilities or project area.

Source

The provisions of this § 102.5 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796.

Notes of Decisions

If an erosion and sedimentation control plan, together with supplementary material submitted, includes numerous drawings detailing the topography of the area, results of test borings, and a soil description, then the plan contains sufficient information as to topographic features and soil characteristics. *Mignatti Construction Co., Inc. v. Environmental Hearing Board*, 411 A.2d 860, 863 (Pa. Commw. 1980).

Cross References

This section cited in 25 Pa. Code § 102.4 (relating to general).

EROSION AND SEDIMENTATION CONTROL MEASURES AND FACILITIES**§102.11. General requirements.**

The erosion and sedimentation control facilities set forth in §§ 102.12 and 102.13 (relating to control measures; and control facilities) shall be appropriately incorporated into earthmoving activities unless the designer of the erosion and sedimentation control plan shows that alteration of these measures and facilities or inclusion of other measures and facilities shall prevent accelerated erosion and sedimentation.

Source

The provisions of this § 102.11 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796.

§102. 12. Control measures.

(a) *Limiting exposed areas.* Earthmoving activities shall be planned in such a manner as to minimize the areal extent of disturbed land.

(b) *Surface water diversion.* Surface water shall be diverted away from the project area.

(c) *Velocity control.* Permanent facilities for the conveyance of water around, through or from the project area shall be designed or contain facilities to limit the velocity of flow in the facilities to less than 1.5 feet per second.

(d) *Stabilization.* Slopes, channels, ditches or a disturbed area shall be stabilized as soon as possible after the final grade or final earth moving has been completed.

(e) *Interim stabilization.* If it is not possible to permanently stabilize a disturbed area immediately after the final earth moving has been completed or where the activity ceases for more than 20 days, interim stabilization measures shall be implemented promptly.

(f) *Collection of runoff.* Runoff from a project area shall be collected and diverted to facilities for removal of sediment.

(g) *Solids separation.* Runoff from a project area may not be discharged into the waters of this Commonwealth without means to prevent sedimentation.

Source

The provisions of this § 102.12 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796.

Cross References

This section cited in 25 Pa. Code § 102.11 (relating to general requirement).

§102.13. Control facilities.

(a) *Diversion terraces.* The following applies to diversion terraces:

(1) Diversion terraces shall be constructed up-grade of a project area to convey runoff around the project area. For temporary diversion, the channel shall have a capacity to convey 1.6 cubic feet per second per acre of land tributary to it. For permanent diversion, the channel shall have a capacity to convey 2.75 cubic feet per second per acre of land tributary to it.

(2) Diversion terraces shall be grassed or lined with erosion resistant material to prevent accelerated erosion within the channel.

(3) Outlet structures shall be designed to maintain a discharge velocity of less than three feet per second and shall be stabilized before use.

(b) *Interceptor channels.* The following applies to interceptor channels:

(1) Interceptor channels may be used within a project area to reduce the velocity of flow and thus prevent accelerated erosion.

(2) Water collected by interceptor channels shall be conveyed to sedimentation basins or to vegetated areas but not directly to streams.

(3) Outlets to vegetated areas shall be designed to maintain an outlet velocity of less than three feet per second.

(c) *Channels of conveyance.* Channels used to convey water through a project area shall be designed to have a velocity of less than 1 1/2 feet per second. If this is not possible, the channel shall be grassed or lined with erosion resistant material.

(d) *Sedimentation basins.* The following applies to sedimentation basins:

(1) A sedimentation basin shall have a capacity of 7,000 cubic feet for each acre of project area tributary to it and shall be provided with a 24-inch freeboard.

(2) The basin shall be cleaned when the storage capacity of the basin is reduced to 5,000 cubic feet per acre of project area tributary to it.

(3) Outlet structures shall be designed to pass a minimum flow of 2 cubic feet per second for each acre of project area tributary to the basin.

(4) The discharge from a sedimentation basin shall be to a natural waterway.

(5) Sedimentation basins shall be structurally sound and protected from unauthorized acts of third parties.

Source

The provisions of this § 102.13 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B 1796.

Cross References

This section cited in 25 Pa. Code § 89.21 (relating to erosion and sedimentation control); and 25 Pa. Code § 102.11 (relating to general requirement).

RESTORATION

§102.21. Applicability.

Sections 102.21—102.24 (relating to stabilization; interim control measures; and final measures) apply to earthmoving activities which have not been stabilized.

Source

The provisions of this § 102.21 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796.

§102.22. Stabilization.

Upon completion of the project, areas disturbed by the project shall be stabilized so that accelerated erosion shall be prevented.

Source

The provisions of this § 102.22 adopted September 29, 1972, effective October 30, 1972, 2 Pa. B. 1796.

Cross References

This section cited in 25 Pa. Code § 102.21 (relating to applicability).

§102.23. Interim control measures.

An erosion and sedimentation control facility required or necessary to protect areas from erosion during the stabilization period shall be maintained until stabilization is completed.

Source

The provisions of this § 102.23 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796.

Cross References

This section cited in 25 Pa. Code § 102.21 (relating to applicability).

§102.24. Final measures.

Upon completion of stabilization, unnecessary or unusable control facilities shall be removed, the areas shall be graded and the soils shall be stabilized.

Source

The provisions of this § 102.24 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796.

Cross References

This section cited in 25 Pa. Code § 102.21 (relating to applicability).

PERMITS AND PLANS**§102.31. Permit requirements.**

(a) A person or municipality who engages in an earthmoving activity within this Commonwealth shall obtain a permit prior to commencement of the activity; except a permit may not be required under the following circumstances:

- (1) If the earthmoving activity involves plowing or tilling for agricultural purposes.
- (2) If an activity is required to obtain a permit under The Clean Streams Law (35 P. S. §§ 691.1—691.1001), the Surface Mining Conservation and Reclamation Act (52 P. S. §§ 1396.1—1396.21), the Water Obstruction Act (32 P. S. §§ 681—691) or Chapters 91^b—101 (relating to water resources).
- (3) If an earthmoving activity disturbs less than 25 acres.
- (4) If an activity involving more than 25 acres is subdivided into parcels of less than 25 acres and earthmoving is undertaken on noncontiguous parcels and the parcels are stabilized before contiguous parcels are disturbed.

(b) The Department, after publication in the Pennsylvania Bulletin, may reduce the acreage limitation set forth in subsection (a)(3) or (4), on the following bases:

- (1) On a Statewide basis at its discretion.
- (2) For special areas where the Department deems it necessary.
- (3) For a county or municipality within this Commonwealth.

(c) Even though an activity is not required to obtain a permit under the exceptions set forth in this section, the person or municipality undertaking the activity shall comply with the other provisions of this chapter.

Source

The provisions of this §102.31 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796; amended June 3, 1977, effective June 20, 1977, 7 Pa.B. 1478; amended February 3, 1978, effective February 20, 1978, 8 Pa.B. 288. Immediately preceding text appears at serial page (30940).

Cross References

This section cited in 25 Pa. Code § 102.51 (relating to effective dates).

Notes of Decisions

The provision concerning a 25-acre requirement found in this section should be read so as to relate merely to permit requirements, not so as to remove parcels of land of less than 25 acres from the protection of erosion and sedimentation controls. *Delaware County Community College v. Fox*, 20 Pa. Commw. 335, 354, 342 A.2d 468, 480 (1975).

The Department of Transportation does not come within the provisions of 25 Pa. Code § 102.31 (a)(4) with its plan to construct culverts for stream crossings for an expressway project to be carried out in sections of 17 acres at a time. *In re Precision Tube Company, Inc.*, 2 Pa. D. & C.3d 1, 17 (1975).

The Department of Transportation need not obtain an erosion and sedimentation control permit before commencing earth moving activity for construction of an expressway if the plan is developed with and approved by the Soil Conservation Service. *In re Precision Tube Company, Inc.*, 2 Pa. D. & C.3d 1, 17 (1975).

§102.32. Application for permit.

(a) Applications for permits shall be submitted by the person or municipality undertaking the earthmoving activity. In the case of land development, the application shall be submitted by the land developer rather than the contractor or agent.

(b) Applications shall be accompanied by an erosion and sedimentation control plan and other documents the Department may require.

(c) Applications shall be accompanied by a processing fee of \$200.

Source

The provisions of this § 102.32 adopted September 29, 1972 effective October 30, 1972, 2 Pa.B. 1796; amended June 3, 1977, effective June 20, 1977, 7 Pa.B. 1478. Immediately preceding text appears at serial page (21629).

Cross References

This section cited in 25 Pa. Code § 102.51 (relating to effective dates).

RESPONSIBILITIES OF LOCAL GOVERNING BODIES**§102.41. Administration by local governing bodies.**

(a) The Department may, at its discretion, delegate the administration and enforcement of this chapter to counties and other units of local government provided the county or other unit of local government has and implements an acceptable plan approved by the Department for administering such a program.

(b) An acceptable plan shall include adequate and qualified staff for the review of erosion and sediment control plans and for the surveillance and enforcement of the provisions of this chapter. An acceptable plan shall have the concurrence and approval of the Commissioners of the county in which the local unit of government operates.

(c) The Department will retain program administration over projects which cross the political boundaries of local governing bodies who have been delegated the administration of the provisions of this chapter.

Source

The provisions of this § 102.41 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796.

Cross References

This section cited in 25 Pa. Code § 102.43 (relating to withholding building permits).

§102.42. Notification of application for building permits.

A local governing body which issues building permits shall notify the Department or its designee immediately upon receipt of an application for a building, the permit involving an earthmoving activity which affects 5 acres or more of land.

Source

The provisions of this § 102.42 adopted September 29, 1972, effective October 30, 1972, 2 Pa. B. 1796.

Cross References

This section cited in 25 Pa. Code § 102.43 (relating to withholding building permits).

§102.43. Withholding building permits.

A local governing body may not issue a building permit to those engaged in earthmoving activities requiring a Department permit until the Department has issued the permit under §§ 102.41 and 102.42 (relating to responsibilities of local governing bodies).

Source

The provisions of this § 102.43 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796.

IMPLEMENTATION**§102.51. Effective dates.**

(a) This chapter became effective 30 days after its adoption by the EQB except §§ 102.31—102.32 (relating to permits and plans), which requires permits prior to the commencement of an activity, became effective on July 1, 1973, and § 102.4 (relating to general), which require preparation of erosion and sedimentation control plans, shall become effective according to the following schedule:

(1) Agricultural activities, plowing and tilling only—July 1, 1977. A person or municipality who has applied to a conservation district for an erosion and sedimentation control plan or a conservation plan before July 1, 1977, shall be considered in compliance with the deadline date.

(2) Existing earthmoving activities—January 1, 1974.

(3) New earthmoving activities started after adoption of this chapter but before July 1, 1973—July 1, 1973.

(4) New earthmoving activities started after July 1, 1973—prior to commencement of the activity.

(b) The Department, if it finds that it is in the best interest of the Commonwealth, may order the development and implementation of erosion and sedimentation control plans or require permits sooner than the dates set forth in this section.

Source

The provisions of this § 102.51 adopted September 29, 1972, effective October 30, 1972, 2 Pa.B. 1796; amended June 3, 1977, effective June 20, 1977, 7 Pa.B. 1478. Immediately preceding text appears at serial page (21630).

APPENDIX II

CHAPTER 105

DAM SAFETY AND WATERWAY MANAGEMENT

APPENDIX II

CHAPTER 105

DAM SAFETY AND WATERWAY MANAGEMENT

APPENDIX IV

COUNTY CONSERVATION DISTRICT DIRECTORY

COUNTY CONSERVATION DISTRICT DIRECTORY

Department of Environmental Resources
Bureau of Land and Water Conservation
P. O. Box 8555
Harrisburg, Pennsylvania 17105-8555
Telephone: (717) 783-7577

Division of Storm Water Management and Erosion Control
Chief - Mr. Michael D. Sherman

BERKS DISTRICT

Ag-Center
P. O. Box 520
Leesport, Pennsylvania 19533
Telephone: (610) 372-4657

CARBON DISTRICT

92 Blakeslee Blvd.
E. Lehigh, Pennsylvania 18235
Telephone: (610) 377-4894

CLINTON DISTRICT

2 State Route 150
Mill Hall, Pennsylvania 17751
Telephone: (717) 726-3798

CUMBERLAND DISTRICT

43 Brookwood Ave., Suite 4
Carlisle, Pennsylvania 17013
Telephone: (717) 249-8632

JUNIATA DISTRICT

R.R. 3 Box 302
Mifflintown, Pennsylvania 17059
Telephone: (717) 436-6919

LANCASTER DISTRICT

1383 Arcadia Road, Room 6
Farm & Home Center
Lancaster, Pennsylvania 17601
Telephone: (717) 299-5361

LEHIGH DISTRICT

Lehigh Agricultural Center, Suite 102
4184 Dorney Park Road
Allentown, Pennsylvania 18104
Telephone: (215) 820-3398

BUCKS DISTRICT

924 Town Center
New Britain, Pennsylvania 18901
Telephone: (215) 345-7577

CHESTER DISTRICT

Government Service Center, Suite 395
601 Westtown Road
West Chester, Pennsylvania 19382
Telephone: (610) 696-5126

COLUMBIA DISTRICT

1127A Old Berwick Road
Bloomsburg, Pennsylvania 17815
Telephone: (717) 784-1310

DAUPHIN DISTRICT

1451 Peters Mtn. Road
Dauphin, Pennsylvania 17018
Telephone: (717) 921-8100

LACKAWANNA DISTRICT

395 Bedford Street, Bedford Station
Clarks Summit, Pennsylvania 18411
Telephone: (717) 587-2607

LEBANON DISTRICT

2120 Cornwall Road, Suite 5
Lebanon, Pennsylvania 17042
Telephone: (717) 272-3377

LUZERNE DISTRICT
Courthouse Annex
5 Water Street
Wilkes-Barre, Pennsylvania 18711
Telephone: (717) 825-1844

LYCOMING DISTRICT
240 West Third Street
P. O. Box 68
Williamsport, Pennsylvania 17703
Telephone: (717) 326-5858

MONTGOMERY DISTRICT
1015 Bridge Road, Suite B
Collegeville, Pennsylvania 19426
Telephone: (610) 489-4506

NORTHAMPTON DISTRICT
R.R. #4
Nazareth, Pennsylvania 18064
Telephone: (610) 746-1971

PERRY DISTRICT
31 West Main Street, Box 36
New Bloomfield, Pennsylvania 17068
Telephone: (717) 582-8988

SCHUYLKILL DISTRICT
Fairlane Village Mall
Route 61 N.
Pottsville, Pennsylvania 17901
Telephone: (717) 429-1744

SUSQUEHANNA DISTRICT
County Office Building
31 Public Avenue
Montrose, Pennsylvania 18801
Telephone: (717) 278-4600, Ext. 280

WAYNE DISTRICT
Ag. Service Center
470 Sunrise Avenue
Honesdale, Pennsylvania 18431
Telephone: (717) 253-0930

YORK DISTRICT
118 Pleasant Acres Road
York, Pennsylvania 17402
Telephone: (717) 771-9430

MONROE DISTRICT
8050 Running Village Road
Stroudsburg, Pennsylvania 18360
Telephone: (717) 629-3060

MONTOUR DISTRICT
112C Woodbine Lane
Danville, Pennsylvania 17821
Telephone: (717) 271-1140

NORTHUMBERLAND DISTRICT
R.R. #3, Box 238C
Sunbury, Pennsylvania 17801
Telephone: (717) 988-4224

PIKE DISTRICT
HC6, Box 6770
Hawley, Pennsylvania 18428
Telephone: (717) 226-8220

SNYDER DISTRICT
403 W. Market Street
Middleburg, Pennsylvania 17842
Telephone: (717) 837-0085

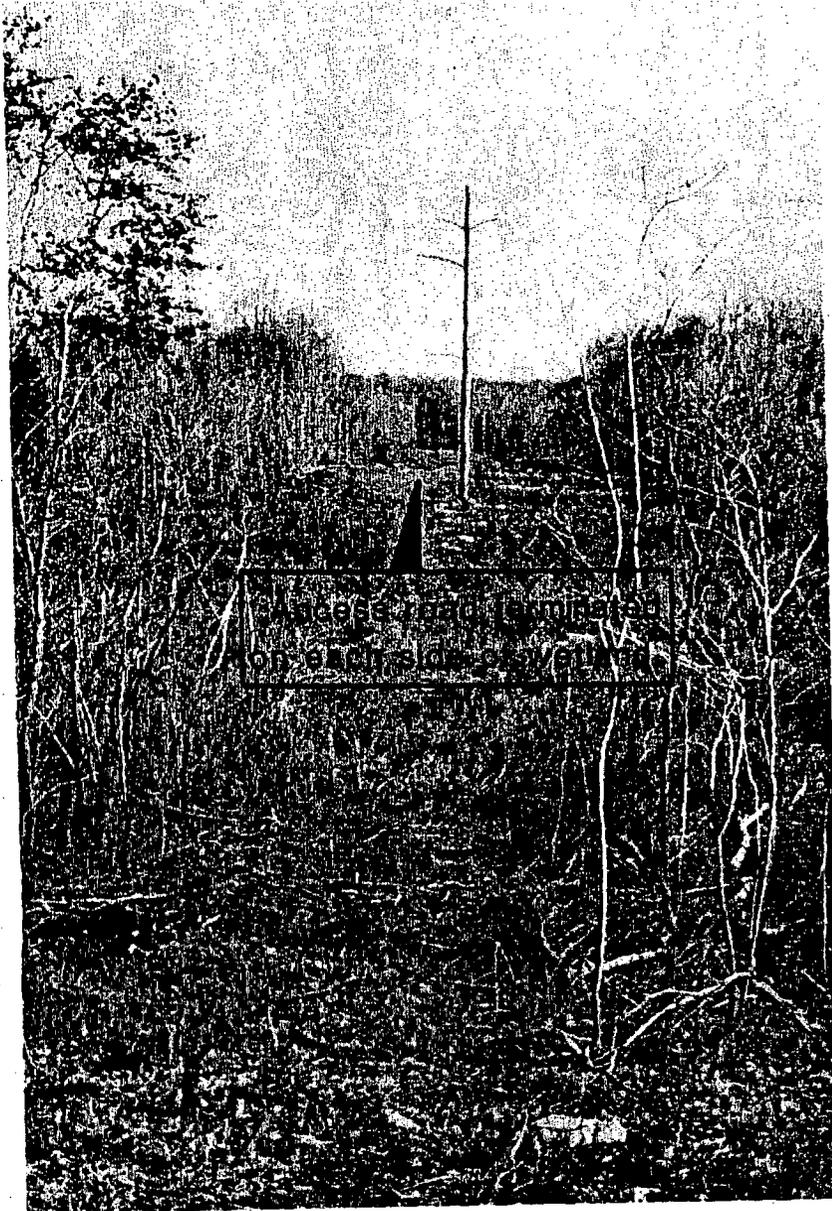
UNION DISTRICT
60 Bull Run Crossing
Lewisburg, Pennsylvania 17837
Telephone: (717) 523-8782

WYOMING DISTRICT
R. R. #3, Box 178B
Tunkhannock, Pennsylvania 18657
Telephone: (717) 836-2589/2993

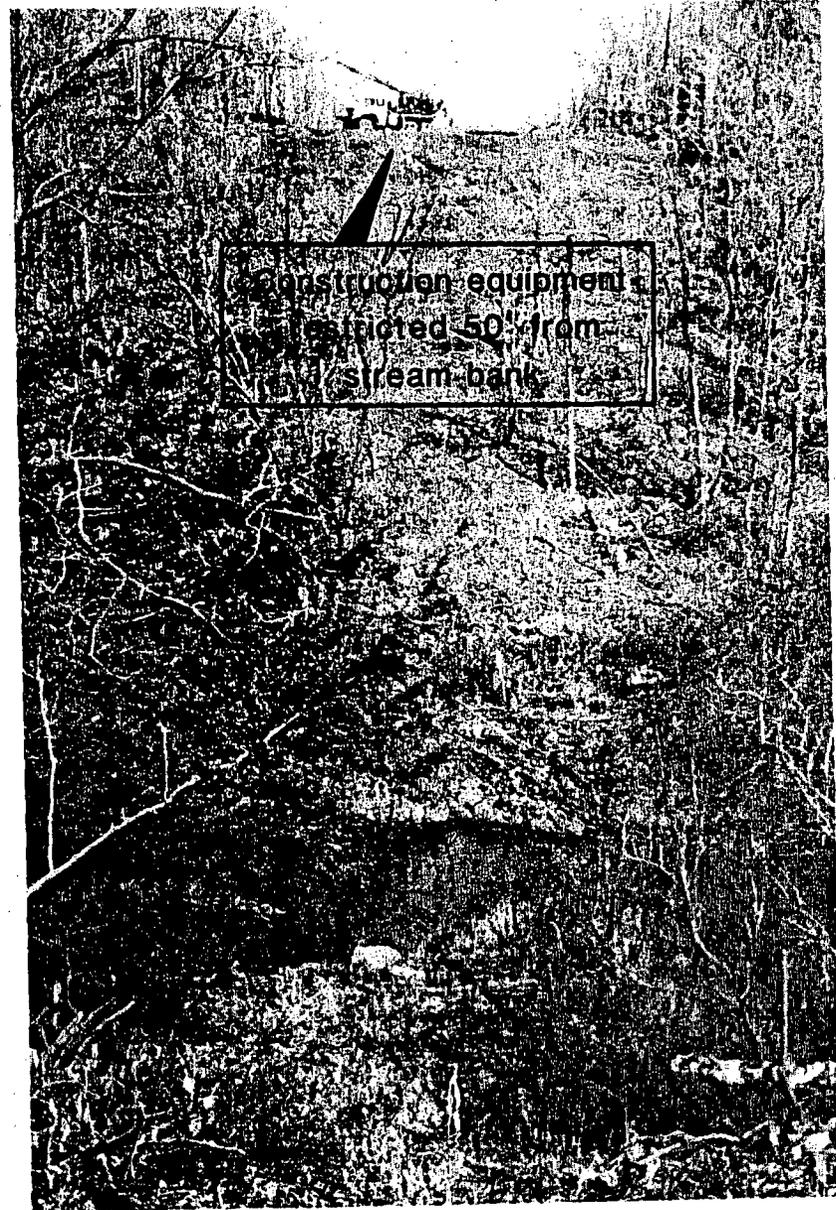
APPENDIX V

PHOTO EXHIBITS

Access Road Locations



Wetland



Perennial Stream-Ravine Crossing

Avoiding sensitive environmental areas with an access road.

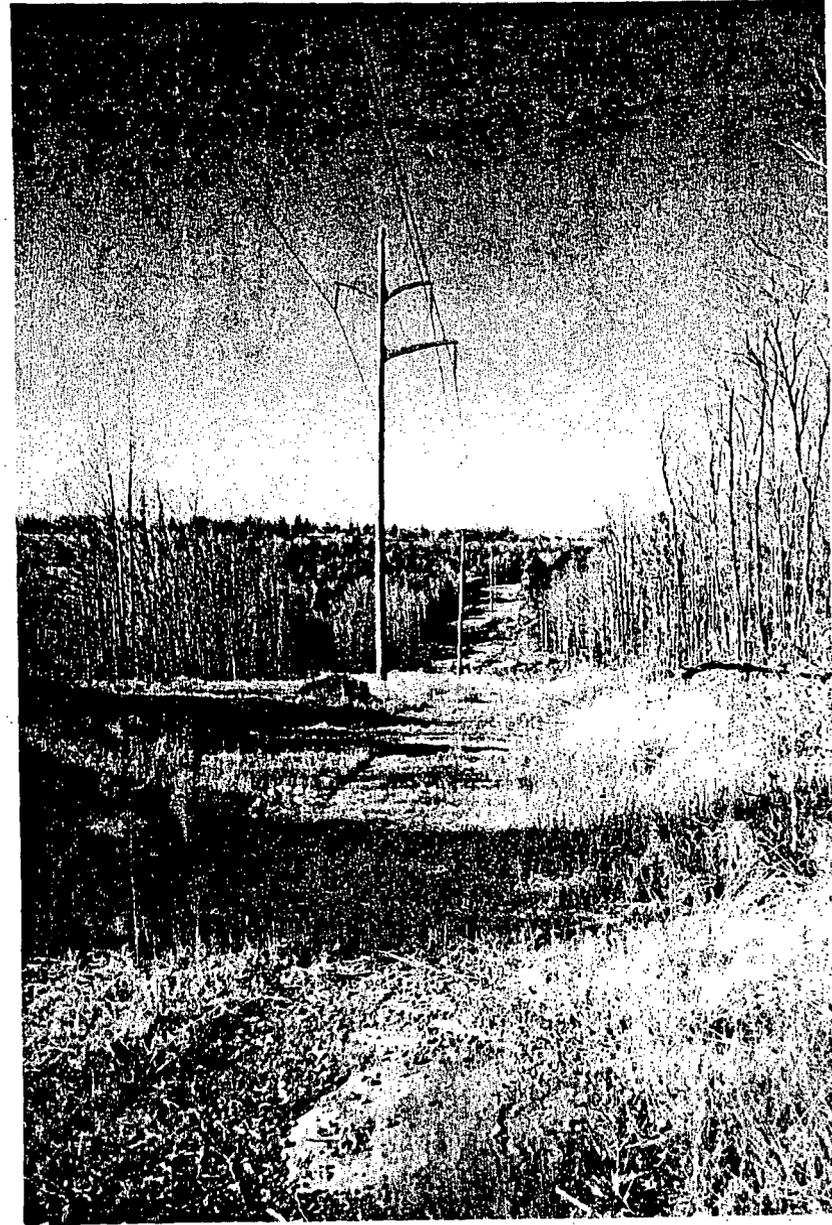
Access Road Location



**Avoiding compatible species within the selectively
cleared line right-of-way**

PHOTO EXHIBIT #2

Erosion Control-Soil Stabilization by Seeding

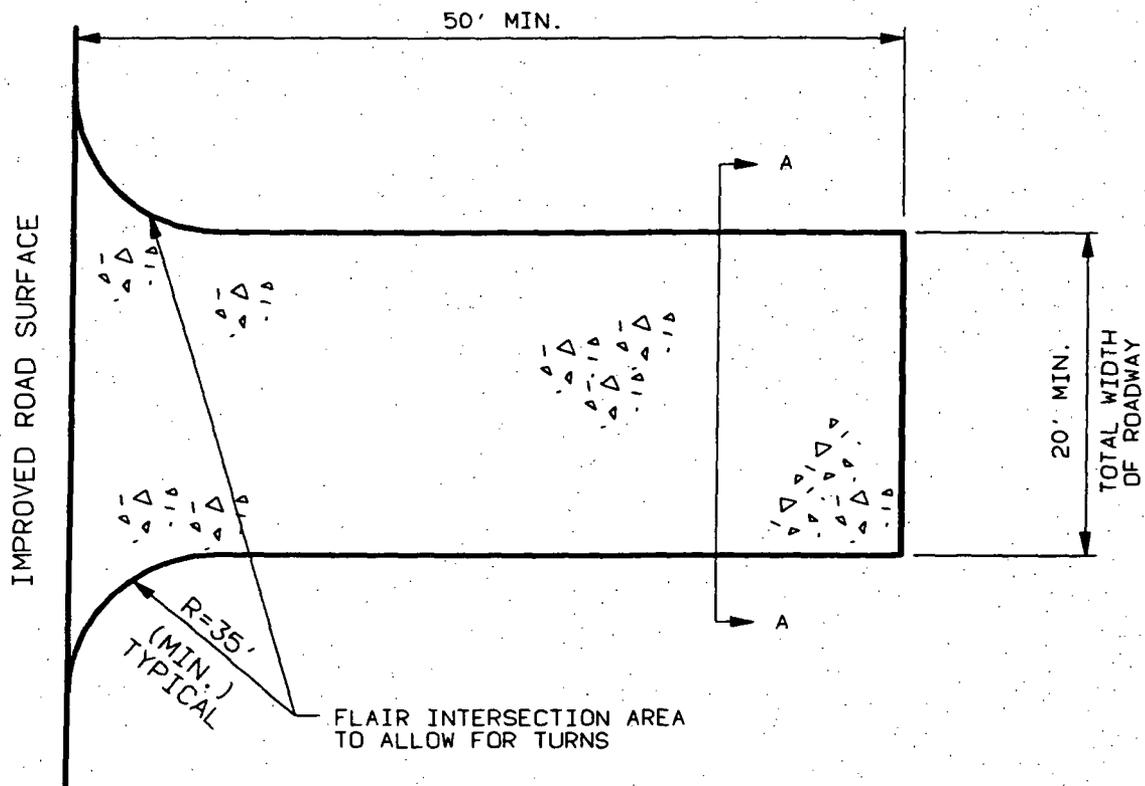


Hydroseeding Disturbed Areas

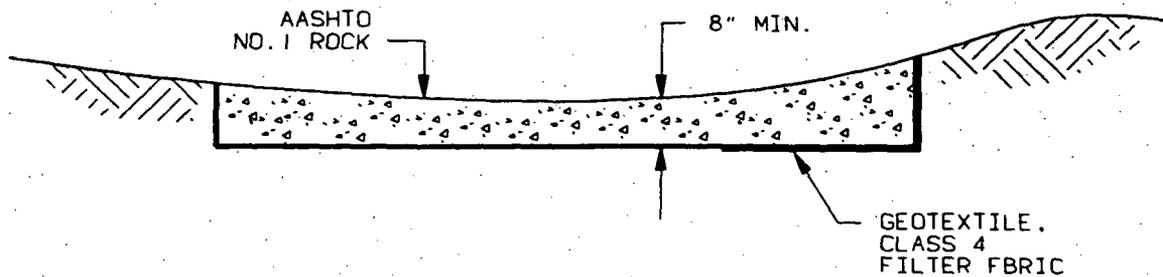
PHOTO EXHIBIT #:

APPENDIX VI

FIGURES



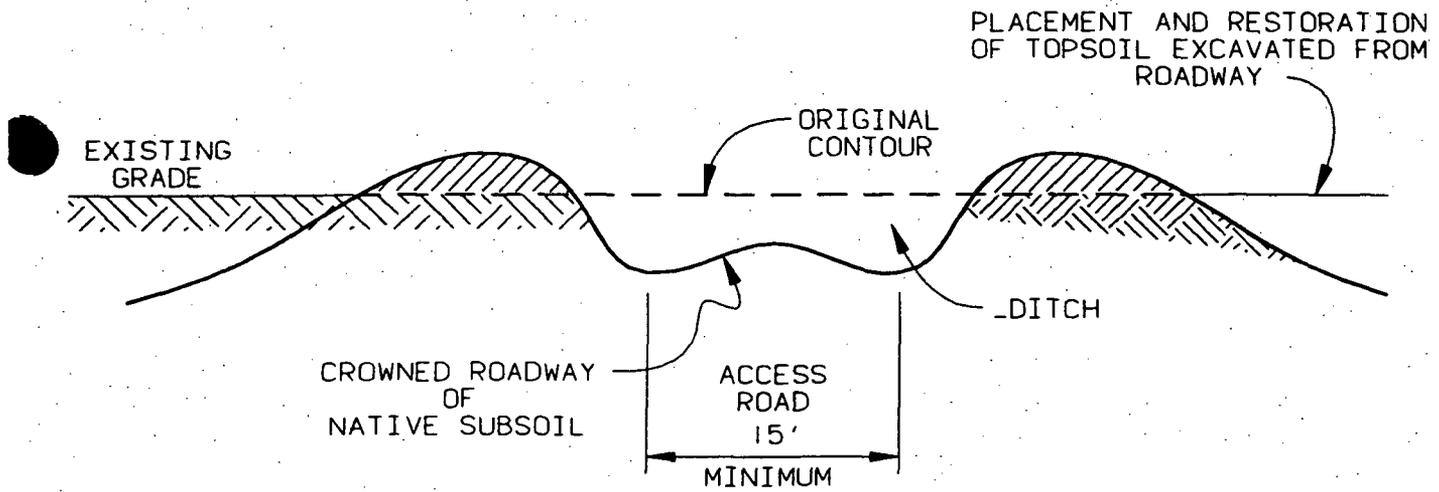
PLAN VIEW



TYPICAL SECTION A-A

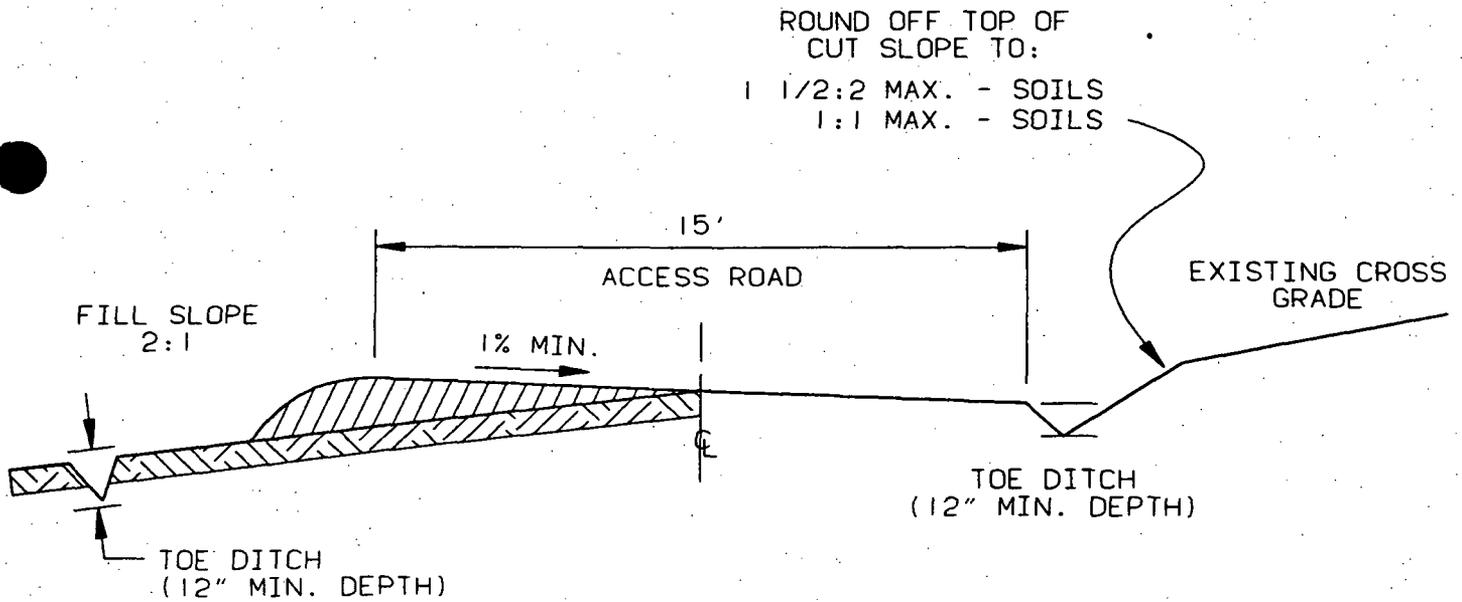
STONE TIRE CLEANING AREA OF ACCESS ROAD ENTRANCE

FIGURE 1



DETAIL 'A'

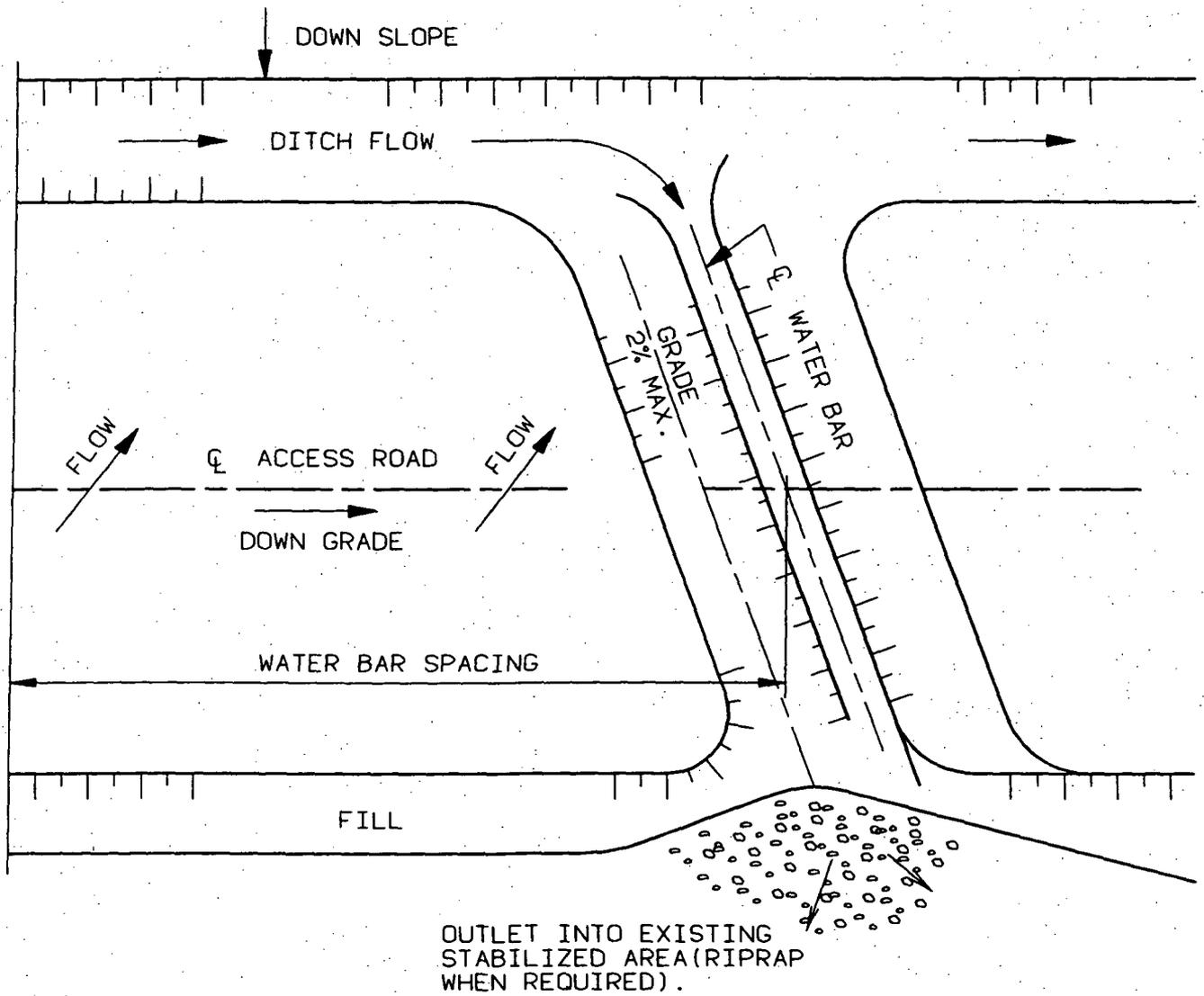
FLAT TO GENTLY SLOPING TERRAIN



DETAIL 'B'

MODERATE TO STEEP TERRAIN
SIDEHILL CUT

TYPICAL ACCESS ROAD CROSS-SECTION FOR UNDEVELOPED ROADWAYS AND EARTHEN ROADS



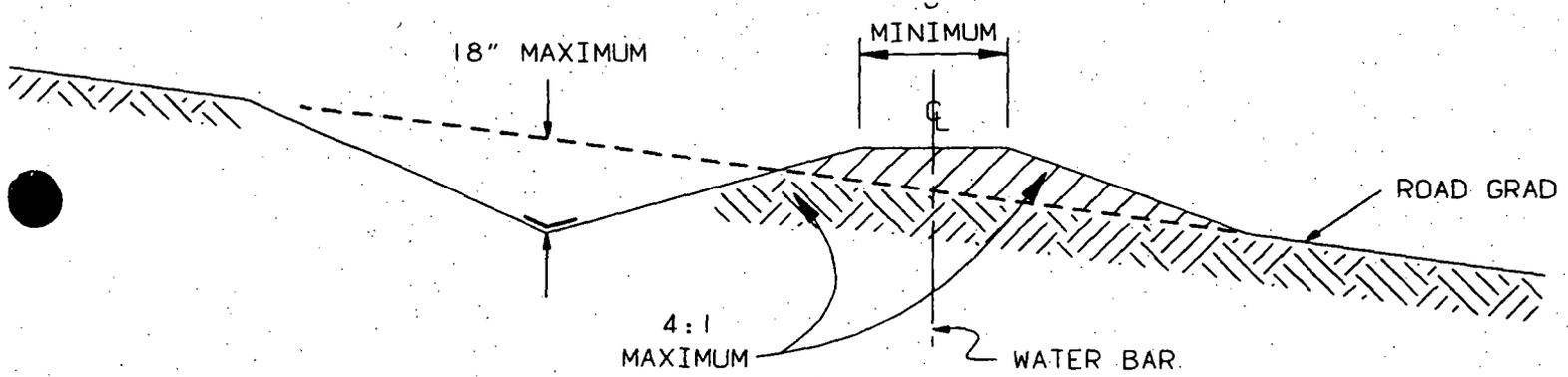
NOTE:

SEED, CUT AND FILL AREAS
 (MULCH ONLY AS TEMPORARY
 MEASURE DURING NON-GROWING
 SEASON)

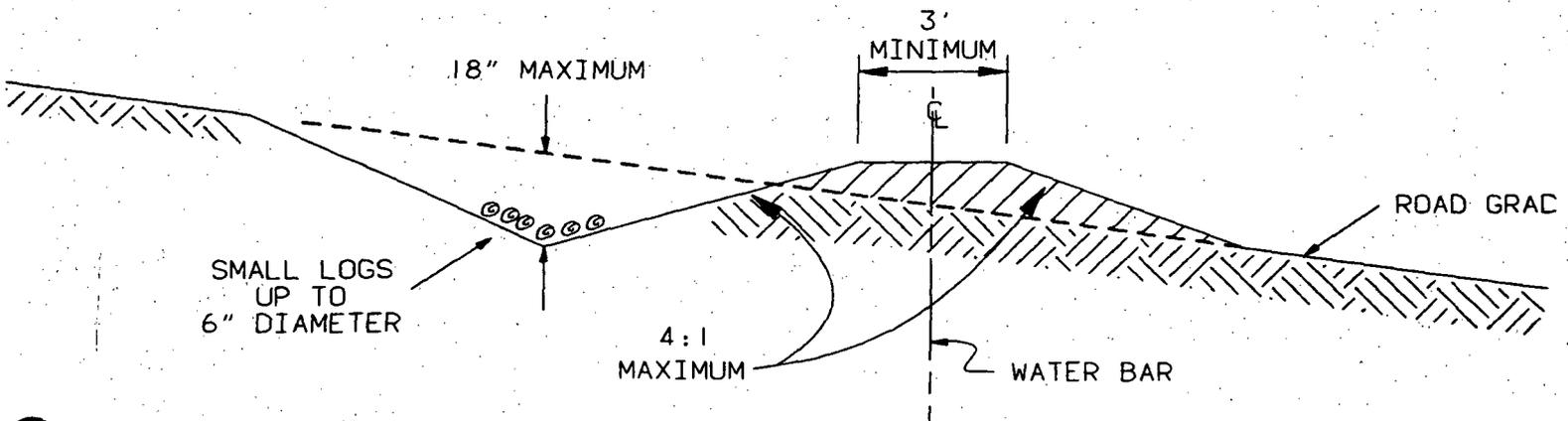
DISTANCE BETWEEN WATER BARS

<u>ROAD GRADE</u>	<u>SPACING</u>
2%	500'
5%	200'
10%	100'
15%	67'

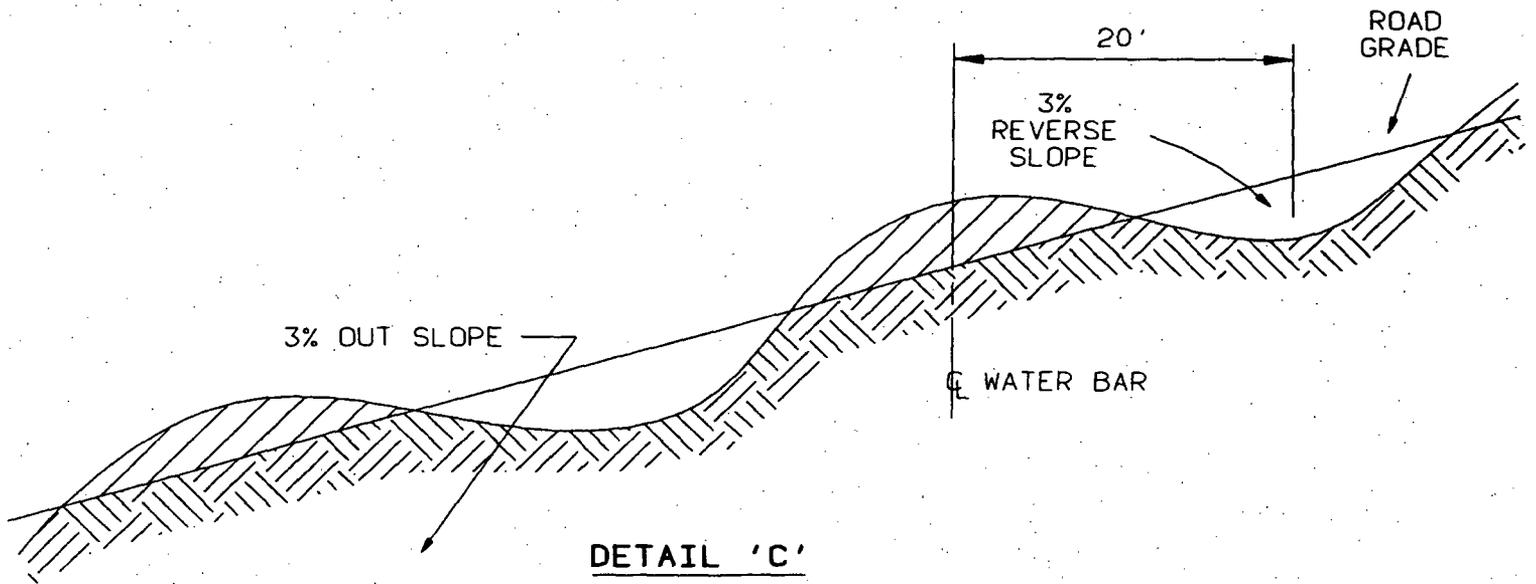
TYPICAL WATER BAR DETAILS



DETAIL 'A'
GENTLE SLOPES 2-5%

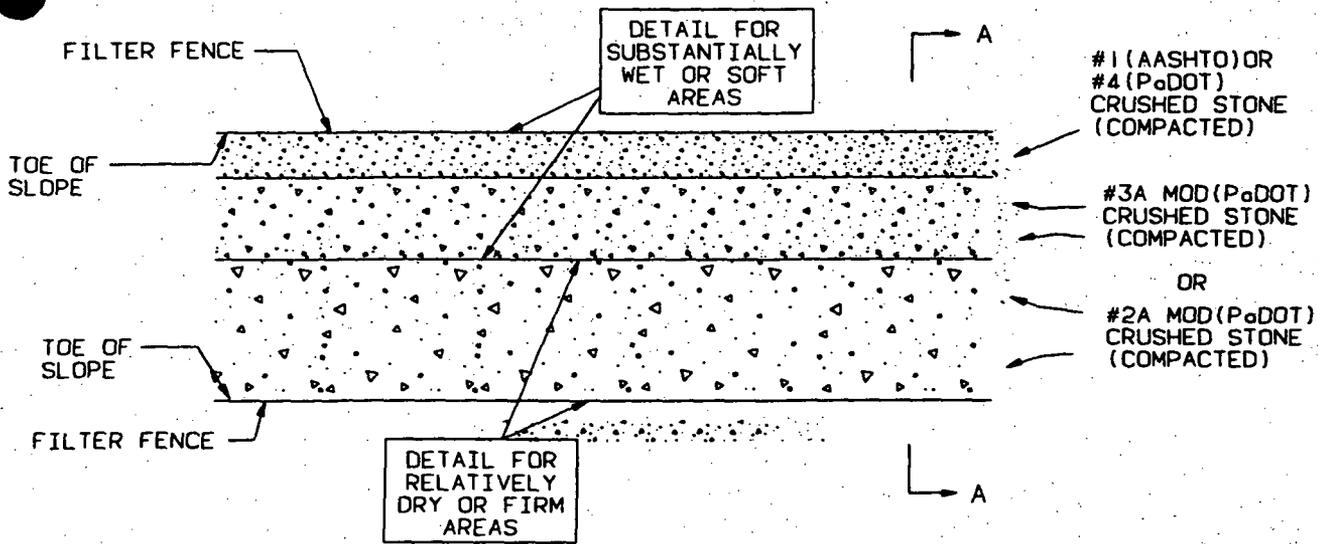


DETAIL 'B'
MODERATE SLOPES 5-15%



DETAIL 'C'
BROAD-BASE DIP EFFECT
STEEP SLOPES (15% OR GREATER)

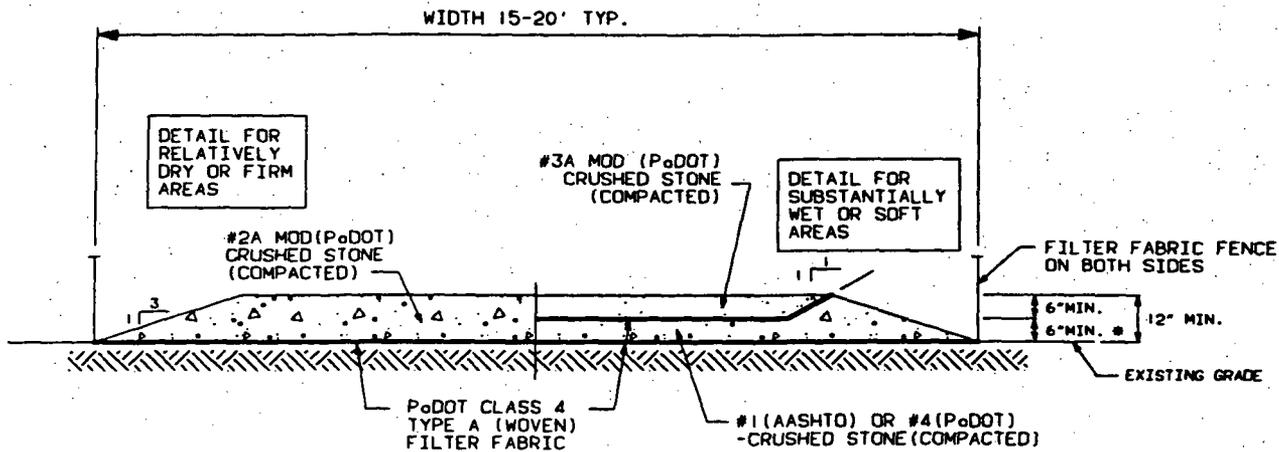
TYPICAL WATER BAR CROSS-SECTIONS



PLAN
(NO SCALE)

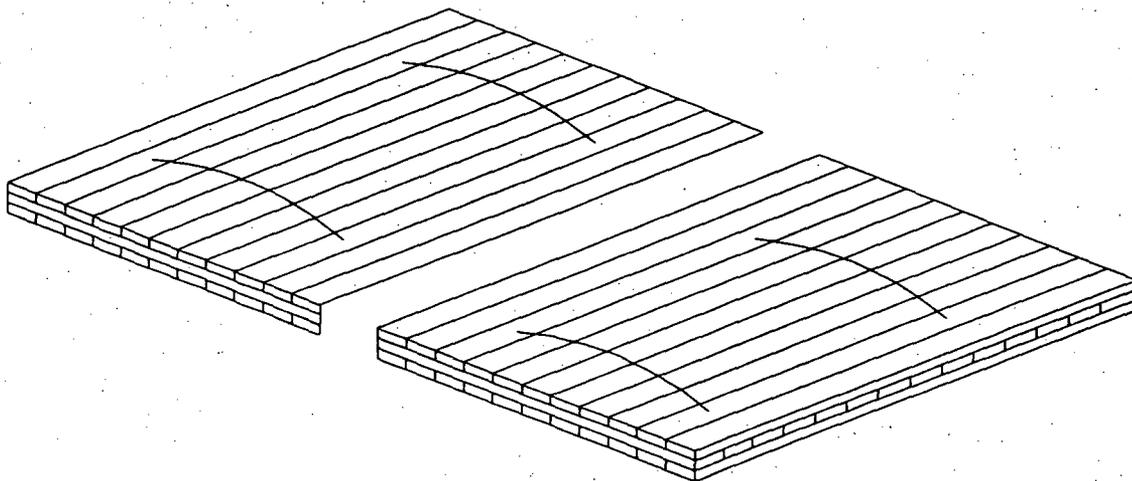
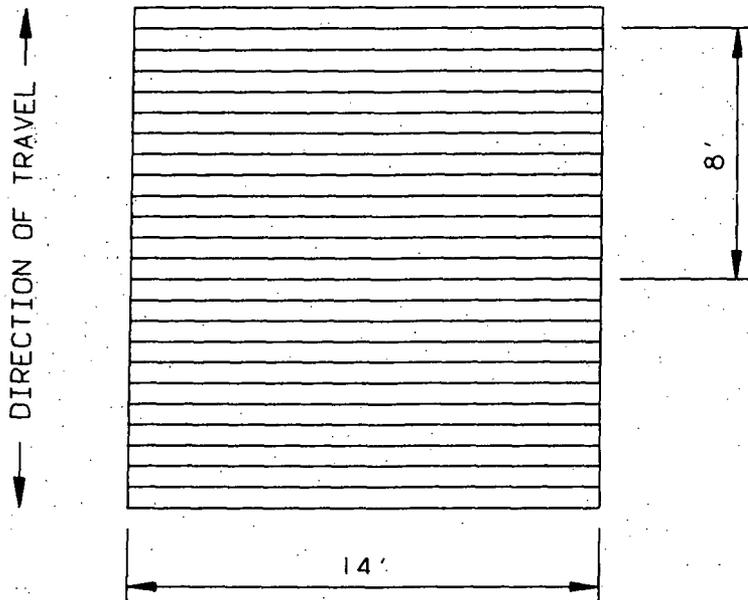
NOTE:
IF NOT REQUIRED FOR
FUTURE MAINTENANCE &
REPAIR, REMOVE ACCESS
ROAD AND RESTORE AREA.

• IF TOP OF WATER LINE IS ENCOUNTERED
ABOVE THE TOP OF BASE CRUSHED STONE
FILL, INCREASE THE THICKNESS OF THE
BASE STONE TO EQUAL THE TOP OF
WATERLINE.

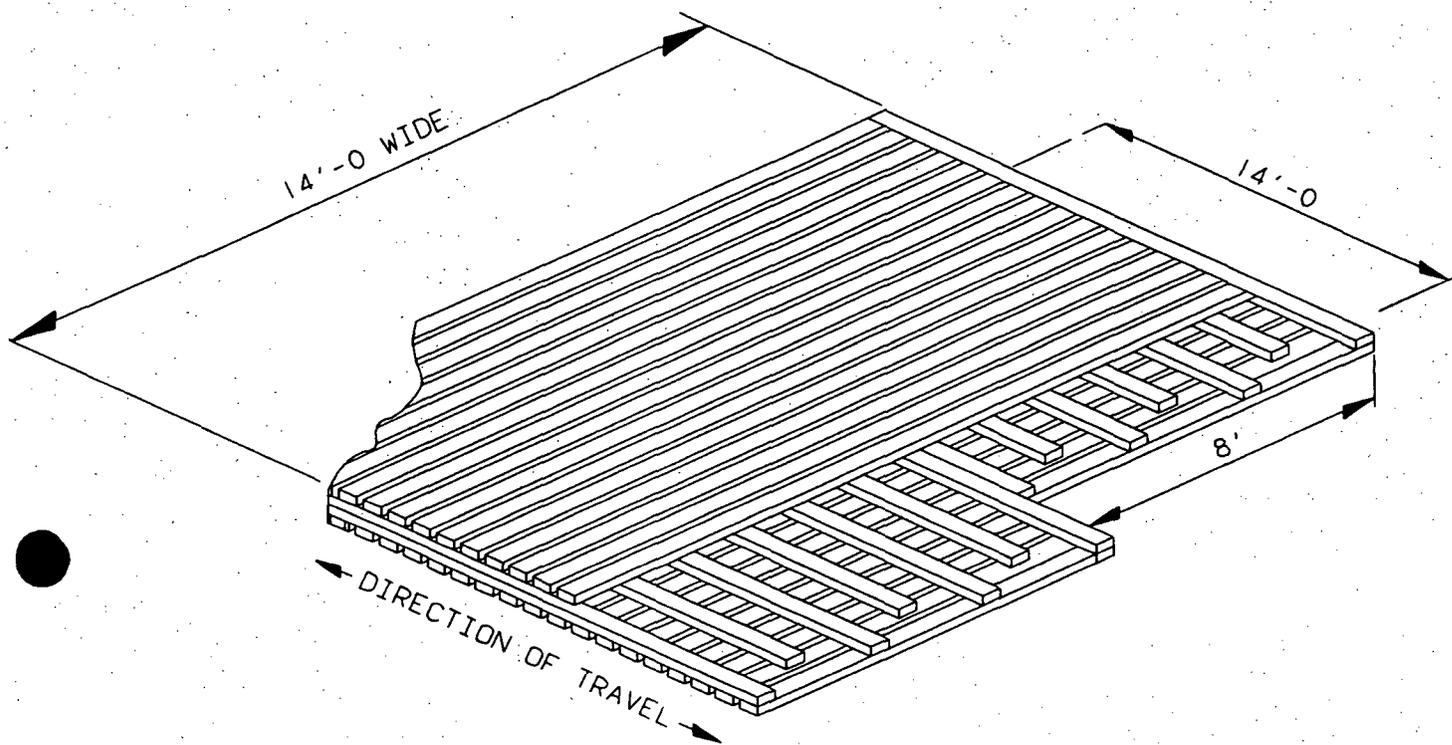


SECTION A-A
(NO SCALE)

TYPICAL ACCESS ROAD CROSS-SECTION FOR GRAVEL ROADS

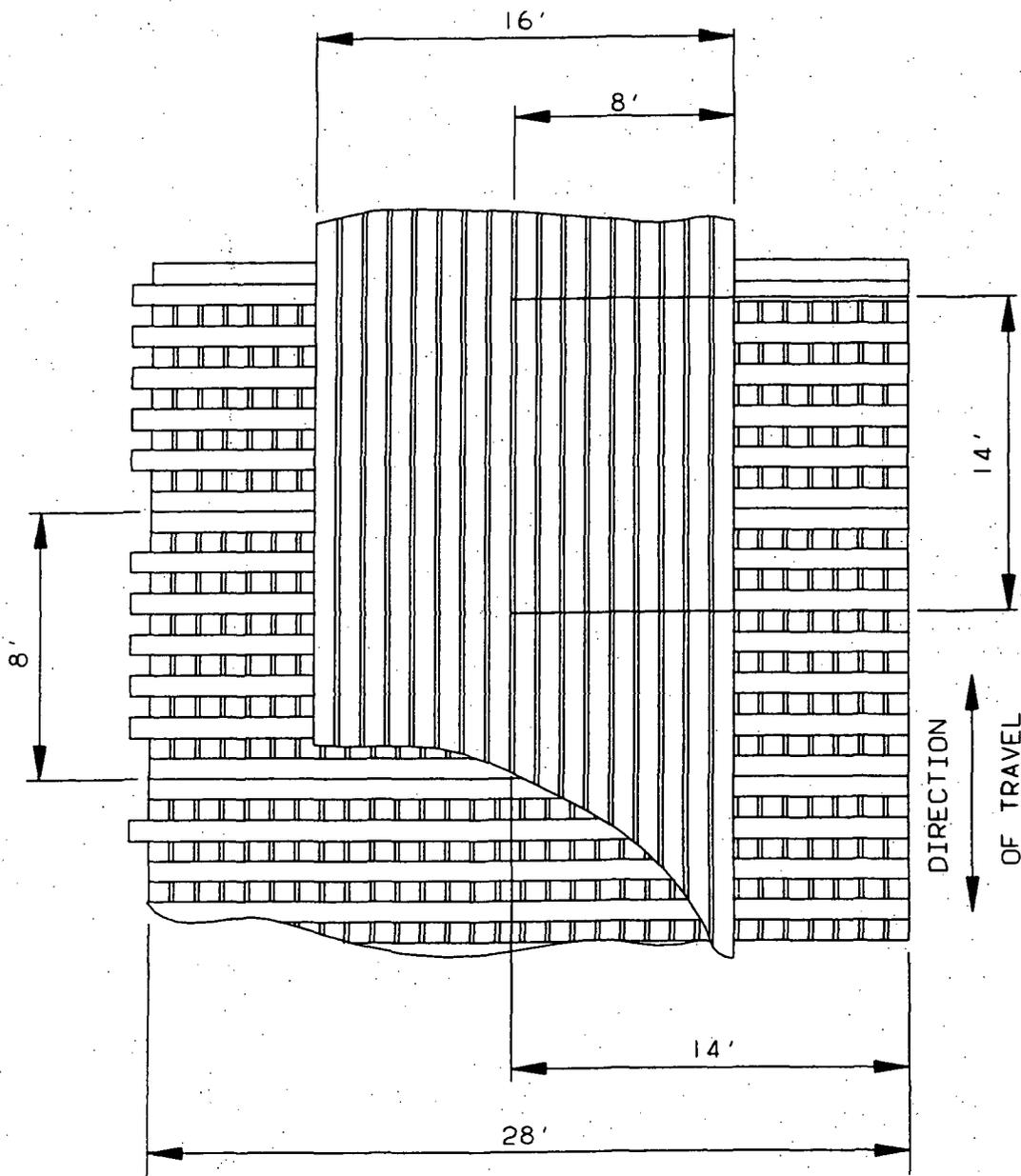


WOODEN MAT ROAD
14' WIDE ACCESS ROAD



WOODEN MAT ROAD
14' ACCESS ROAD

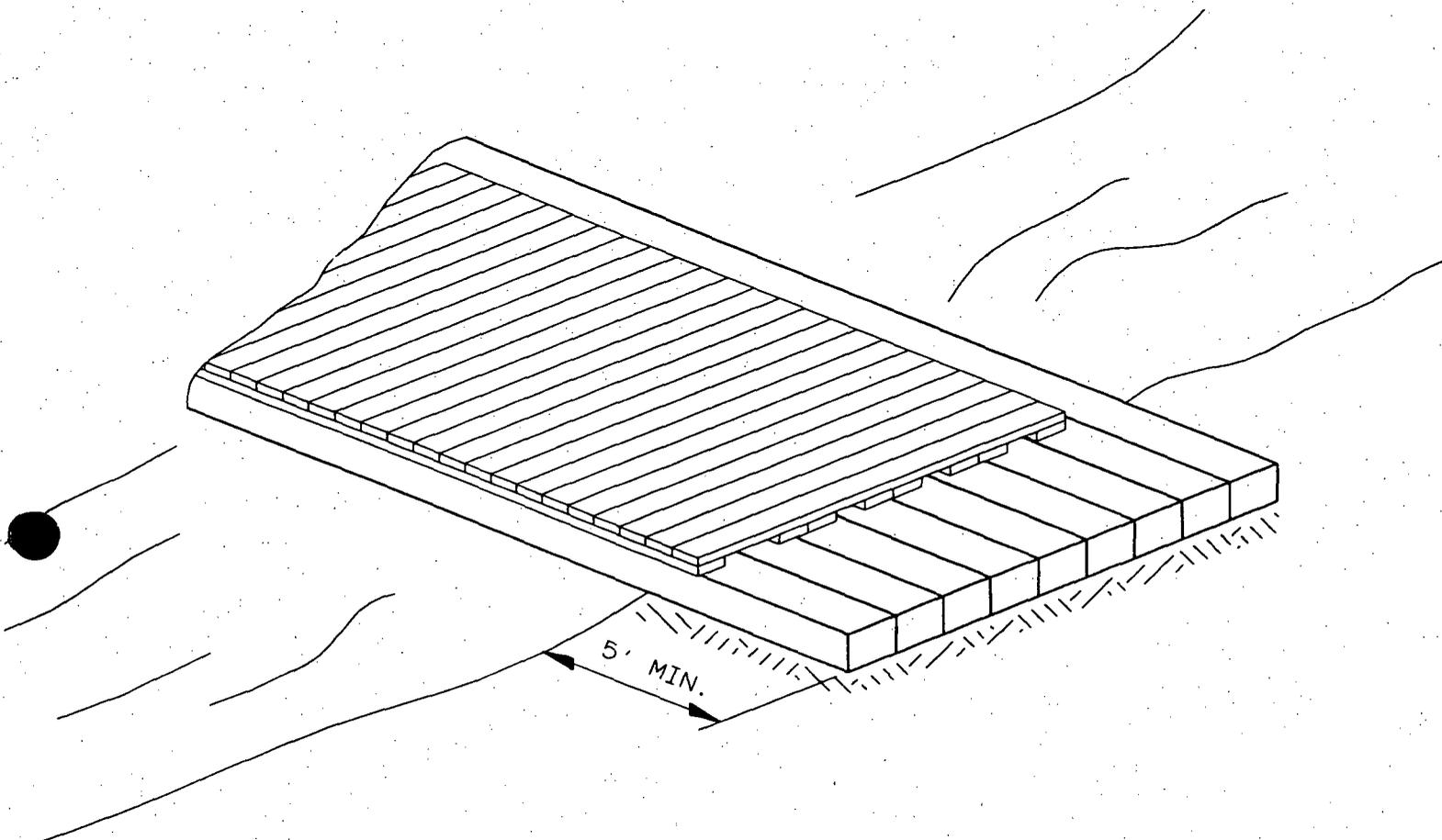
FOURTEEN FOOT WIDE ACCESS ROAD
WITH
SIXTEEN FOOT WIDE BASE



WOODEN MAT ROAD
 16' ACCESS ROAD

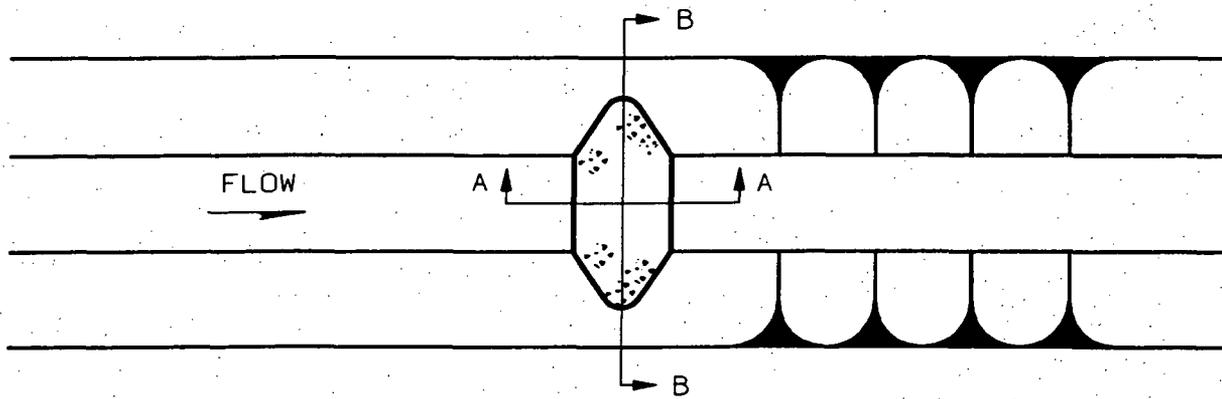
SIXTEEN FOOT WIDE ACCESS ROAD
 WITH
 TWENTY-EIGHT FOOT WIDE BASE

FIGURE 8

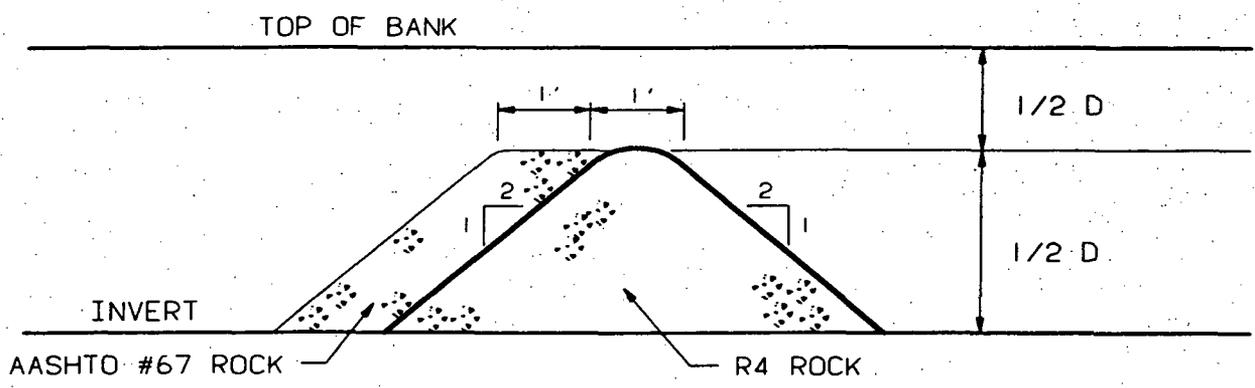


TIMBER MAT BRIDGE

FIGURE 9

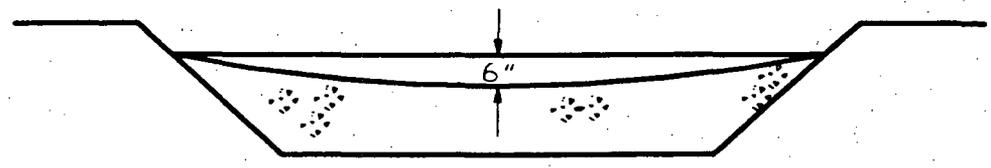


PLAN VIEW



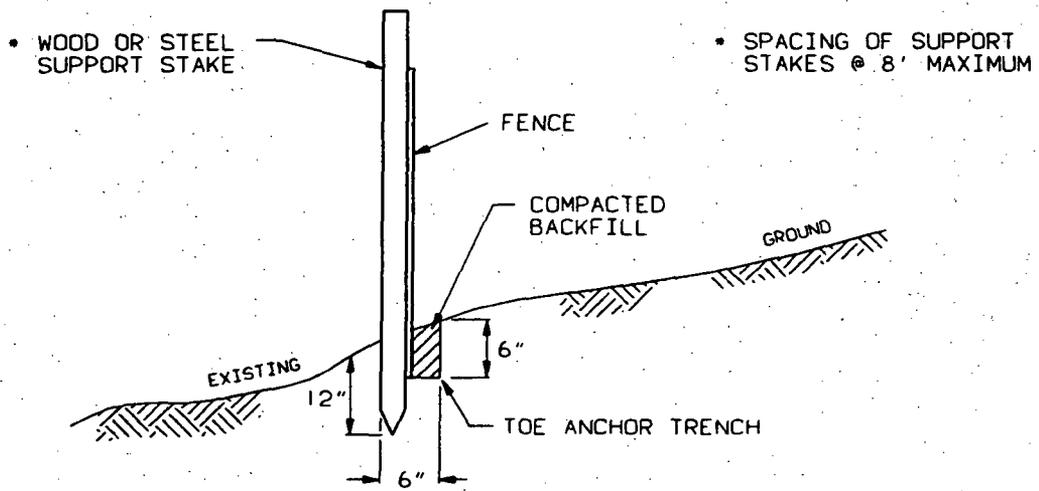
D = DEPTH OF WATER AT CHANNEL CAPACITY.

TYPICAL SECTION A-A

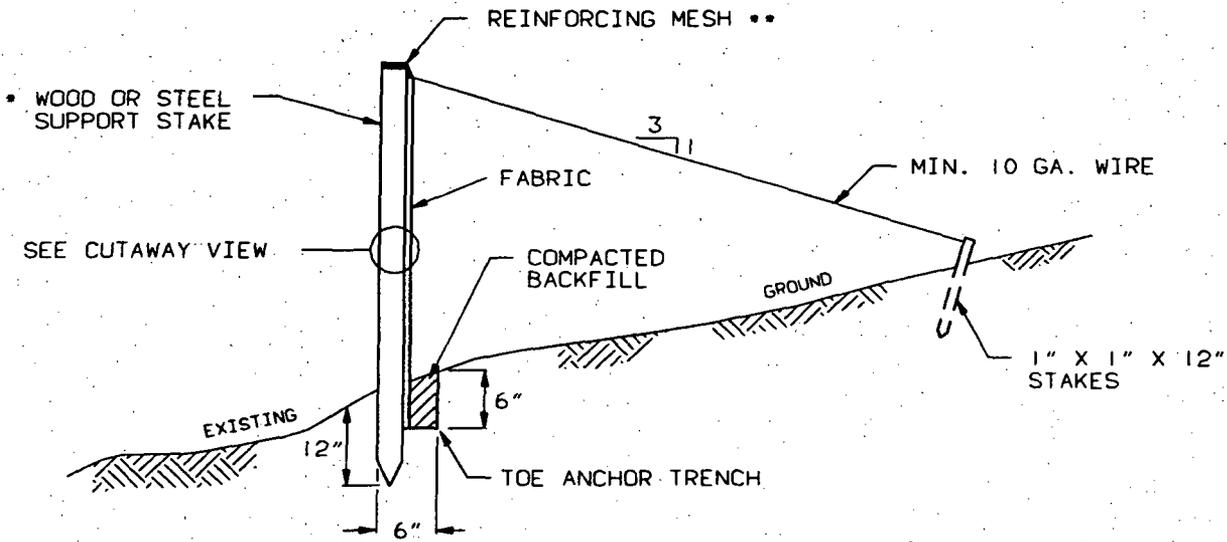


TYPICAL SECTION B-B

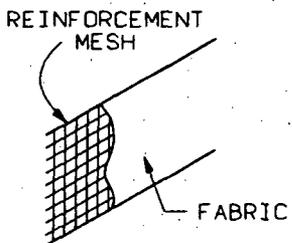
ROCK FILTER



STANDARD SECTION 18" MAX. FENCE HEIGHT



REINFORCED SECTION 30" MAXIMUM FENCE HEIGHT



CUTAWAY VIEW

- • MESH: EITHER INDUSTRIAL POLYPROPYLENE OR STEEL MESH W/MAX 6" OPENING = 1" - MIN. 14 GA.
- SPACING OF SUPPORT STAKES @ 8' MAXIMUM

FILTER FABRIC FENCE

STRAW BALE BARRIER CROSS-SECTION

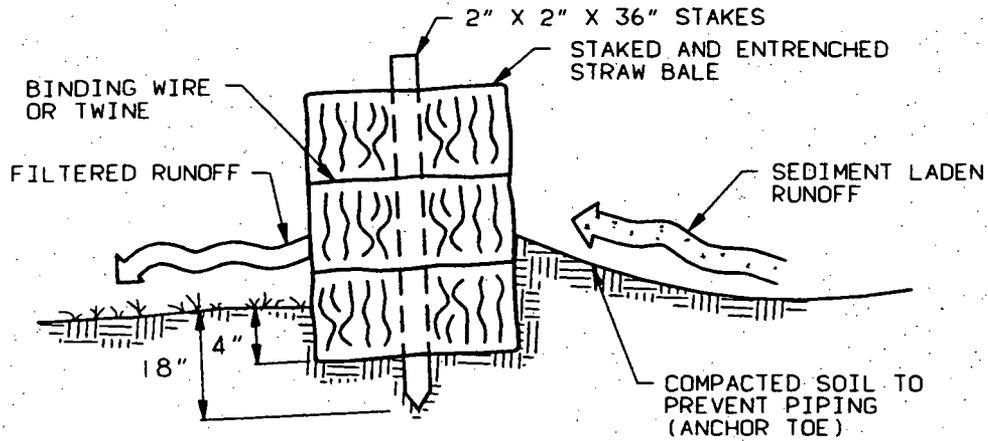
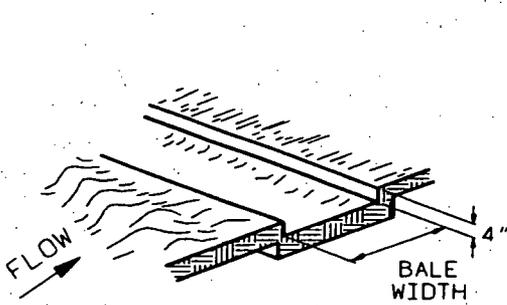
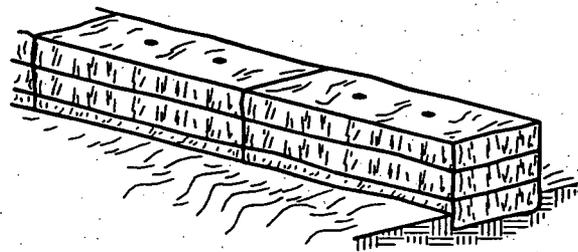


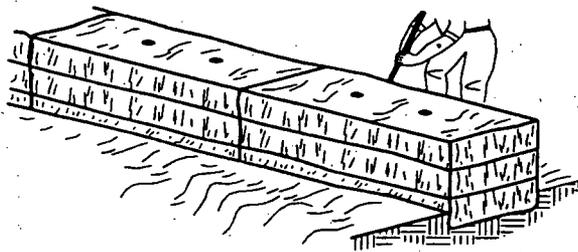
ILLUSTRATION OF INSTALLATION STEPS



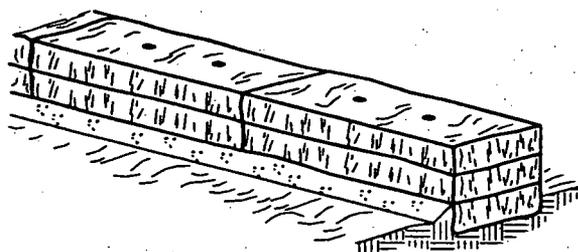
1. EXCAVATE THE TRENCH.



2. PLACE AND STAKE STRAW BALES.

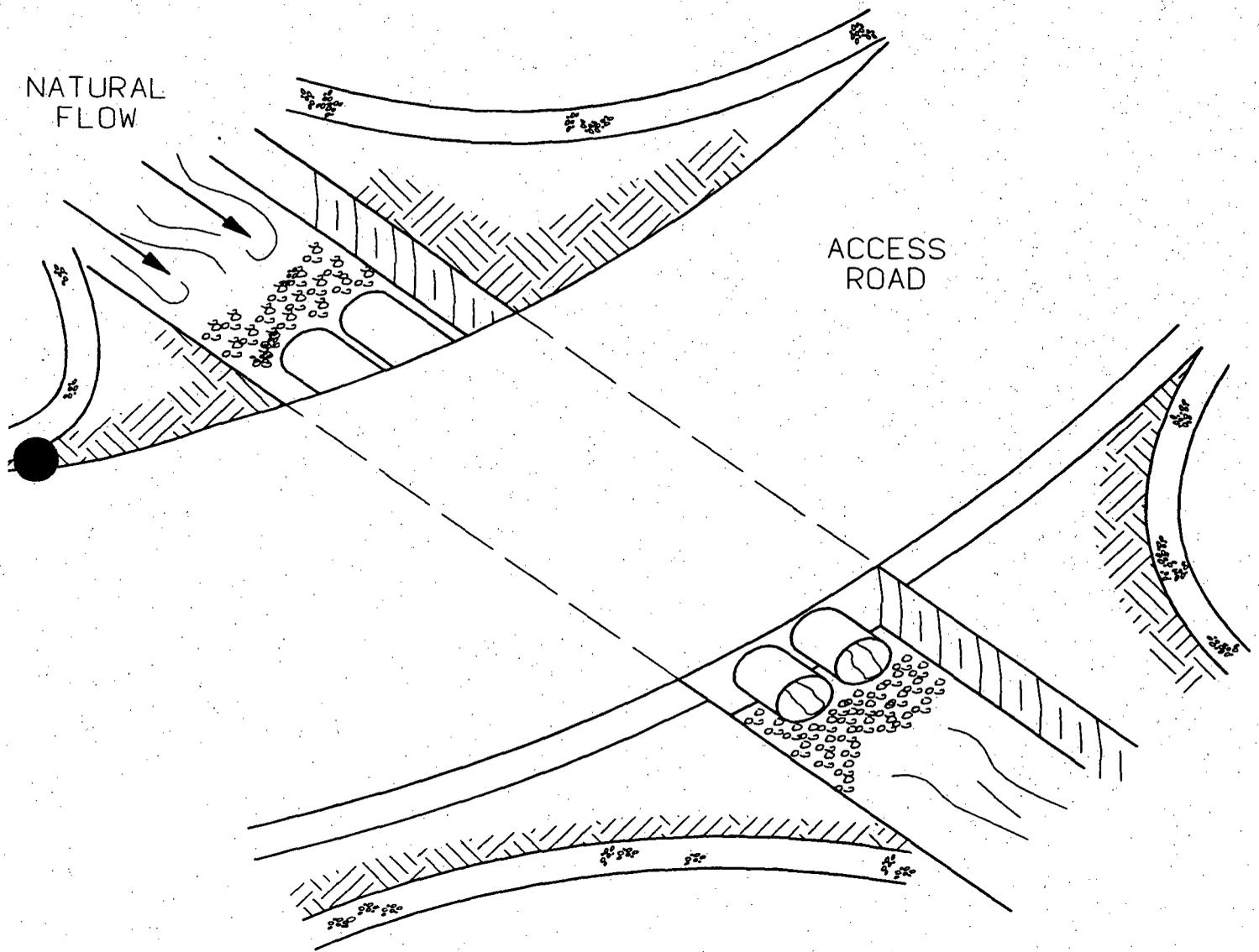


3. WEDGE LOOSE STRAW BETWEEN BALES.

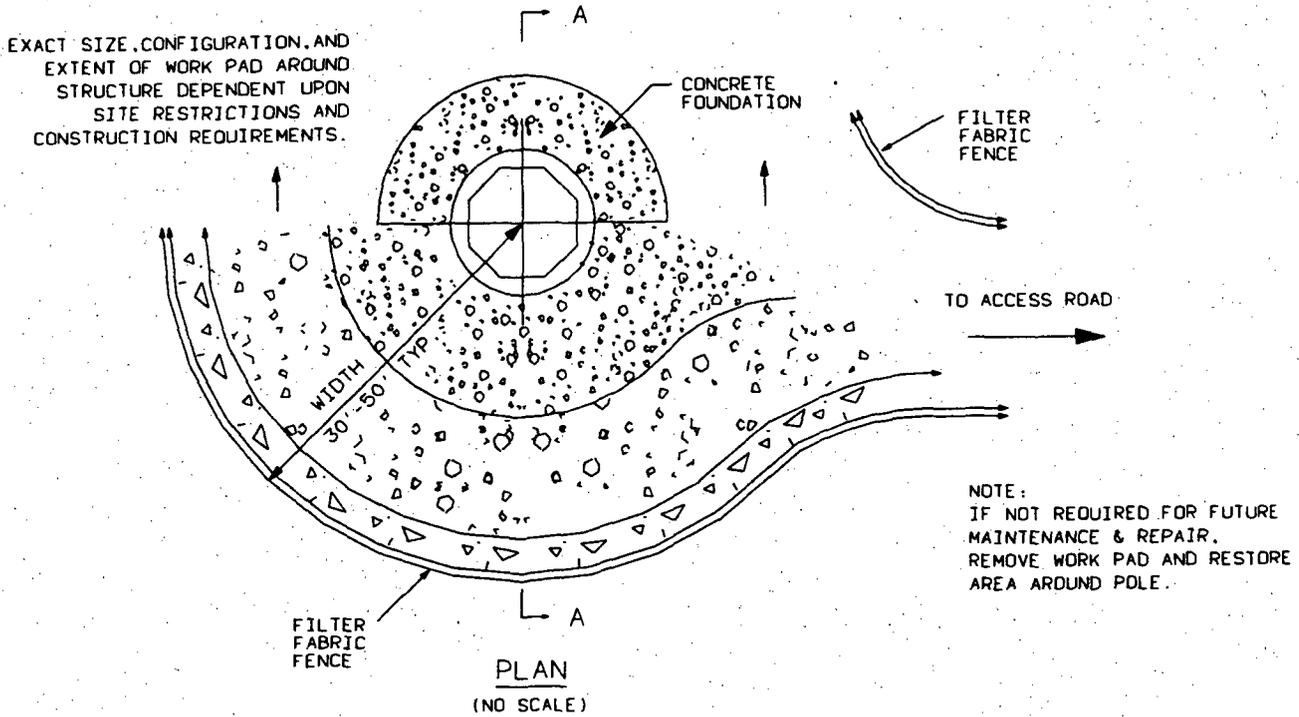


4. BACKFILL AND COMPACT THE EXCAVATED SOIL. (ANCHOR TOE)

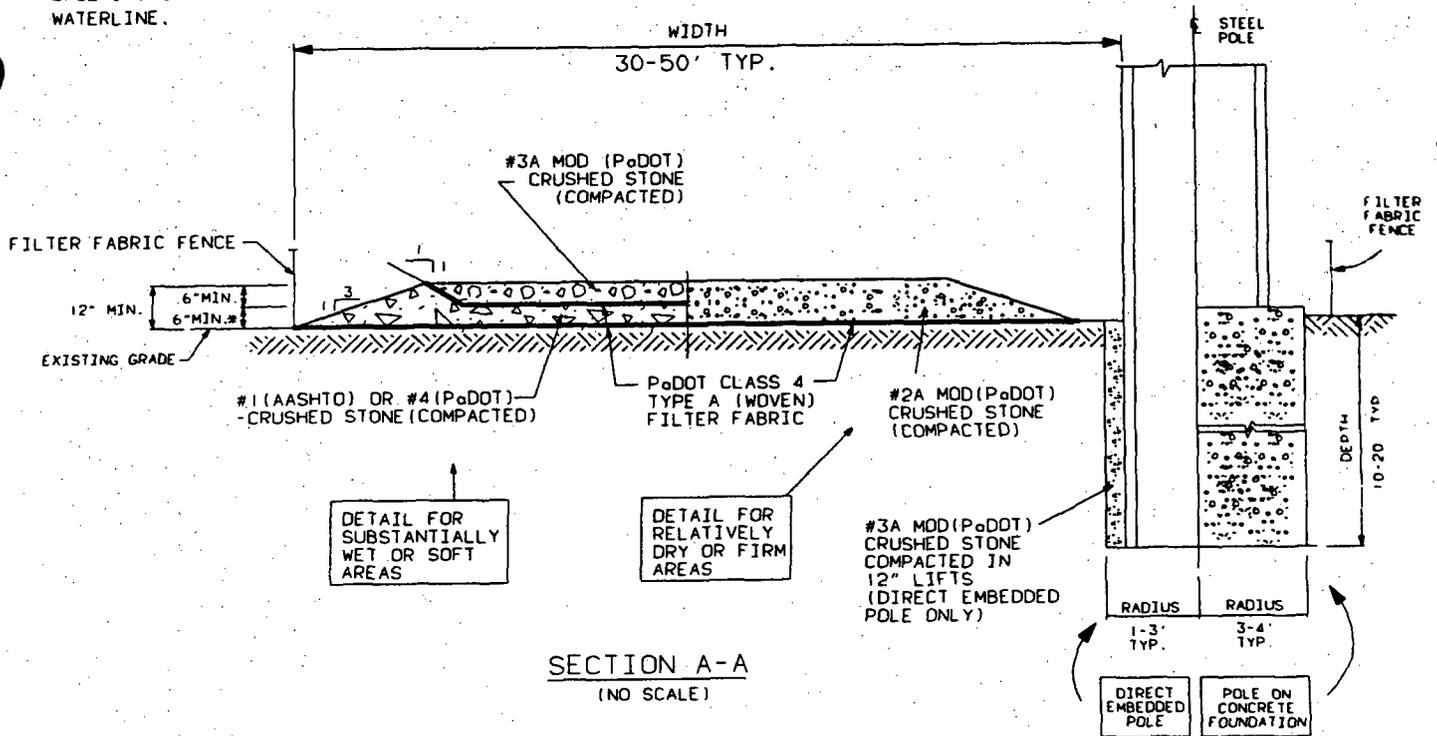
STRAW BALE BARRIER



TYPICAL ACCESS ROAD WITH STEEL PIPE CULVERT

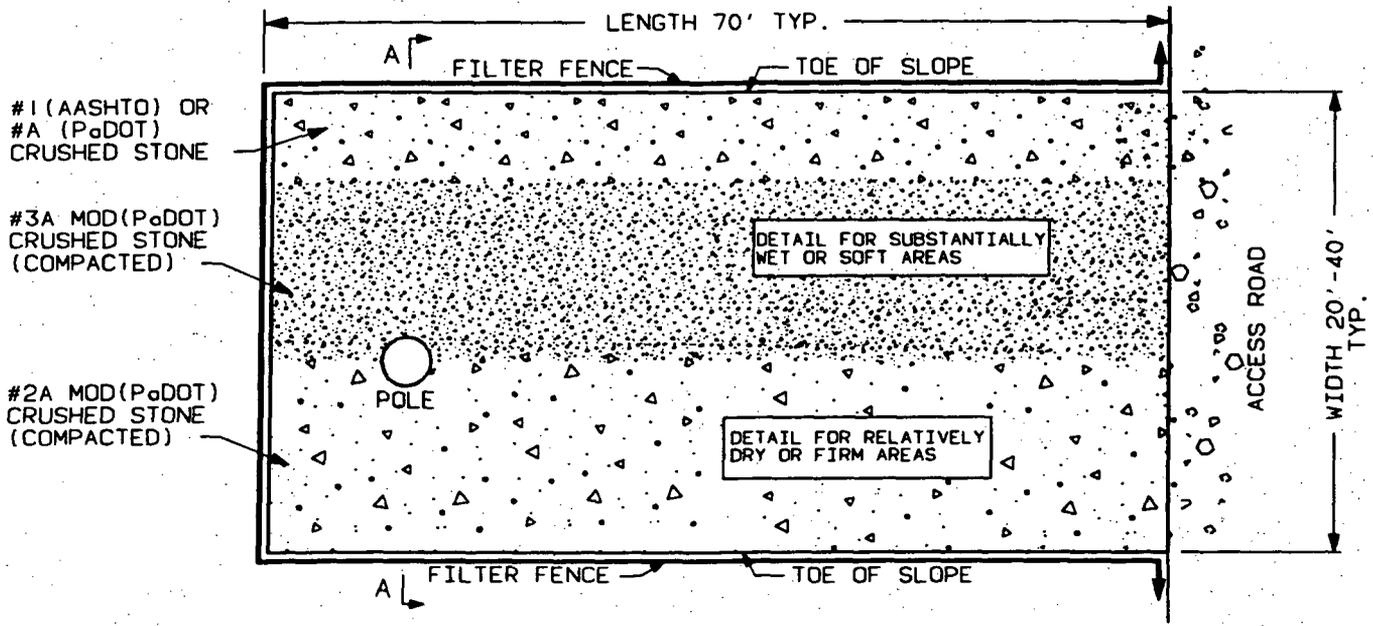


• IF TOP OF WATER LINE IS ENCOUNTERED ABOVE THE TOP OF BASE CRUSHED STONE FILL, INCREASE THE THICKNESS OF THE BASE STONE TO EQUAL THE TOP OF WATERLINE.

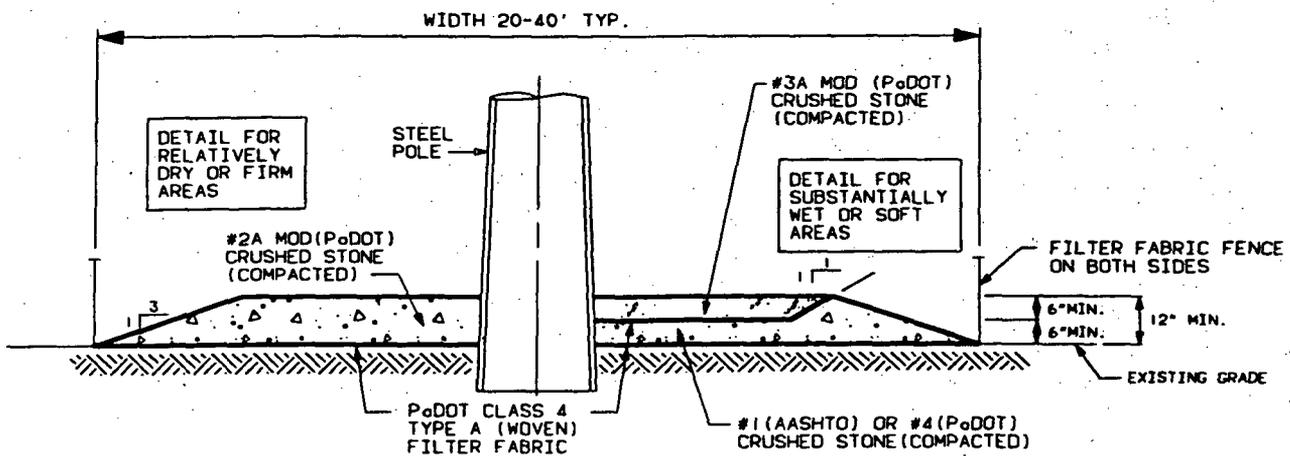


TYPICAL CIRCULAR CONSTRUCTION / MAINTENANCE WORK PAD

FIGURE 14



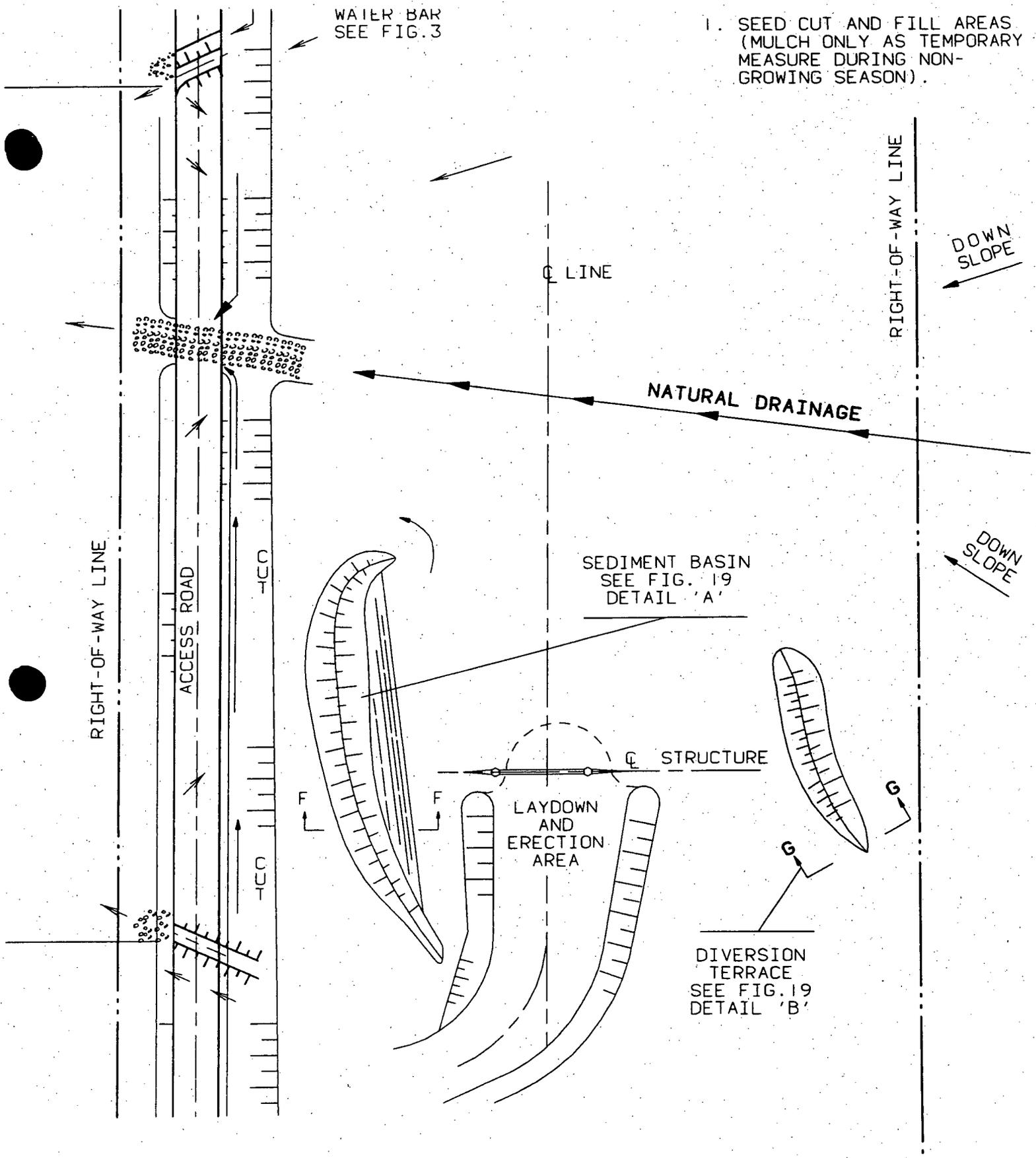
PLAN



SECTION A-A

TYPICAL RECTANGULAR CONSTRUCTION / MAINTENANCE WORK PAD

FIGURE 15



1. SEED CUT AND FILL AREAS
(MULCH ONLY AS TEMPORARY
MEASURE DURING NON-
GROWING SEASON).

TYPICAL PLAN

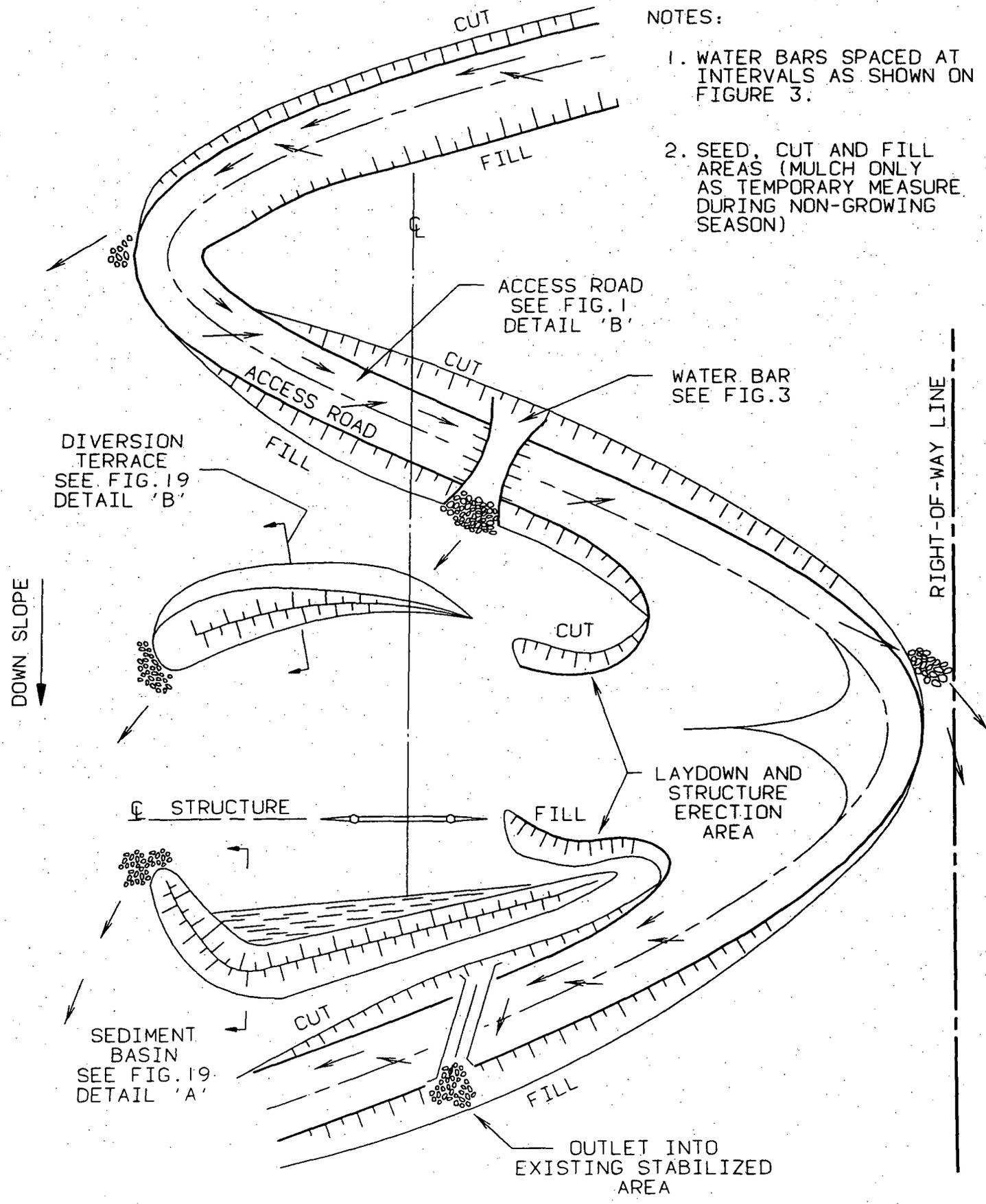
ACCESS ROAD AND STRUCTURE SITE GRADING
SIDEHILL CONSTRUCTION - DIVERSION TERRACE

FIGURE 17

RIGHT-OF-WAY LINE

NOTES:

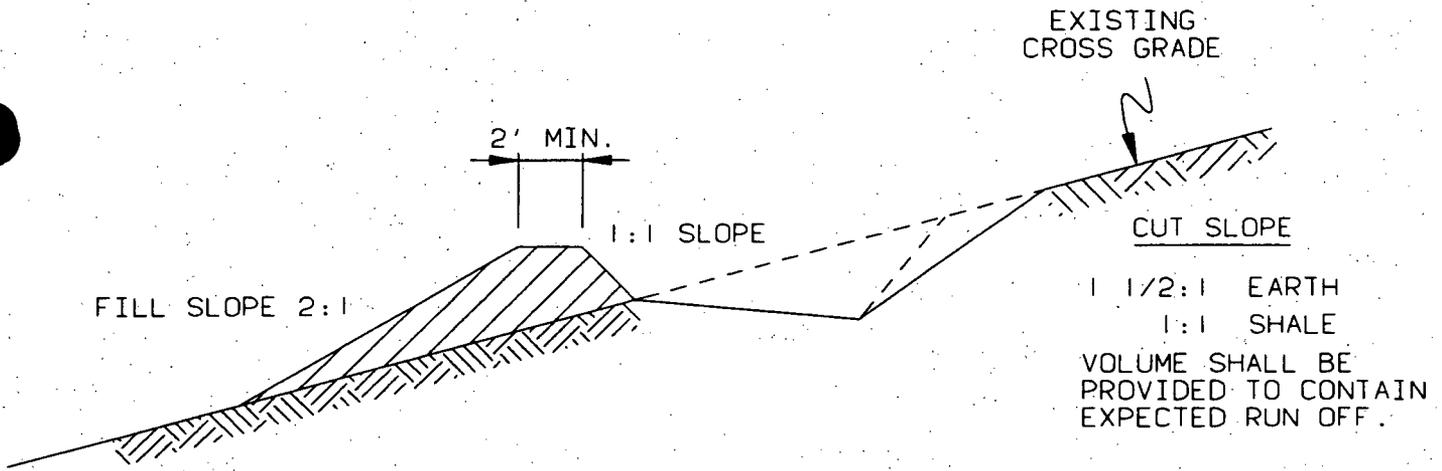
- 1. WATER BARS SPACED AT INTERVALS AS SHOWN ON FIGURE 3.
- 2. SEED, CUT AND FILL AREAS (MULCH ONLY AS TEMPORARY MEASURE DURING NON-GROWING SEASON)



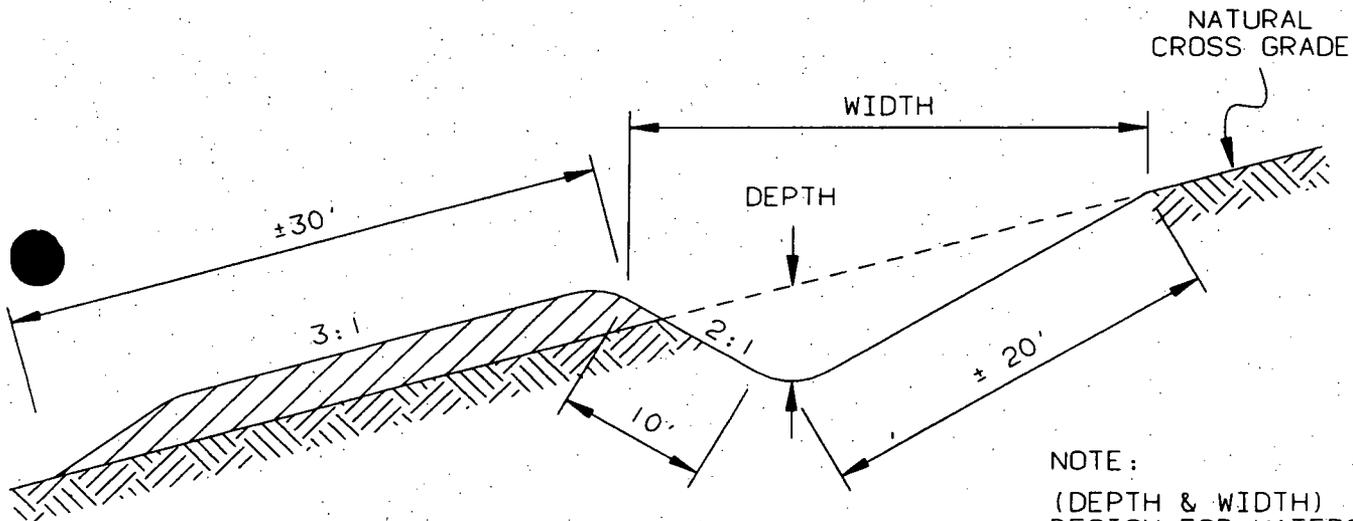
TYPICAL PLAN

ACCESS ROAD AND STRUCTURE SITE GRADING
DOWNHILL CONSTRUCTION

FIGURE 18

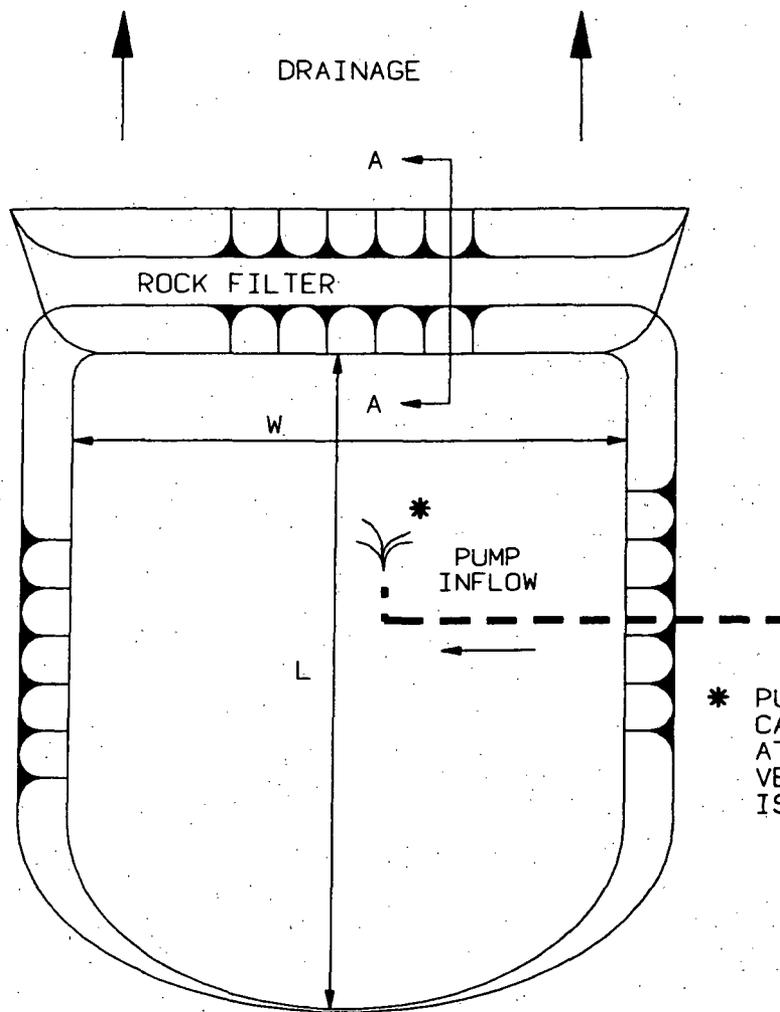


DETAIL 'A'
SEDIMENT BASIN



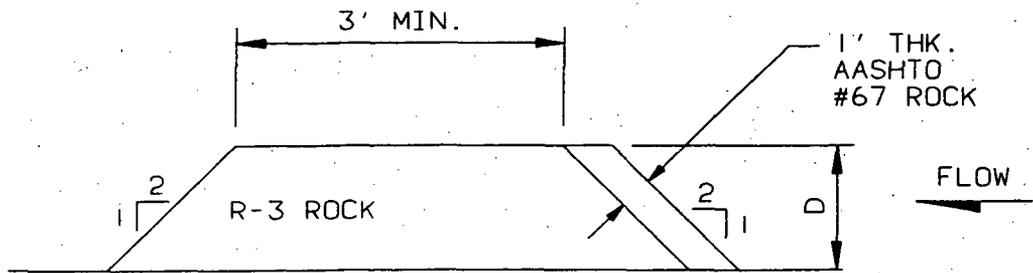
DETAIL 'B'
DIVERSION TERRACE
SEDIMENT TRAPS

TYPICAL CUT AND FILL GRADING DETAILS
TO CONTROL EROSION



* PUMP DISCHARGE WILL NOT CAUSE EROSION OR SCOUR AT OUTLET. AN ANCHORED VERTICAL DISCHARGE IS RECOMMENDED.

NOTE: IMPOUNDMENT MAY BE CREATED BY EXCAVATION (AS SHOWN) OR BY CONSTRUCTION OF ROCK EMBANKMENTS.

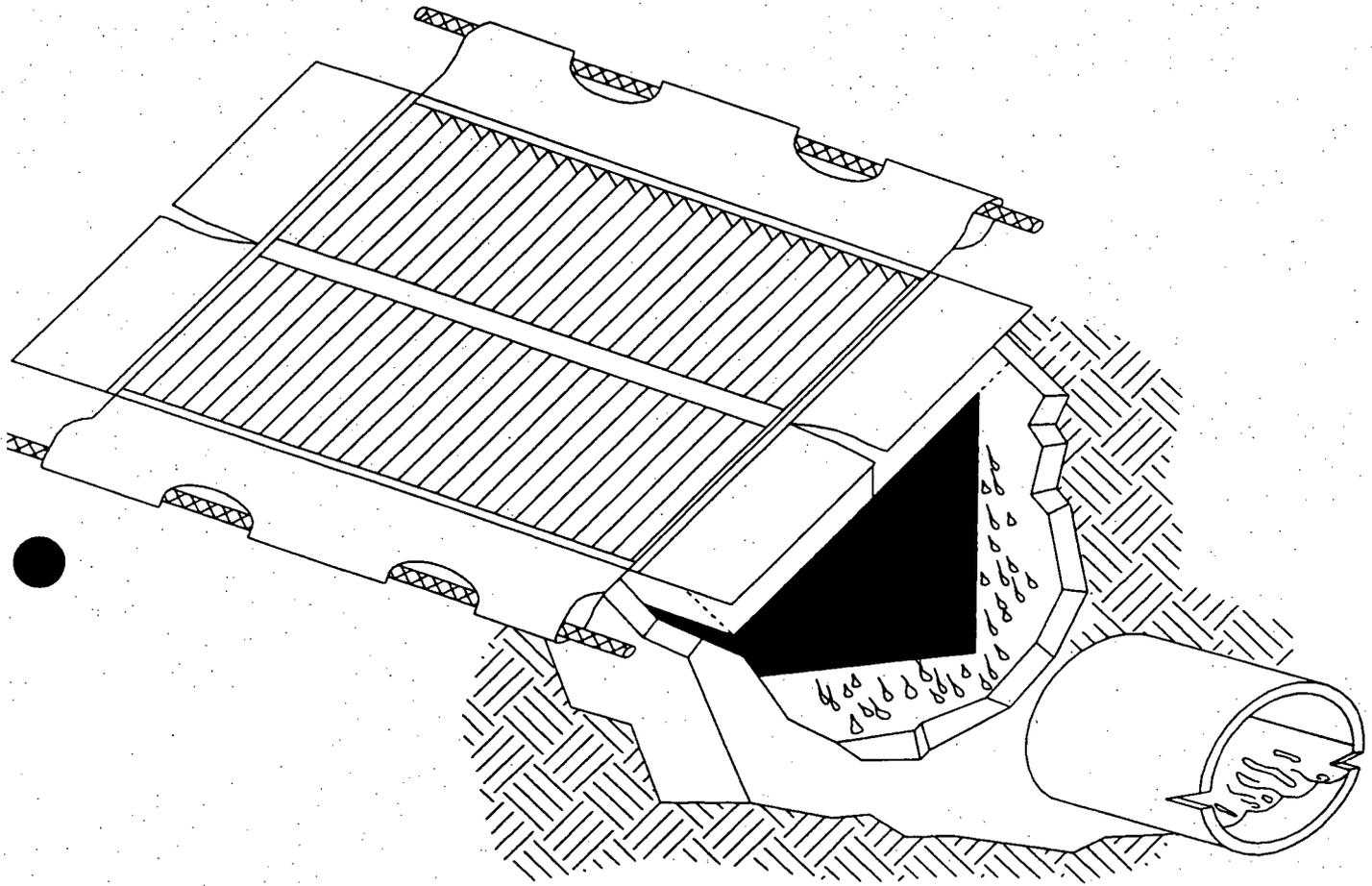


TYPICAL SECTION A-A

L = LENGTH
W = AVG. WIDTH
D = DEPTH

WHERE = $L \times W \times D = 100 \text{cf} / 100 \text{gpm INFLOW}$

FACILITY FOR REMOVING SEDIMENT FROM PUMPED WATER



SILT COLLECTOR

APPENDIX VII
GLOSSARY OF TERMS

GLOSSARY OF TERMS

Mobile Work Force (MWF) - PP&L personnel who are responsible for the supervision, construction and maintenance of PP&L's facilities around its system.

Electrical Systems - PP&L personnel who are responsible for the design, management, maintenance and operation of PP&L's transmission, distribution and substation facilities.

Transmission Structures

- **Steel Pole** - Single or double shaft steel structures that vary in height and may be flanged.
- **Lattice Tower** - Steel structures that are constructed with various size steel members. They have four legs and vary in height.
- **Wood Pole** - Single or double wood structures that vary in height.

Cribbing - Various types and sizes of blocking used to support and reinforce bridges, embankments and various types of PP&L structures.

Marshaling Yard - An area where construction material and equipment is assembled, stored and made available for use by MWF personnel or contractors.

Contractor - A non-PP&L outfit which is charged with the construction of PP&L facilities.

Wire Stringing - The process of pulling electrical conductor wire through pulleys (blocks) during the construction of transmission and distribution lines.

Line Route Siting Process - Method of identifying transmission line alternatives, conducting an Environmental Inventory, preparing and submitting the findings of the Process to the Pennsylvania Public Utility Commission for approval.

Environmental Inventory - A review of the Project Study Area which takes into account linear features, existing and proposed land uses, zoning, soils, slopes, natural features, cultural and unique features, vegetation, and visual and scenic features.

Project Study Area - The area that is surveyed for the Environmental Inventory and the selection of substation and transmission line route alternatives.

Right-of-Way - The land over or under which PP&L purchases or secures a legal agreement to locate its facilities.

Siting Coordinator - PP&L personnel who are responsible for coordinating the Line Route Siting Process.

Transmission Design Engineer - PP&L engineer who is responsible for the design of transmission facilities.

Distribution Design Engineer - PP&L engineer who is responsible for the design of distribution facilities.

Clearing Plan - A large scale map (usually 1"=200') of the right-of-way which describes the method and extent of vegetation management procedures as work to be done for installation of PP&L facilities.

Draftsperson - Person who is responsible for preparing drawings and plans of PP&L facilities.

Wooden Mats - Interlocking wooden planks which are used for the construction of temporary roads.

Flotation Fiber (Geotextiles) - Materials used to provide gravel road flotation under slight to moderate soil moisture conditions, and to prevent the mixing of fine soil particles of the native soil with the gravel.

Property Owner - Person or corporation whose land PP&L crosses with its facilities.

Access Roads - Lanes that are utilized by PP&L vehicles for the purpose of constructing, maintaining and repairing electrical facilities.

Overhead Conductors - Electrical lines in PP&L's system that vary in voltage from 12 to 500 kilovolts.

PP&L's Transmission Line Right-of-Way Program for Vegetation Management - (Vegetation Management Program) Methods and procedures for all transmission line right-of-way vegetation management practices including clearing, timber and slash disposal, use of herbicides, and specifying means of line access. It also addresses the use of contractors.

Temporary Road Crossing Protection Structure - Generally wood poles with crossarms that are constructed to prevent electrical conductors from damaging public property during the construction of distribution and transmission lines.

Underground Get-aways - Electrical lines which leave a substation's 12 kV line terminal underground and emerge above ground at a distribution or transmission structure.

Duct - A plastic pipe which carries either underground or overhead electrical conductors.

Manhole - A subsurface enclosure which personnel may enter and which is used for the purpose of installing, operating, and maintaining submersible equipment and/or cable.

Vault - An enclosure (above or) below ground which personnel may enter for the purpose of installing, operating, and/or maintaining equipment and/or cable.

**Attachment 55 to PLA-6219
ACHP, SHPO, and NRC Letters (1985 and 1987)**

(NRC Document Request 116)

**Page(s) removed as per
37 Pa.C.S.A. §506(c)
and consultation with the
Pennsylvania Historical
and Museum Commission.**



COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION
BUREAU FOR HISTORIC PRESERVATION
BOX 1026
HARRISBURG, PENNSYLVANIA 17108-1026

RECEIVED
JAN 06 1985
NUCLEAR DEPT.

December 19, 1985

Jerome S. Fields
Senior Environmental Scientist-Nuclear
Pennsylvania Power & Light Company
Two North Ninth Street
Allentown, PA 18101

Re: Susquehanna Steam Electric
Station/Operation & Maintenance
Activities, PP&L File No. 991-2
BHP File No. ER 81-0658-079-C

Dear Mr. Fields:

We have reviewed your request to have the effect determination for the above referenced project changed from "no adverse effect" to "no effect". Because the actions described have had an effect on archaeological sites, the original determination stands. Your final report should continue to reflect a no adverse effect finding.

Should you have any additional questions, or if we can be of any additional assistance please contact Kurt Carr or myself at (717) 783-8946.

Sincerely,

Dan G. Deibler, Acting Chief
Division of Planning & Protection
Bureau for Historic Preservation

DGD:jk