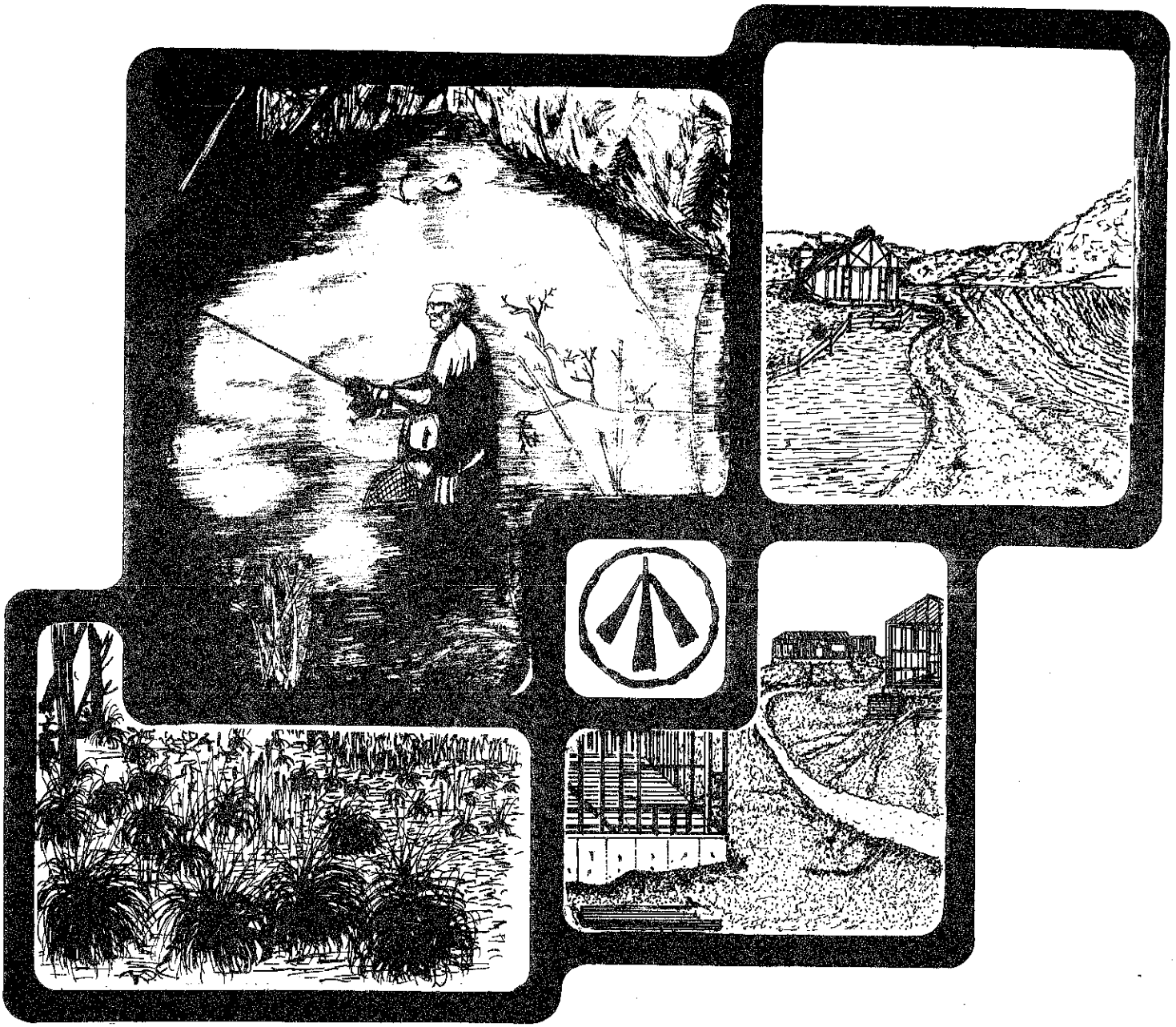
ENVIRONMENTAL REVIEW TEAM REPORT



PROPOSED SEGA SAND AND GRAVEL OPERATION

KENT, CONNECTICUT

KING'S MARK
RESOURCE CONSERVATION AND DEVELOPMENT AREA

KING'S MARK
ENVIRONMENTAL REVIEW TEAM REPORT

On

PROPOSED SEGA SAND AND GRAVEL OPERATION
KENT, CONNECTICUT

OCTOBER 1978

King's Mark Resource Conservation & Development Area

Environmental Review Team

P.O. Box 30

Warren, Connecticut 06754

ACKNOWLEDGMENTS

The King's Mark Environmental Review Team operates through the cooperative effort of a number of agencies and organizations including:

Federal Agencies

U.S.D.A. SOIL CONSERVATION SERVICE

State Agencies

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEPARTMENT OF HEALTH
DEPARTMENT OF TRANSPORTATION
UNIVERSITY OF CONNECTICUT COOPERATIVE EXTENSION SERVICE

Local Groups and Agencies

LITCHFIELD COUNTY SOIL AND WATER CONSERVATION DISTRICT
NEW HAVEN COUNTY SOIL AND WATER CONSERVATION DISTRICT
HARTFORD COUNTY SOIL AND WATER CONSERVATION DISTRICT
FAIRFIELD COUNTY SOIL AND WATER CONSERVATION DISTRICT
NORTHWESTERN CONNECTICUT REGIONAL PLANNING AGENCY
VALLEY REGIONAL PLANNING AGENCY
LITCHFIELD HILLS REGIONAL PLANNING AGENCY
CENTRAL NAUGATUCK VALLEY REGIONAL PLANNING AGENCY
HOUSATONIC VALLEY COUNCIL OF ELECTED OFFICIALS
AMERICAN INDIAN ARCHAEOLOGICAL INSTITUTE

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Stanley J. Pac, Commissioner

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KING'S MARK RESOURCE CONSERVATION AND DEVELOPMENT AREA

Victor Allan, Chairman, Executive Committee
Stephen Driver, ERT Committee Chairman
George Sweeney, Coordinator

Staff Administration Provided By

NORTHWESTERN CONNECTICUT REGIONAL PLANNING AGENCY

Bruce M. Ridgway, Chairman
Thomas A. J. McGowan, Director
Richard Lynn, ERT Coordinator
Robert D. Kaplan, ERT Draftsman
Patricia Dyer, ERT Secretary

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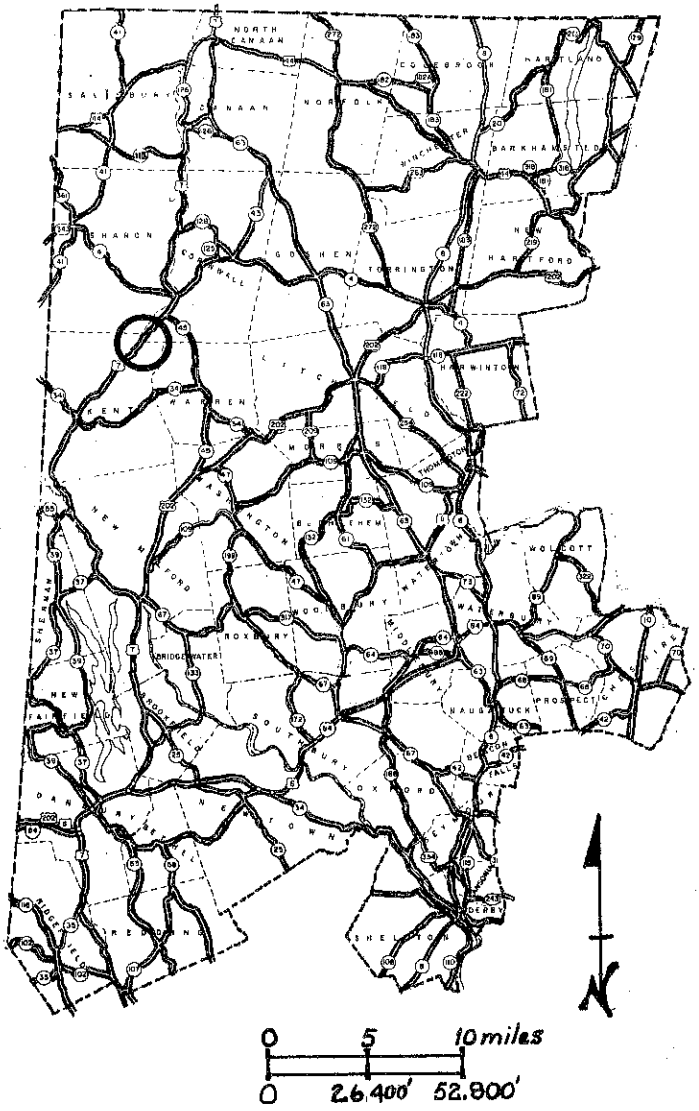
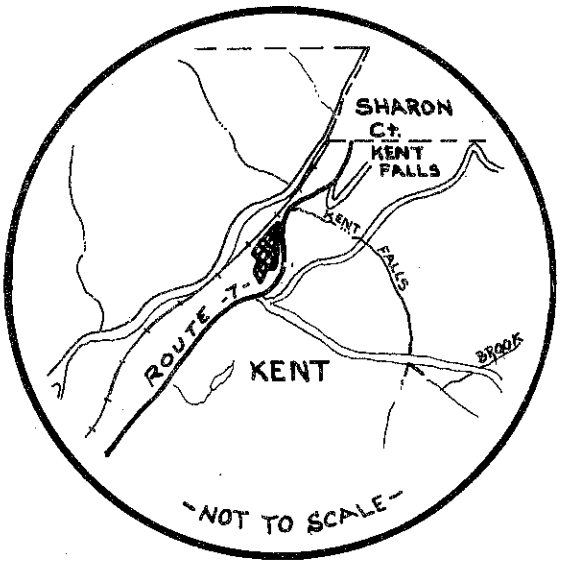
KENT, CONNECTICUT





ENVIRONMENTAL REVIEW TEAM REPORT
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KENT, CONNECTICUT

I. INTRODUCTION

The Town of Kent is presently reviewing an application for a sand and gravel operation on a ± 20 acre site in the northeastern corner of Town. The parcel is presently undeveloped and is located near the Kent Falls State Park between Route 7 and the Housatonic River.

The proposed excavation plan calls for removing about 300,000 cubic yards of material from ± 10 acres of land. The developer anticipates a four to five year mining operation with trucks operating from March to December each year of operation. The developer has also indicated that trucking would be limited to week-days during the hours of 8:00 a.m. to 4:30 p.m.. The proposal calls for 25 truck trips per day resulting in 3 - 4 round trips per hour. The excavated material is proposed to be hauled along Route 7 to New Milford for processing. No processing (washing or crushing) of excavated material is proposed at the development site. The developer has no plans at the present time for use of the property following the sand and gravel operation.

The Kent Planning and Zoning Commission requested the assistance of the King's Mark Environmental Review Tean (ERT) to assist them in analyzing the environmental impacts of the proposed project. Specific concerns of the request include the impact of the operation on: groundwater, surface water quality, soil quality, noise levels, air quality, and Route 7 traffic patterns.

The ERT met and field reviewed the site on September 13, 1978. Team members for this review consisted of the following:

Art Cross	District Conservationist	U.S.D.A. Soil Conservation Service
Mike Zizka	Geohydrologist	Connecticut Department of Environmental Protection
Byron Janes	Climatologist	University of Connecticut
Ralph Goodno	Landscape Architect	Housatonic Valley Association
John Carey	Transportation Planner	Connecticut Department of Transportation
Russell Handsman	Archaeologist	American Indian Archaeological Institute
Carol Youell	Environmental Planner	Northwestern Connecticut Regional Planning Agency

Prior to the review day, each team member was provided with a summary of the proposed project, a soil survey map, a soils interpretation chart, a topographic map of the area, and a checklist of concerns to address. Following the field review, individual reports were prepared by each team member and forwarded to the ERT Coordinator for compilation and editing into this final report.

This report presents the team's findings and recommendations. It identifies the natural resource base of the site and discusses the environmental impact of the proposed excavation operation. It is important to understand that the ERT is not in competition with private consultants and hence does not perform design work or provide detailed solutions to development problems. Nor does the Team recommend what ultimate action should be taken on a proposed project. The ERT concept provides for the presentation of natural resources information and preliminary development considerations - all conclusions and final decisions rest with the town and developer. It is hoped the information contained in this report will assist the Town of Kent in reaching decisions regarding the proposed sand and gravel operation.

If any additional information is required, please contact Richard Lynn, (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, P. O. Box 30, Warren, Connecticut.

* * * * * * *

II. SUMMARY

1. *The soil underlying the area proposed for excavation typically has good suitability as a source of sand and gravel.*

2. *Few erosion and sediment control measures would be needed with implementation of the proposed operation as the area appears to be self-contained. Reclamation of the mined area should follow closely procedures discussed in the "Erosion and Sediment Control Handbook - Connecticut". It is advisable to limit exposed areas to one or two acres at any one time. As the gravel is removed, the top soil should be replaced and the area seeded to a permanent cover. With implementation of the project, it is advisable to mine the area parallel to and starting near the Railroad tracks and stabilize as the area is worked towards Route 7.*

3. *The proposed gravel excavation should not have any noticeable effect on surface run-off.*

4. *No ill effects on groundwater quality are likely to occur from the proposed excavation.*

5. *No threat of flooding of the property by the Housatonic River seems to exist. Recent flood boundary maps indicate that even in the event of a 500-year frequency storm, the river would not rise to the level of the property.*

6. *It is unlikely that the proposed activity will have any permanent change on the microclimate of the site.*

7. *Although noise impact will be periodic and ultimately short-term (ceasing with completion of the operation), noise generated by the operation will be a nuisance. A fairly well maintained gravel truck will have a noise level of about 80 - 88 decibels(A) at 50 feet under normal operating conditions. This noise level approximates that of a typical food blender at 3 feet. Noise generated by a large bulldozer on-site will be approximately 90 - 100 decibels(A). This noise level approximates that of a typical gas lawn mower at 3 feet. Vegetative buffer strips on-site and off-site will attenuate these noise levels to an extent. Restricting the operation as proposed to daytime hours and week-days will mitigate the noise impact.*

8. *A queue (line up of vehicles) of up to 5 vehicles in the peak hour could be expected to accumulate during the approximate four minute period required to accelerate trucks from the site to 40 mph. The distance required for gravel trucks to accelerate to this speed is estimated to be ± 5400 feet. Along this ± 5400 foot stretch, only two brief passing zones exist for backed up traffic. Restricting the operation to week-days (as proposed) and during daytime hours (preferably 9 a.m. to 4 p.m.) will mitigate the impact.*

9. *Driveway access to the site, if constructed to Department of Transportation permit stipulations, will accomodate the safe merging of gravel trucks onto Route 7.*

10. *A cultural resource reconnaisance of the property revealed no historic or prehistoric sites on the property. The proposed operation will have no foreseen impacts on archaeological resources.*

11. *The final grading plan proposed by the developer appears reasonable. Providing proper soil stabilization techniques are followed, the land will have good potential for a variety of alternative land uses following completion of the proposed sand and gravel operation.*

III. SETTING, TOPOGRAPHY, LAND USE

The ± 20 acre site proposed for excavation is located on the west side of Route 7 about four miles northeast of the center of Town. As shown in Figure 1, Route 7 forms the northern and eastern boundaries of the property, privately owned woodland abuts on the south, and the Penn Central Railroad track forms the western boundary. Distance from the Housatonic River varies from ± 500 - 700 feet. The entrance to the Kent Falls State Park is located ± 1100 feet northeast of the parcel. Southeast of the proposed excavation site are a number of residences; the nearest being ± 750 feet according to Figure 1.

As shown in Figure 1, the ± 20 acre parcel slopes westerly from Route 7 downhill to the old Penn Central Railroad track bed. Of the ± 10 acres proposed for excavation (see Figure 2), ± 1 acre is a former excavation and ± 9 acres is abandoned cropland now in growth of weeds, grasses, and scatterings of native shrubs and sapling trees. The steep southeastern corner of the property is woodland as is the steep eastern border of the property which abuts Route 7. With the exception of the proposed access road to the property from Route 7, these steep portions of the property will not be disturbed by the proposed project.

IV. SOILS

A detailed soil survey map and soils interpretation chart is presented in the appendix of this report. The soils map illustrates the geographic location of all soils identified on the property. The soils interpretation chart presents information on each identified soil type including suitability of the soil as a source of sand and gravel.

The ± 10 acres proposed to be mined is located primarily on excessively well drained Groton gravelly sandy loam soil, with slopes of 3-15%. The Groton soil typically has good suitability as a source of sand and gravel and road fill. In some places, it contains poorly graded sand and gravel. A typical profile to depths of 12 inches contains 20-55 percent sand and gravel and at 12-44 inches, 50 to 65 percent sand and gravel.

The top 6 inches of Groton soil is typically a dark-brown, gravelly sandy loam with 20 to 25 percent gravel, cobblestones, stones, and boulders. Due to the course texture and low natural fertility, this soil is a poor source of topsoil. Areas exposed to sand and gravel are difficult to reestablish and maintain in grass, trees, and shrubs because of the soils low water holding capacity and low-natural fertility. On steeper slopes, further difficulty is added to these problems.

In light of the difficulty encountered in revegetating gravel soils, it is recommended that the top six (6) inches of soil be retained on the site and spread back on the area. This would involve stockpiling approximately 7500 cubic yards of topsoil. This stockpiled soil should be stabilized temporarily with rye grasses.

Figure I

GENERAL LOCATION OF SITE

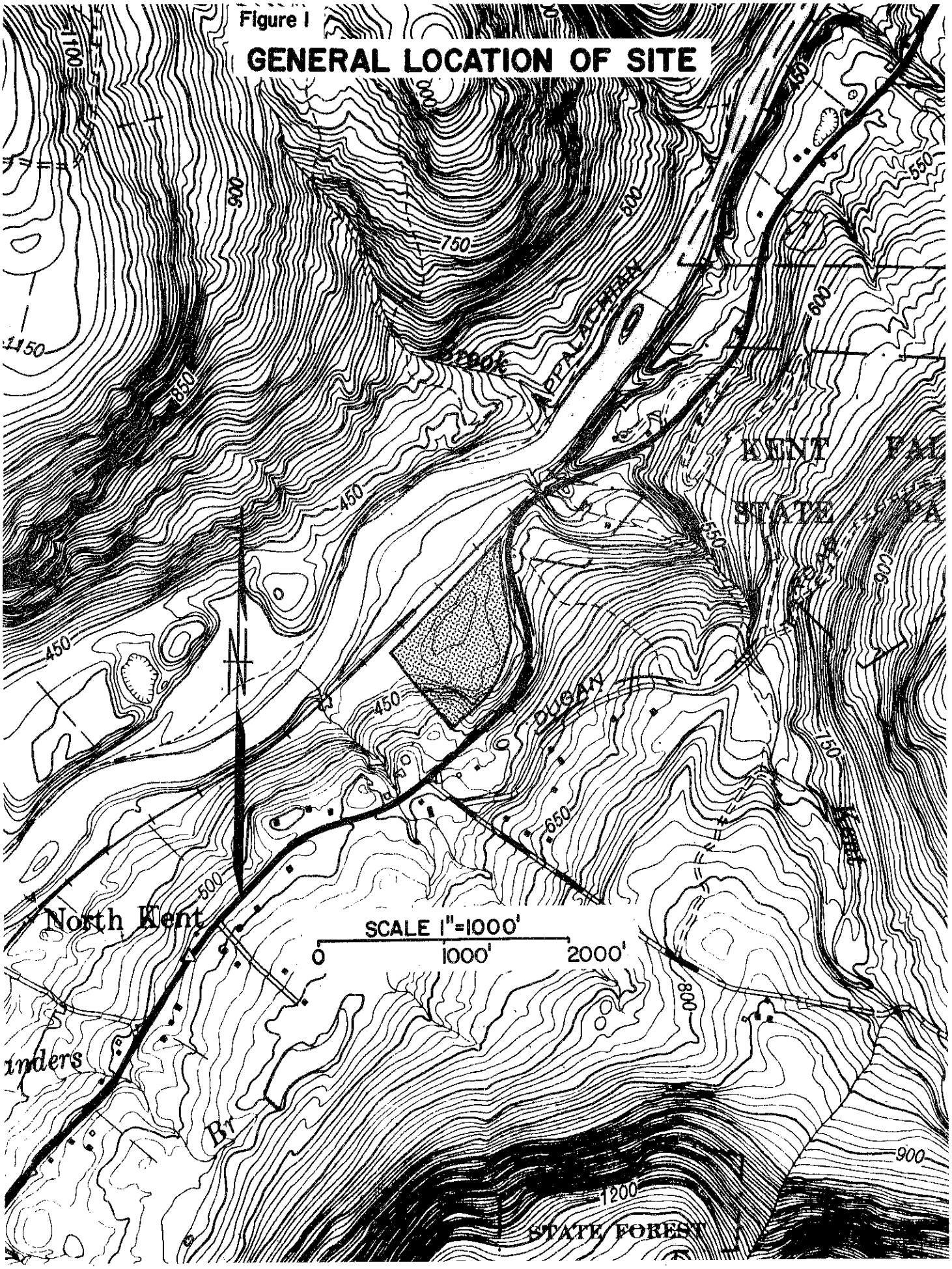
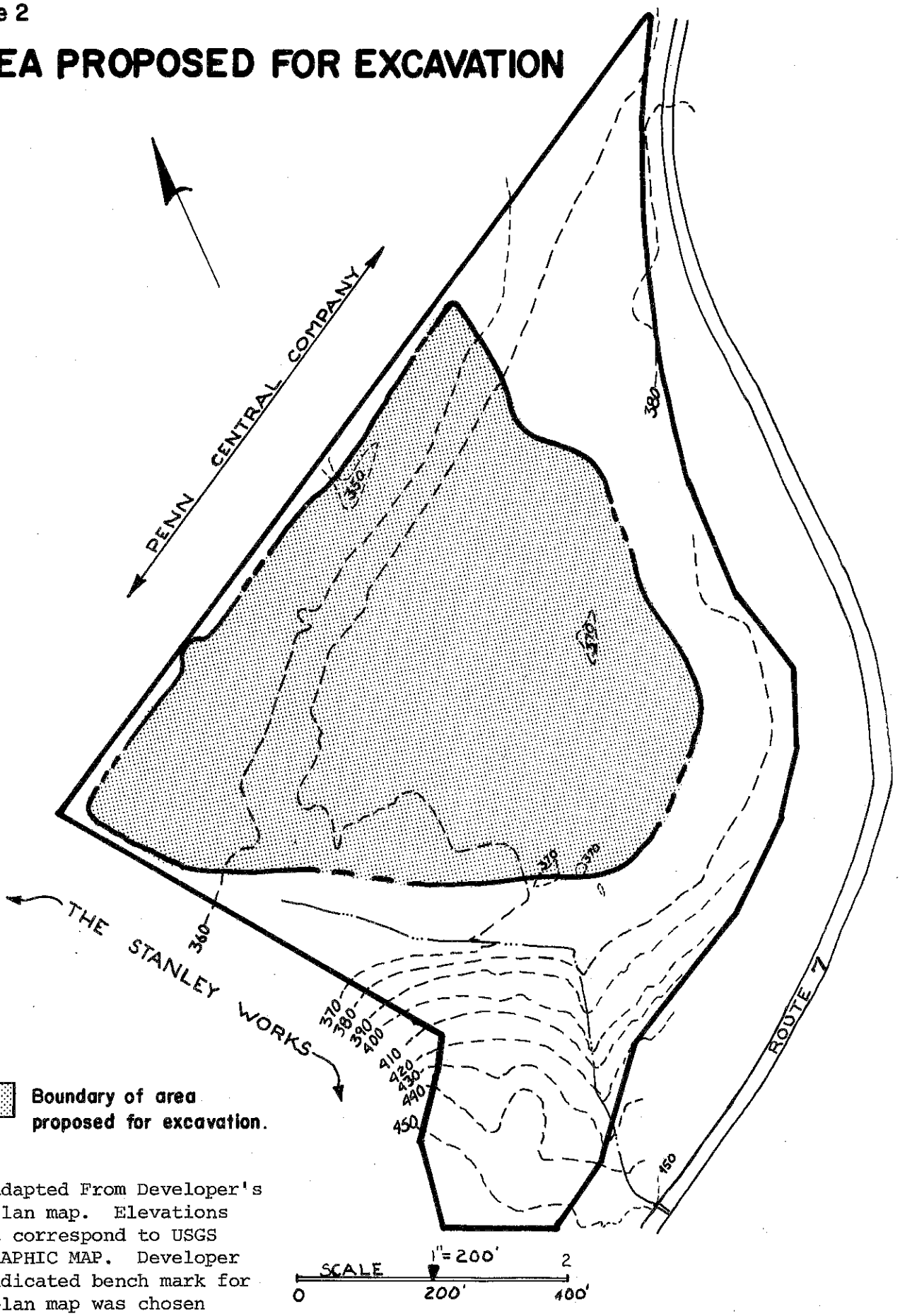


Figure 2

AREA PROPOSED FOR EXCAVATION



Boundary of area proposed for excavation.

Note: Adapted From Developer's site plan map. Elevations do not correspond to USGS TOPOGRAPHIC MAP. Developer has indicated bench mark for site plan map was chosen randomly.

As surface disturbed areas are brought to finished grades, the areas should be re-established in grasses. Reclamation of the mined area should follow closely procedures discussed in the "Erosion and Sediment Control Handbock - Connecticut" (U.S.D.A. - S.C.S., 1976). The Appendix of this ERT report presents portions of the above Handbook on the following topics: temporary vegetative cover, permanent vegetative cover, and mulching.

With regards to additional erosion and sediment controls, the area appears to be self-contained and few measures are needed. One intermittent stream is located on the southerly boundary and it is recommended that no earth disturbance occur within 100 feet of this stream.

For run-off and aesthetic reasons, it is advisable to mine the area parallel to and starting near the Railroad tracks and stabilize as the area is worked towards Route 7.

V. SURFICIAL GEOLOGY AND GLACIAL HISTORY

The surficial geology of the proposed gravel-excavation area has been included in a geologic map of the Ellsworth quadrangle. The map, prepared by George C. Kelley, is on open-file at the Natural Resources Center of the Department of Environmental Protection in Hartford. The topography of most of the property reflects a distinct change from the steepness of the hillside to the east. This change also represents a transition in geologic materials: from glacial till on the hillside to stratified drift in the valley. Till is basically an accumulation of rock particles of various shapes and sizes. The particles were collected by, and redeposited directly from, glacier ice. Because the till is not to be excavated, it is not discussed further in this report. Stratified drift consists of materials that were transported and deposited by meltwater, either adjacent to or downstream from a wasting glacier. Although the materials usually consist of sand and gravel, layers of silt or clay are not uncommon in some areas.

In the general vicinity of the proposed gravel pit, on both sides of Housatonic River, stratified drift forms high, flat-topped terraces with steep faces. These sediments, which were deposited in meltwater streams adjacent to a glacier, are known as kame terraces. Natural depressions in some parts of these terraces represent areas where buried ice blocks melted, allowing the surrounding sediments to collapse. The proposed gravel pit area itself is a topographically distinct unit and is not part of the kame terraces. The area, which is shaped like an amphitheater, must have been still occupied by ice while the terraces were being built. Hence, most of the deposits within the gravel pit consist of materials that were deposited either under the ice, while it was still present locally, or downstream from the ice, after it had receded to a position in the valley northeast of the property.

All data available to the Team suggest that coarse gravel is predominant in the top 10 to 20 feet of the stratified drift in the pit area. At the western edge of the proposed pit and immediately adjacent to the river, the gravel is covered by sand and silt, which represents an early deposit of Housatonic River. A test hole located in the valley approximately one mile southwest of the property indicates that the gravel is replaced at depth by sand (source: Connecticut Water Resources Bulletin No. 22). The total stratified drift deposit is probably about 80 feet thick near the center of the property.

VI. HYDROLOGY

Surface runoff on the property is channelized in only one area: the southern boundary, where water generated on the till-covered hillside forms an intermittent stream. Because of the loose, coarse texture of the gravel and sand, it is likely that very little surface runoff is produced from the property itself. Rather, most precipitation probably is absorbed into the surface materials, percolating downward to the groundwater table. Significant runoff from the property should occur, if at all, only during very intense storms and during the winter and early spring months. The proposed gravel excavation should not have any noticeable effect on surface runoff.

Within most of the property, the groundwater table lies approximately 30 to 40 feet below the present surface. The reason for this estimation is that within coarse-grained stratified drift deposits that are adjacent to a river, the groundwater level will usually not be much higher than the level of the river itself. The water table may lie within 20 feet of the surface near the eastern boundary of the property, where the thickness of the stratified drift is diminished. An excavation of not more than 20 feet has been proposed. It therefore appears likely that the water table would remain at least 10 feet below the surface throughout most of the property. No ill effects on groundwater quality are likely to occur from the proposed excavation itself.

No threat of flooding of the property by Housatonic River seems to exist. The elevation of the railroad bed that lies west of the property is approximately 25 feet higher than the normal river level. Recent flood boundary maps prepared by the Federal Insurance Administration indicate that even in the event of a 500-year frequency storm, the river would not rise above the level of the railroad bed to the west of the property.

VII. CLIMATOLOGY AND NOISE

It is unlikely that the proposed activity will have any permanent change on the microclimate of the site. Only a few small trees will be removed and at completion the area is to be covered with grass and other herbacious plants similar to present vegetation. The change in contour of land should not have a significant effect.

The major climatic concerns are with noise and dust during periods of operation. It is impossible to remove all vegetative cover from the soil and move it around without causing dust. A strong southwest wind would most likely cause some dust to leave the site and settle on adjacent trees, roads, etc. The dust generated by the operation can be kept to a minimum however, by 1) limiting exposed areas to one or two acres at a time and 2) covering the loadbed of trucks carrying the excavated material.

The most serious annoyance will be the noise generated by the machinery used to remove and load the gravel and the heavy trucks hauling it. The trucks will be a nuisance not only near the site but along highway 7 through the village of Kent. The proposal is for three to four loads an hour to be removed, resulting in six to eight trips an hour or one every eight to ten minutes.

The noise intensity from trucks or earth moving equipment varies considerably depending on age of machines, the mechanical condition and the manner in which it is operated. Under the best of conditions they are noisy and can be heard at a considerable distance. A large bulldozer such as Caterpillar 988 or Michigan 125 proposed for this operation produces a noise level of 90 to 100 decibels (dBA). The chart presented on the following page gives some indication of how loud this is. There will be some attenuation of the noise by the band of trees and other vegetation. However during periods when the wind is from the south and west, the level of noise reaching the Kent Falls area could be irritating. Sounds tend to travel farther in the morning and evening.

According to State Department of Transportation regulations, the maximum noise level for trucks on highways is 88 dBA. It is estimated by the State Department of Transportation Environmental Planning Division that a fairly well maintained gravel truck would have a noise level of 80 - 88 dBA at 50 feet under normal operating conditions. A poorly maintained gravel truck may approach 95 dBA. It should be recognized that frequency of occurence is an important consideration in noise analysis. It is obvious that six to eight truck trips an hour will have a smaller impact than, say, thirty trips an hour. It should also be recognized that noise impact of the operation will be a short-term impact as the entire excavation operation as proposed would be completed within five years.

The following recommendations will minimize, but not eliminate, the environmental degredation due to noise and dust.

1. The exposed area of the operation should not exceed one to two acres at any one time. As the gravel is removed, the top soil should be replaced and the area seeded to a permanent cover. A grass cover will eliminate dust and will reflect less sound than a bare ground, as well as reduce soil erosion by water.

2. The operation should be restricted to daytime hours during week days as the developer has proposed. The Kent area is an important recreation and tourist district and the operation of trucks on highways and noise of machinery should be restricted during times of maximum recreational activities. The noise, dust and truck traffic could be particularly annoying to visitors at Kent Falls State Park which is heavily used on weekends. In addition, heavy tourist traffic in the Kent village on weekends could be inconvenienced by frequent passage of large trucks.

VIII. TRAFFIC IMPACT

The proposed mining operation is expected to operate during the months of March thru December and generate 25 truck-trips per day during the hours of 8:00 a.m. to 4:30 p.m. The maximum size of truck utilized in the gravel operation will be a 20 yard tractor-dump trailer combination of the American Association of State Highway Officials WB-50 class. These trucks are expected to travel through the Town of Kent exclusively on Route 7.

Route 7, in the area of the proposed mining site, is a 28' ± wide, two-lane, bi-directional roadway with a 1977 Average Daily Traffic (ADT) of 1,500 vehicles. The addition of 3.1 trucks per hour (25 truck-trips per day) travelling south on the existing Route 7 roadway should have little or no effect on its capacity. However, loaded gravel trucks leaving the site and travelling south on Route 7 must negotiate several small hills which will result in high noise levels and some back-up of traffic. Due to the +5.5% grade southbound on Route 7 at the sand and gravel pit's proposed access drive, in conjunction with the immediately following +3.5% and +5.5% grades southbound, it is estimated that a WB-50 design vehicle would require 5,400'± to accelerate to the posted speed limit of 40 mph. Based on Connecticut Department of Transportation Geometric Highway Design Standards, a fully loaded WB-50 vehicle would reach 7 mph after climbing the remaining 200' ± 5.5% grade at the drive, accelerate to 19 mph while ascending the following 800' ± 3.5% grade, and decelerate to 10 mph after completing the final 800' ± 5.5% grade. An additional 3,600' ± of level roadway would then be necessary for the truck to attain 40 mph. Although these estimates reflect the worst case condition, a queue (line up of vehicles) of up to 5 vehicles in the peak hour could be expected to accumulate during the approximate four minute period required to accelerate these trucks to 40 mph. Obviously, during this acceleration period, site generated truck noise will be at a maximum.

Because of the 28' ± width of Route 7 in this area, the only respite for backed-up Route 7 thru vehicles are two brief passing zones (400' ± and 500') established 2,900' ± and 4,500' ± south of the proposed driveway respectively. Delays caused by the lack of insufficient passing room could induce impatient drivers to endanger themselves or other motorists by attempting passing maneuvers in potentially unsafe sections of roadway. As a partial measure to reduce the impact of the slowly moving gravel trucks, it is recommended that hauling from the site be restricted to the hours of 9:00 a.m. to 4:00 p.m. Monday thru Friday. This action would minimize delays during hours of peak traffic volume and eliminate the situation entirely on weekends when the percentage of drivers unfamiliar with Route 7 increases.

Permit #4-050960 has been issued to the developers of this project by the Department of Transporation's District IV Permits Office to construct a driveway for the proposed site. The drive, if constructed to permit stipulations, will be paved, provide sightlines along Route 7 of 600' ± southbound and 400' ± northbound, and be of sufficient radius to accommodate the safe merging of WB-50 vehicles onto Route 7. Permit #4-050960 also requires that the developers of this project erect and maintain a 30" "Truck Crossing" warning sign on each Route 7 approach to the subject drive. It is felt that such signing will provide emphasis to the gravel operation's driveway and communicate to motorists advance warning of the slow moving trucks.

Upon construction of the proposed sand and gravel operation's driveway, it is recommended that the existing dirt drive located adjacent to the north border of the property, be physically closed off. This existing drive due to its location on a 10.5 degree horizontal curve and its acute angle of intersection with Route 7 would create a serious accident potential if used by WB-50 class vehicles.

IX. CULTURAL RESOURCES

A cultural resource reconnaissance of the proposed excavation site revealed no obvious cultural resources which are going to be adversely impacted by the proposed gravel operation. Ground surface disturbance has already destroyed the integrity of some of the tract. However, because there were portions of the tract which may have contained subsurface deposits of the prehistoric and historic periods, a sampling grid was laid out and a total of 30 units were excavated. No evidence of cultural resources was found even though the locality was supposedly used as a CCC camp during the 1930's.

An archival records search was also undertaken for information on the location and research potential of historic structures/deposits in the region. The primary documents used included two maps from the mid-nineteenth century. Both Clarke (1859) and Beers maps (Beers 1874) indicate that no structures (residential or commercial/industrial) existed in the interior of the tract in the mid 1850's.

To sum, a cultural reconnaissance of the property revealed no historic or prehistoric sites on the property. The proposed gravel operation will have no foreseen impacts on archaeological resources.

X. ADDITIONAL PLANNING CONSIDERATIONS

ZONING REGULATIONS

The parcel proposed for excavation of earth resources is in the town's Rural zoning district. The Kent Zoning Regulations (1971) state that the Planning and Zoning Commission, after a public hearing, may permit the removal of earth, sand, gravel, clay or stone in any district

under certain conditions. Those conditions basically require that:

1. the applicant submit a plan showing existing and finished grades,

2. the plan provide for proper drainage of the area during and after completion of the operation; that no bank exceed a slope of 2:1 (horizontal distance to vertical rise) and that no removal take place within 20 feet of a property line,

3. that the disturbed area be covered with not less than 4" of topsoil and that it be seeded with a suitable cover crop,

4. that the applicant post a bond before the permit is granted to guarantee conformity with the provisions of the permit.

These regulations set forth the basics to insure against environmental degradation as a result of excavation activity. Certain other provisions, however, could be developed and included in the Town's Zoning Regulations for future excavation proposals to insure maximum protection of the environment as well as public safety, health and welfare. The Town may wish to pursue augmenting existing regulations with some of these additional provisions.

For example, an applicant could be required to include an Erosion and Sediment Control Plan with his excavation plan. The Litchfield County Conservation District can provide assistance in the preparation of such plans and also can review and make comments on the adequacy of such plans for the Planning and Zoning Commission. An Erosion and Sediment Control Plan should outline erosion and sediment control methods to be used and identify the sequence of implementation. The plan ideally should also incorporate erosion and sediment controls <u>during</u> the operation itself. For example, as mining is completed on one area of the site, that area should be graded and seeded before the operation is moved to another area. This process minimizes the amount of exposed rough earth at any one time, thereby cutting down on dust and erosion. Such a plan does not impose hardship on the operator because the tools for reclamation - machines and manpower - are already on the site. The initial zoning permit should require that the excavation and removal be carried out according to the excavation plan as submitted and approved, and any deviation from the plan will serve as a basis to revoke the permit.

Other basic provisions to ensure environmental quality and public protection could include requirements for:

1. barricades, fences, or vegetated buffer strips for the protection of pedestrians and vehicles;

2. proper measures (as determined by the Planning and Zoning Commission) to minimize the nuisance of noise and flying dust or rock (such measures may include limitations upon the practice of stockpiling excavated materials on the site, the requirement to securely cover transported earth materials with canvas or other cover, or the requirement of a dustless surface on that portion of the access road within the area of operation);

3. proper truck access to the excavation to minimize danger to traffic and nuisance to surrounding properties;

4. minimum setback distances of the excavation area from water courses;

5. a specific time limit on the hours of operation of the excavation;

6. a specific time limit on the permit itself, necessitating a renewal to be obtained every year or two (such provisions force the operator to keep within the conditions of the permit by applying for renewal and by obtaining such renewal only if he can show that his operation is proceeding according to the originally approved plan).

Guidance for planning the conservation and development of the town's earth resources can be found in the publication, Surface Mining in Connecticut: The Need for Planning and Regulation for Sand and Gravel Operations by Attorney William Valletta, Central Naugatuck Regional Planning Agency (1976). Another excellent reference is Regulation of Earth Excavation, by the Connecticut Department of Community Affairs (publication #12, 1975). Both of these publications concur that mining activities are essential to the State's economy, but that such activities should be properly planned and regulated to prevent environmental harm.

CONSISTENCY OF PROPOSED LAND USE WITH OBJECTIVES OF LOCAL EFFORTS TO MANAGE HOUSATONIC RIVER CORRIDOR

The proposed excavation site is located outside the proposed Housatonic River Inner Corridor and within the proposed Housatonic River Outer Corridor as defined by the proposed Housatonic River Ordinance. If the Housatonic River Management Plan was adopted as proposed, the Kent Planning and Zoning Commission would have to review the proposed excavation site according to the following criteria:

> "...Sand, gravel and topsoil excavation shall be permitted only where such operations, with an accepted conservation plan developed with the County Conservation District, will not leave an objectionable scar on the landscape nor adversely affect an aquifer area. Such operations must be completed within a specified time with a specified amount of material to be removed and will require posting of a bond adequate to assure leaving the land with acceptable contours and vegetative cover." (Proposed Addition to Town Zoning Regulations, Housatonic River Management Plan).

In view of the above, in order for the proposed excavation to meet the proposed river corridor criteria, the following would be required of the applicant:

1. development and acceptance of a conservation plan (Erosion and Sediment Control Plan)

2. determination of potential effect on any nearby aquifers

3. indication of time period of excavation and amount of material to be removed

4. posting of a bond (already required under existing regulations)

An application for sand and gravel excavation which met the above river corridor criteria in addition to the criteria established by the Kent Zoning Regulations (discussed above) would be consistent with the objectives of local efforts to manage the River's outer corridor.

XI. ALTERNATIVE USES OF SITE FOLLOWING PROJECT

The final grading plan proposed by the developer appears reasonable. Providing the topsoil is put back on the land and care is taken in stabilizing the disturbed areas with vegetation, the land will have good potential for a variety of alternative land uses following completion of the proposed sand and gravel operation. These alternative land uses include:

.Farming:
Alfalfa and General Farm Crops could be supported with frequent and heavy fertilization and irrigation

.Wood Crops:
White pine could be planted for future lumber; white spruce, douglas fir, and/or norway spruce could be planted for Christmas trees

.Recreation:
The area would be suitable for picnic areas, campsites, play areas, etc. If future recreational use is anticipated, Ky 31 Tall Fescue Grass and White pine should be planted. These plantings will require irrigation and heavy fertilization and/or avoidance of overuse.

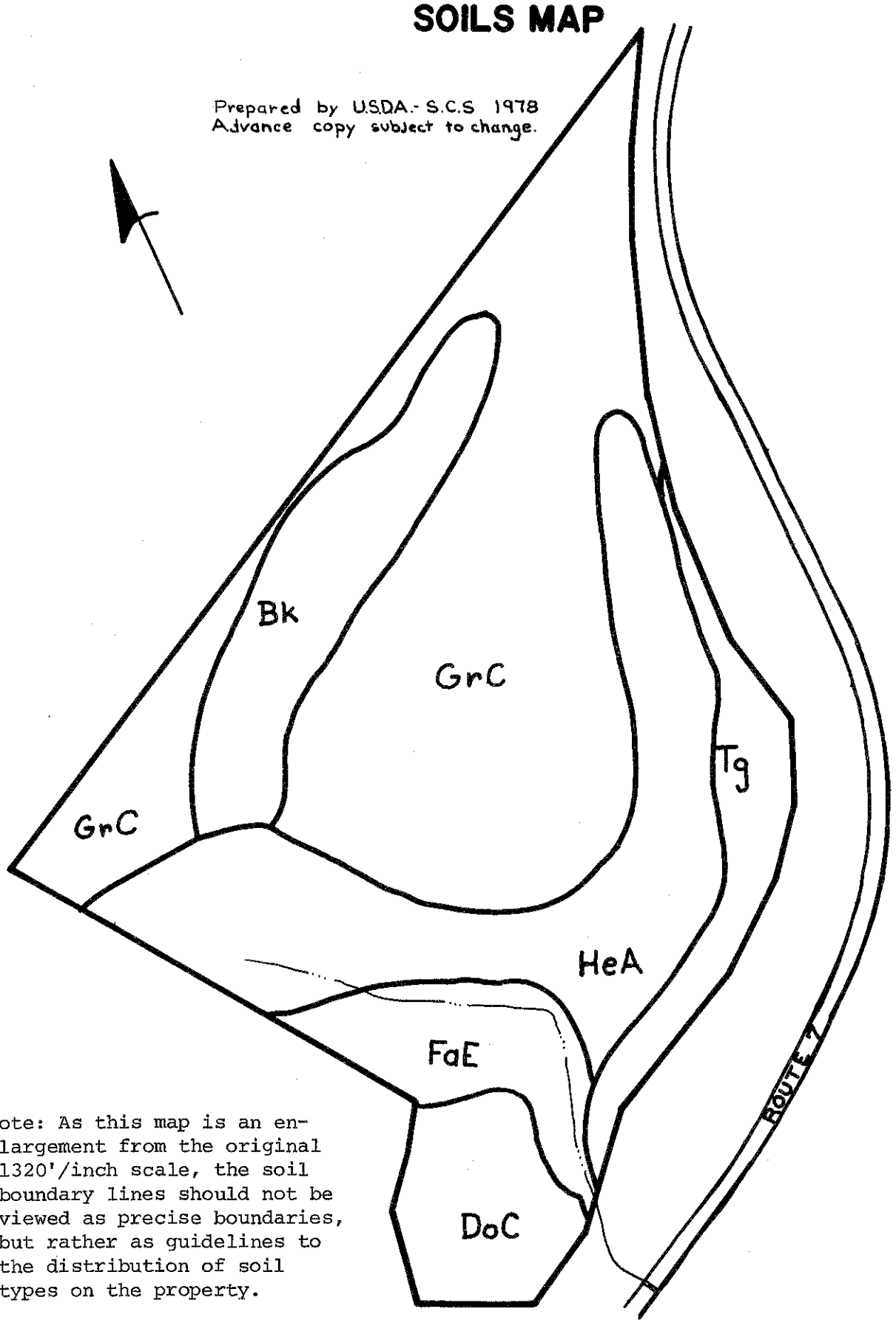
.Urban (Houses or Industry):
The area has good potential for urban use. Limitations are slight with the exception of possible pollution of wells from septic effluent. Some difficulty would also be encountered in establishing lawns and landscaping due to the droughty nature of the soils

* * * * * * *

APPENDIX

SOILS MAP

Prepared by U.S.D.A.- S.C.S 1978
Advance copy subject to change.



Note: As this map is an enlargement from the original 1320'/inch scale, the soil boundary lines should not be viewed as precise boundaries, but rather as guidelines to the distribution of soil types on the property.

-SCALE 1"=200'-

Soils Interpretation Chart

KENT, CONNECTICUT

Map Symbol	Soil Name	Depth to Bedrock (ft.)	Depth to Seasonally High Water Table (in.)	Suitability of Soils as a Source of Sand and Gravel
Bk	Borrow & Fill Land - Course Material	S O I L C H A R A C T E R I S T I C S V A R I A B L E		
DoC	Dover fine sandy loam, 8 - 15% slopes	5' +	48" +	Poor; may in places contain excessive fines.
FaE	Farmington very rocky silt loam, 15-35% slopes	1 - 2'	48" +	Not suitable; excessive fines.
GrC	Groton gravelly sandy loam, 3 - 15% slopes	10' +	48" +	Good; in some places contains poorly graded sand and gravel.
HeA	Hero loam, 0 - 3% slopes	10' +	15 - 20"	Poor in surface layer and subsoil, excessive fines; fair in substratum, high water table may hinder; in some places contains poorly graded sand and gravel.
Tg	Terrace Escarpments	10' +	48" +	Good to fair; in places contains poorly graded sand and gravel.

USDA-Soil Conservation Service
Storrs, Connecticut

GUIDELINES FOR REVEGETATING SURFACE DISTURBED LAND *

TEMPORARY VEGETATIVE COVER

Definition

Stabilize potential sediment producing areas and severely eroded areas by establishing temporary annual grasses or small grains.

Purpose

To provide short-term rapid vegetative cover for the control of soil erosion and reduce sediment damages, protect environmental quality, and improve the appearance of the landscape until permanent vegetation or other stabilization practices can be established.

Conditions Where Measure Applies

On all unprotected areas that produce sediment, areas where final grading has not been completed, and the estimated period of exposure less than 12 months. Examples are construction sites, actively eroding areas within urban and industrial areas topsoil stock piles, and certain cut and fill slopes.

Application and Materials

1. Site Preparation --

a. Install needed surface water control measures such as diversions, berms, and waterways.

b. Remove loose rock, stone, and construction debris from area to be seeded.

c. Apply lime according to soil test or at a rate of one ton of ground dolomitic limestone per acre (50 lbs. per 100 square feet).

d. Apply fertilizer according to soil test or at the rate of 300 lbs. of 10-10-10 per acre (7 lbs. per 1,000 square feet) and second application at 200 lbs. of 10-10-10 (5 lbs. per 1,000 square feet) when grass is four to six inches high. Apply only when grass is dry.

e. Unless hydroseeded, work in lime and fertilizer to a depth of four inches using a disk or any suitable equipment.

f. Tillage should achieve a reasonably uniform, loose seedbed, work on contour if site is sloping.

* Reprinted from :
Erosion and Sediment Control Handbook Connecticut, USDA-SCS
Revised 1976

2. Establishment --

a. Select adapted species from following table. Note rates and seeding dates.

b. Apply seed uniformly according to the rate indicated in the table by broadcasting, drilling, or hydraulic application.

c. Unless hydroseeded, cover ryegrass seeds with not more than 1/4 inch of soil with suitable equipment. Cover sudangrass and small grains with 1/2 inch of soil.

d. Mulch will be applied immediately after seeding on unfavorable soil sites. Refer to the mulch measures.

Seedings For Temporary Cover

Species	Seeding Rates in lbs.		Recommended Seeding Dates
	1000 Sq. Ft.	Acre	
Annual Ryegrass or Perennial Ryegrass	1 1/2	60	Mar. 15 to June 15 Aug. 15 to Oct. 15
Sudangrass 1/ or Millet	1	40	May 15 to Aug. 15
Winter Rye or Oats	3	120	Aug. 15 to Oct. 15

1/ This is a tall grass and may be undesirable in some locations.

USDA-Soil Conservation Service
Storrs, Connecticut

PERMANENT VEGETATIVE COVER

Definition

Stabilizing sediment producing areas and severely eroded areas by establishing permanent grass and legume cover.

Purpose

To stabilize the soil; to reduce downstream damages from sediment and runoff; improve wildlife habitat; and enhance natural beauty.

Conditions Where Measure Applies

On all urban construction areas subject to erosion where final grading has been completed and where a permanent vegetative cover is needed.

Application and Materials

1. Site Preparation --

a. Install needed surface water control measures, such as diversion, berms, and waterways.

b. Remove loose rock, stone, and construction debris (approximate four-inch size) from area.

c. Perform all cultural operations parallel to the contours of the slope.

d. At least four inches of topsoil may be required over extremely adverse soil conditions. Surface compacted by construction machinery should be disced or chisled before topsoil is added.

e. Apply lime according to soil test or at the rate of two tons ground limestone per acre (100 lbs. per 1,000 square feet).

f. Apply fertilizer according to soil test --

- Spring seeding. Work deeply in soil, before seeding, 300 lbs. of 10-10-10 fertilizer per acre (seven lbs. per 1,000 square feet); then six to eight weeks later apply on the surface an additional 300 lbs. of 10-10-10 fertilizer per acre. 1/

- Fall seeding. Work deeply in soil, before seeding, 600 lbs. of 10-10-10 fertilizer per acre (14 lbs. per 1,000 square feet).

1/ May use alternate single application of 600 lbs. at seeding time if split application is not feasible.

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2. Establishment --

a. Smooth and firm seedbed with cultipacker or other similar equipment prior to seeding (except when hydroseeding).

b. Select adapted seed mixture from the following table. Note seeding dates.

c. Apply seed uniformly according to rate indicated in the table by broadcasting, drilling, or hydraulic application.

d. Cover grass and legume seeds with not more than 1/4 inch of soil with suitable equipment (except when hydroseeding).

e. Mulch immediately after seeding according to guidelines.

f. Use proper inoculant on all legume seedings, use four times normal rate when hydroseeding.

g. Use sod where there is a heavy concentration of water and in critical areas where it is important to get a quick vegetative cover to prevent erosion.

3. Maintenance --

a. Test for soil acidity every three years and lime as required.

b. On sites where grasses predominate, broadcast annually 500 pounds of 10-10-10 fertilizer per acre (12 lbs. per 1,000 square feet) or as needed according to annual soil tests.

c. On sites where legumes predominate broadcast every three years or as indicated by soil test 300 pounds of 0-20-20 or equivalent per acre (eight lbs. per 1,000 square feet).

PERMANENT GRASS AND LEGUME SEEDING

SEED MIXTURES, RATES, AND DATES

Seed Mixture 5/	Percent by Wt.	Seeding Rates in lbs. 1/		Seeding Dates	Special Adaptation
		1000 Sq. Ft.	Acre		
Ky 31 Tall Fescue Red Fescue	50 50	1 1/2	50	April 1 - June 15 Aug. 15 - Sept. 30	Droughty Areas
Ky 31 Tall Fescue 2/ Annual Ryegrass	80 20	1 1/2	50	April 1 - June 15 Aug. 15 - Sept.	Heavy Use Areas
Red Fescue 4/ Crownvetch	60 40	1	40	April 1 - June 15	No Mow Areas Droughty Areas
Crownvetch Perennial Ryegrass	60 40	1/2	25	April 1 - June 15	No Mow Areas Droughty Areas
Reed Canary Grass Redtop	80 20	1	50	April 1 - June 15 Aug. 15 - Sept. 15	Wildlife or Wet Areas
Red Fescue 3/ Kentucky Blue grass Perennial Ryegrass	70 20 10	2	80	April 1 - June 15 Aug. 15 - Oct. 15	High Maintenance Areas
Ky 31 Tall Fescue Birdsfoot Trefoil	70 30	1	40	April 1 - June 1	No Mow Areas Wet Areas

1/ These are minimum seeding rates and should be increased if adverse conditions exist.
2/ Straight Ky 31 tall fescue may be used for soccer or football fields (minimum 150 # up to 250# per acre.
3/ 10 lbs. of birdsfoot trefoil may be added to this mixture.
4/ Ky 31 tall fescue may be used in place of red fescue.
5/ May add 5 lbs. of perennial ryegrass for quick fall cover.

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MULCHING

Definition

Apply plant residues or other suitable materials, not produced on the site, to the surface of the soil.

Purpose

To protect exposed soil surfaces from excessive soil erosion, reduce offsite compaction or crusting, conserve moisture, aid in establishing plant cover, and control weeds.

Conditions Where Measure Applies

On graded or cleared areas which are subject to erosion, specific mulches (1) may be used in conjunction with permanent or temporary vegetative seeding or (2) may be used alone either as a permanent mulch or as a temporary mulch until permanent vegetation or other protection can be properly implemented.

Application and Materials

1. Application --

a. For areas subject to critical erosion install temporary erosion control devices such as furrows, diversions,etc. within or adjacent to area to be mulched.

b. Select the type of mulch and application rate from Table 1 which will best meet the use and performance requirements.

c. Determine anchoring requirements if needed and select a method of anchoring from Table 2 which will best meet the specific job requirements.

2. Maintenance -- Mulched areas should be checked periodically and immediately after severe storms for damage, until the desired purpose of the mulching is achieved. Damaged portions of the mulch or tie down material should be repaired as soon as discovered.

3. Erosion and Pollution Control -- Construction operations should be carried out in such a manner so that erosion and air and water pollution will be minimized.

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GUIDE TO MULCH MATERIAL

Table 1

Mulch Material	Quality	Application Rates		Remarks
		Per 1000 Sq. Ft.	Per Acre	
Hay or Straw	Air dried, free from undesirable seeds	75-100 lbs. or 2-3 bales	1.5-2 tons 90-110 bales	Use straw where mulch effect is to be maintained for more than 3 months. Subject to wind blowing unless kept moist or tied down. Good for critical area erosion control. Spread uniformly, leave 10-20% of ground exposed. Excellent for seedbed protection until vegetation is established. Salt marsh hay where available is usually free of weed seeds.
Wood Fiber Cellulose (partly digested wood fibers)	Air dried, non-toxic, and no growth inhibiting factors	25-40 lbs.	0.5 up to 1.0 ton	Apply with hydromulcher. No tie down required. Addition of plastic emulsion to wood fiber mulches makes them adhere better and increase their longevity. Use higher rates on critical erosion areas. Excellent for seedbed protection until vegetation is established.
Gravel or Crushed Stone	Washed Size 1" 60 2 1/2"	9 cu. yds.		Excellent permanent mulch after used alone for short slopes or around wood plants and ornamentals. Use 1/4" to 3/4" size where subject to foot traffic.
Wood Chips	Free from coarse material	500 lbs. dry; to 900 lbs. wet	10 tons dry; to 20 tons wet	Spread uniformly about 4 inches deep; often used alone. Protect from washing on steep slopes. Excellent permanent mulch around trees and shrubs; add small amounts of 10-10-10 fertilizer to stimulate growth. Potential termite problem adjacent to wood structures.

1/ All mulches will provide some degree of (1) erosion control, (2) moisture conservation, (3) weed control, and (4) reduction of soil crusting.

USDA SCS HYATTSVILLE MD 1977

ABOUT THE TEAM

The King's Mark Environmental Review Team (ERT) is a group of environmental professionals drawn together from a variety of federal, state, and regional agencies. Specialists on the team include geologists, biologists, foresters, climatologists, soil scientists, landscape architects, recreation specialists, engineers, and planners. The ERT operates with state funding under the aegis of the King's Mark Resource Conservation and Development (RC&D) Area - a 47 town area in western Connecticut.

As a public service activity, the team is available to serve towns and developers within the King's Mark Area --- free of charge.

PURPOSE OF THE TEAM

The Environmental Review Team is available to help towns and developers in the review of sites proposed for major land use activities. To date, the ERT has been involved in the review of a wide range of significant activities including subdivisions, sanitary landfills, commercial and industrical developments, and recreation/open space projects.

Reviews are conducted in the interest of providing information and analysis that will assist towns and developers in environmentally sound decision-making. This is done through identifying the natural resource base of the project site and highlighting opportunities and limitations for the proposed land use.

REQUESTING A REVIEW

Environmental Reviews may be requested by the chief elected official of a municipality or the chairman of an administration agency such as planning and zoning, conservation, or inland wetlands. Requests for reviews should be directed to the Chairman of your local Soil and Water Conservation District. This request letter must include a summary of the proposed project, a location map of the project site, written permission from the landowner/developer allowing the team to enter the property for purposes of review, and a statement identifying the specific areas of concern the team should address. When this request is approved by the local Soil and Water Conservation District and the King's Mark RC&D Executive Committee, the team will undertake the review. At present, the ERT can undertake two reviews per month.

For additional information regarding the Environmental Review Team, please contact your local Soil Conservation District Office or Richard Lynn (868-7342), Environmental Review Team Coordinator, King's Mark RC&D Area, P.O. Box 30, Warren, Connecticut 06754.