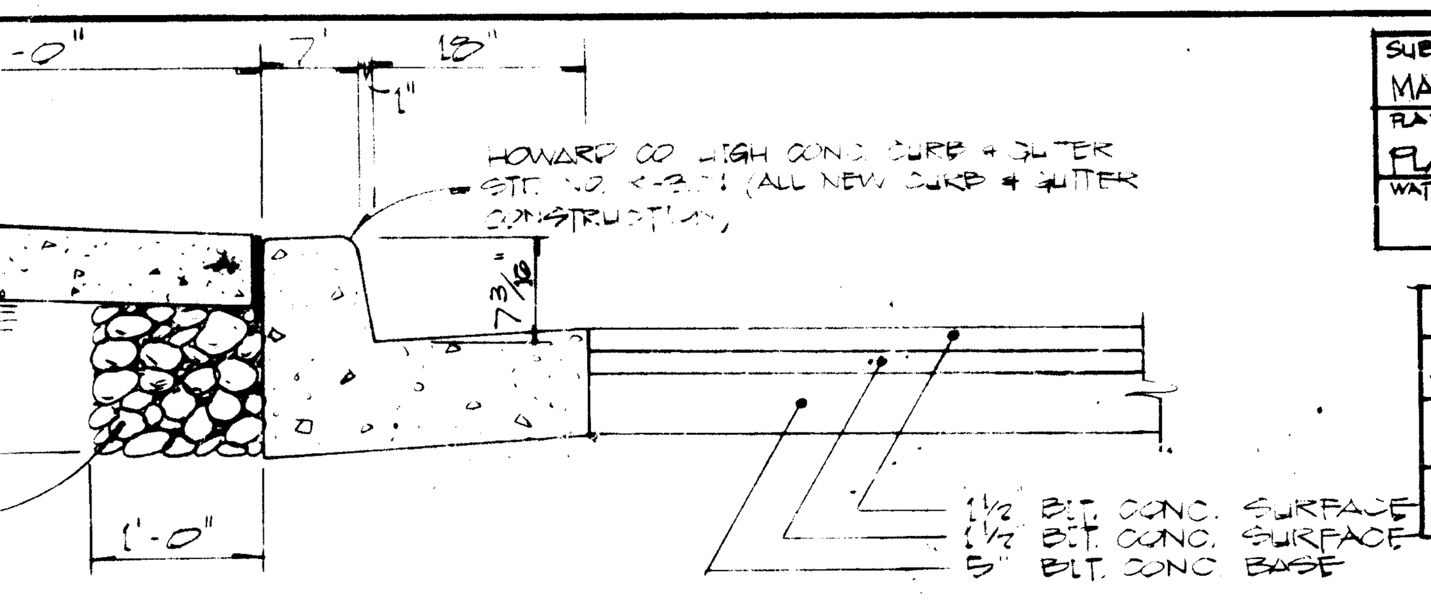
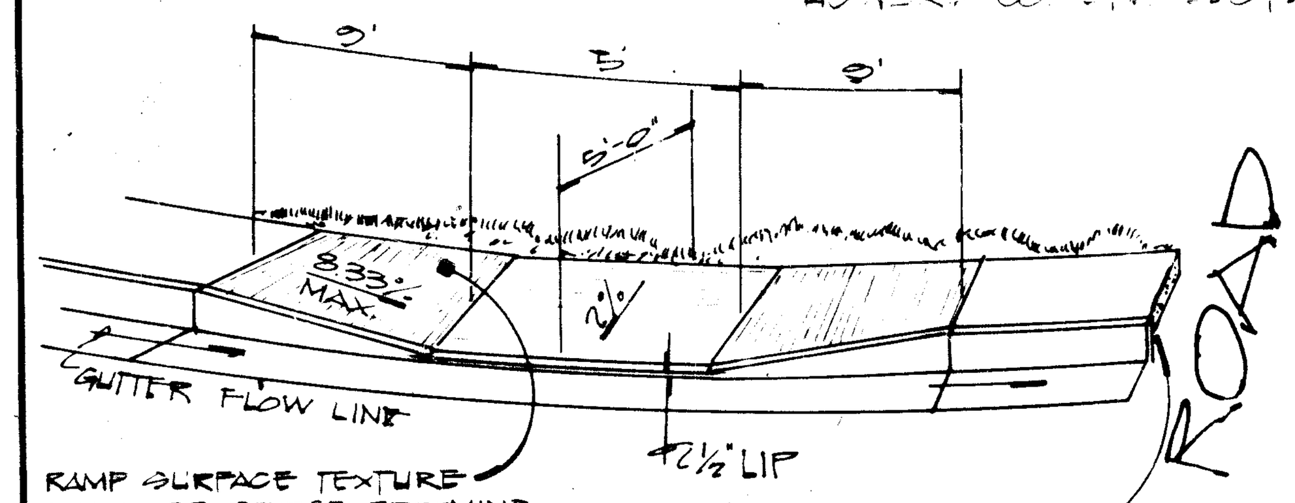


TYPICAL PAVING SECTION

HOWARD CO. STD. SECTION R-3

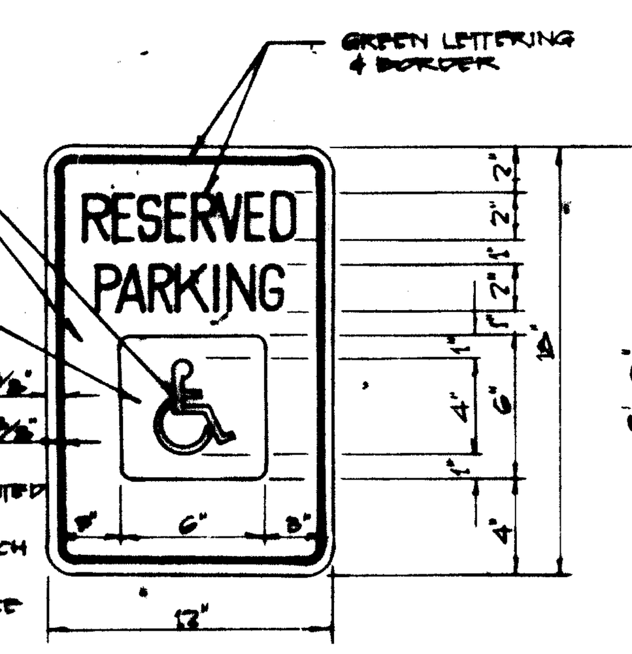


RAMP SURFACE TEXTURE SHALL BE COURSE BROOMING OR OTHER NON-SKID TYPE SURFACE

PROVIDE ONE SIGN @ EACH RAMP, CENTERED AND 18" BEHIND BACK EDGE OF SIDEWALK. SIGN TO BE AS SPECIFIED BELOW.

SPECIAL SIDEWALK RAMP DETAIL

NO SCALE



PROVIDE ONE SIGN MOUNTED ON STEEL SIGN POST CENTERED @ END OF EACH HANDICAPPED SPACE, 2'-0" BACK FROM FACE OF CURB.

HANDICAPPED PARKING SIGN TYPICAL DETAIL

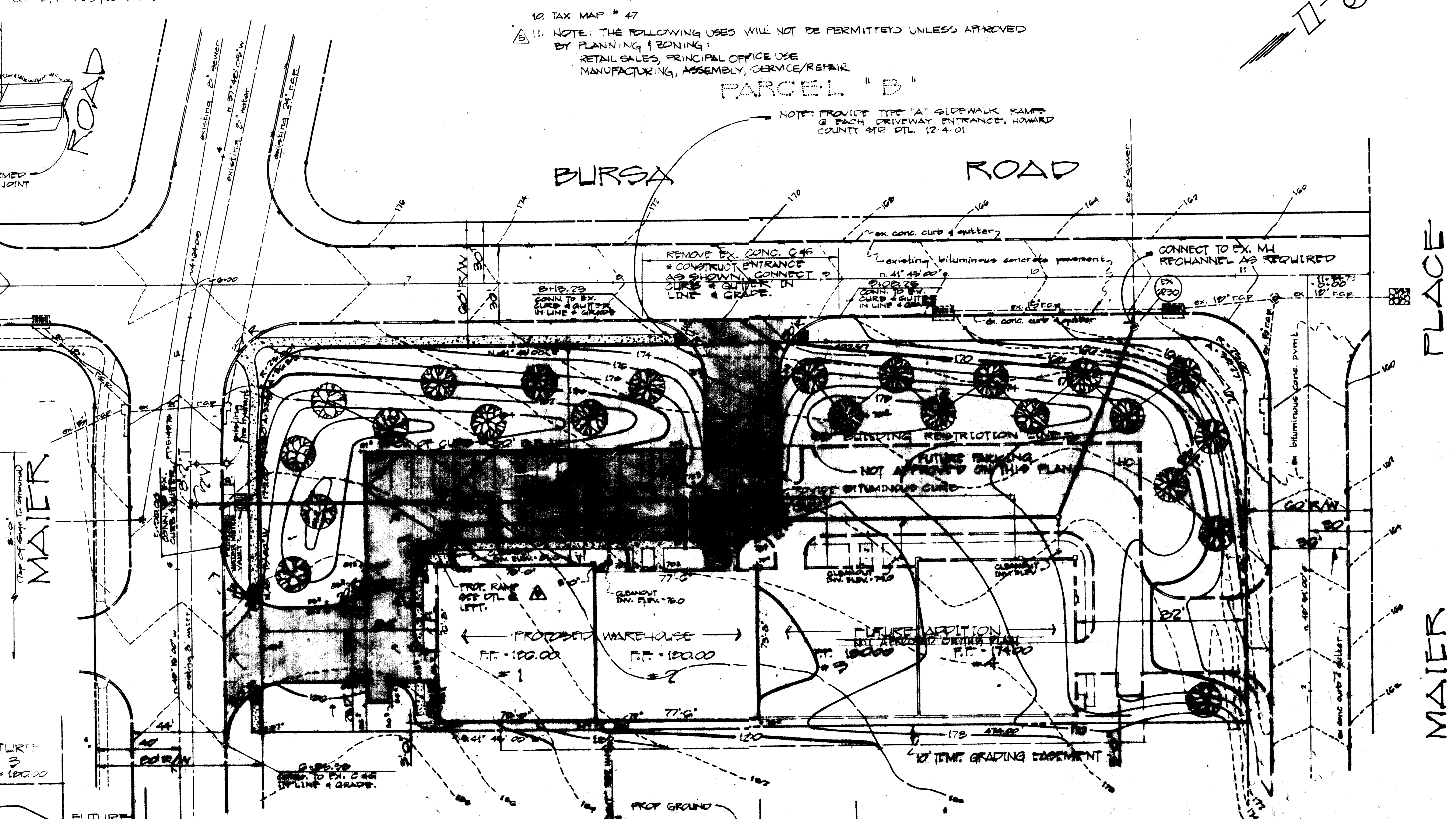
NO SCALE

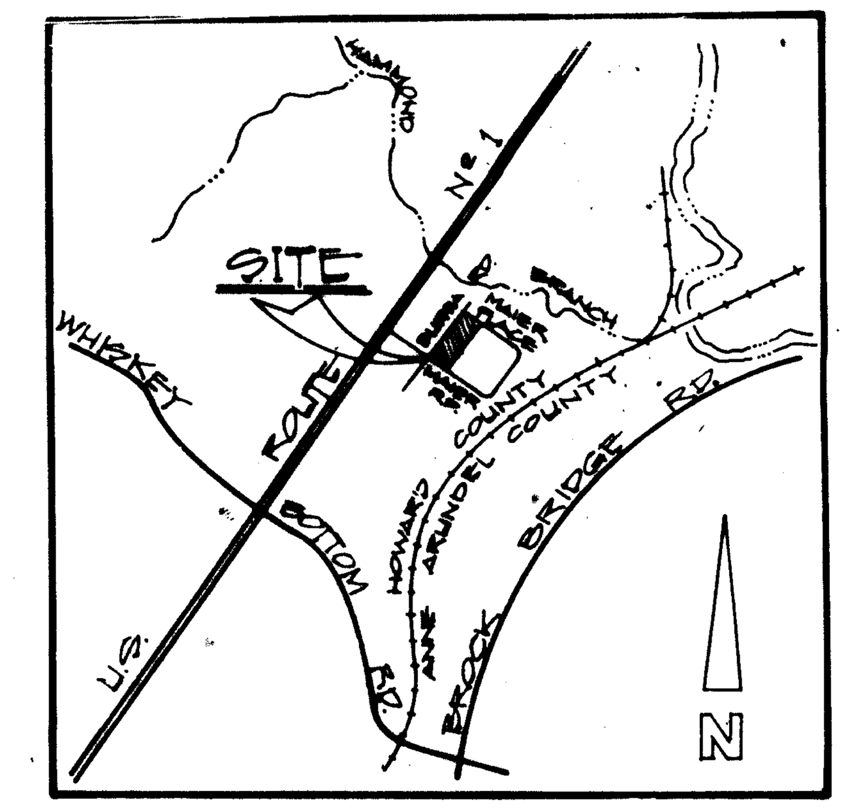
SUBDIVISION NAME				SECT./AREA		LOT/PARCEL #
MAIER INDUSTRIAL PARK				SECT. 1		PAR. C-4
PLAT # OR L/F	BLOCK #	ZONE	TAX/ZONE MAP	ELEC. DIST.		CENSUS TR.
PLAT# 5599	23	M-2	47	6TH		6063
WATER CODE			SEWER CODE			

ADDRESS CHART	
LOT NUMBER	STREET ADDRESS
BLDG # 1&2	9125 BURSA ROAD

GENERAL NOTES

1. THIS SITE AND ALL ADJACENT PROPERTIES ZONED M-2
2. TOTAL SITE AREA = 86,902 # = 1.995 AC.
   TOTAL DISTURBED AREA = 90,600
   TOTAL ON-SITE OPEN SPACE = 62,900
3. BUILDING AREA = PROPOSED WAREHOUSE = 11,700 SQ FT. GROSS, FUTURE WAREHOUSE = 11,700 SQFT. GROSS
4. DEED REFERENCE: MAIER INDUSTRIAL PARK, PARCEL "C", LOT C-2
5. MAXIMUM NUMBER OF EMPLOYEES/MAJOR SHIFT = 12 / BUILDING # 1 & 10 / BUILDING # 2 = TOTAL OF 22
6. REQUIRED PARKING = 1 SPACE / 2 EMPLOYEES PER MAJOR SHIFT = 8 SPACES
7. PARKING PROVIDED: 14 REGULAR (10'x18') + 1 HANDICAPPED (12'x18') (PROPOSED WAREHOUSE)
   14 REGULAR (10'x18') + 1 HANDICAPPED (12'x18') (FUTURE WAREHOUSE)
7. PAVING TO BE IN ACCORDANCE WITH HOWARD COUNTY STANDARDS & SPECIFICATIONS, ALL EXPOSED CONCRETE TO BE TROWELLED & BROOM FINISHED
8. TOPOGRAPHIC SURVEY INFORMATION OBTAINED FROM: GRIMM & PARKER ARCHITECTS 7600 HANOVER PKWY, GREENBELT, MD
9. ALL SEWER CLEANOUTS ARE TO BE PLACED IN A 24" SQ CONC PAD
10. TAX MAP # 47
11. NOTE: THE FOLLOWING USES WILL NOT BE PERMITTED UNLESS APPROVED BY PLANNING & ZONING:
    RETAIL SALES, PRINCIPAL OFFICE USE
    MANUFACTURING, ASSEMBLY, SERVICE/REPAIR





VICINITY MAP
SCALE: 1" = 2000'

INDEX-SITE DEVELOPMENT PLANS

NOTE: EXTERIOR LIGHTING SHALL BE DIRECTED OR REFLECTED AWAY FROM ADJACENT PUBLIC ROAD RIGHT-OF-WAYS AND RESIDENTIALLY ZONED PROPERTIES.

NOTE: FOR DETAILS OF ROOF DRAINS SEE SHEET C-2 AND MECHANICAL PLANS BY BROOKS CROSS, CONSULTING ENGINEERS.

NOTE: PROPOSED 4' WIDE CONC. SIDEWALKS HOWARD CO. STD R-3.05.

NOTE: ALL PROPOSED CONCRETE CURB & GUTTER SHALL BE HOWARD CO. STD. R-2.01

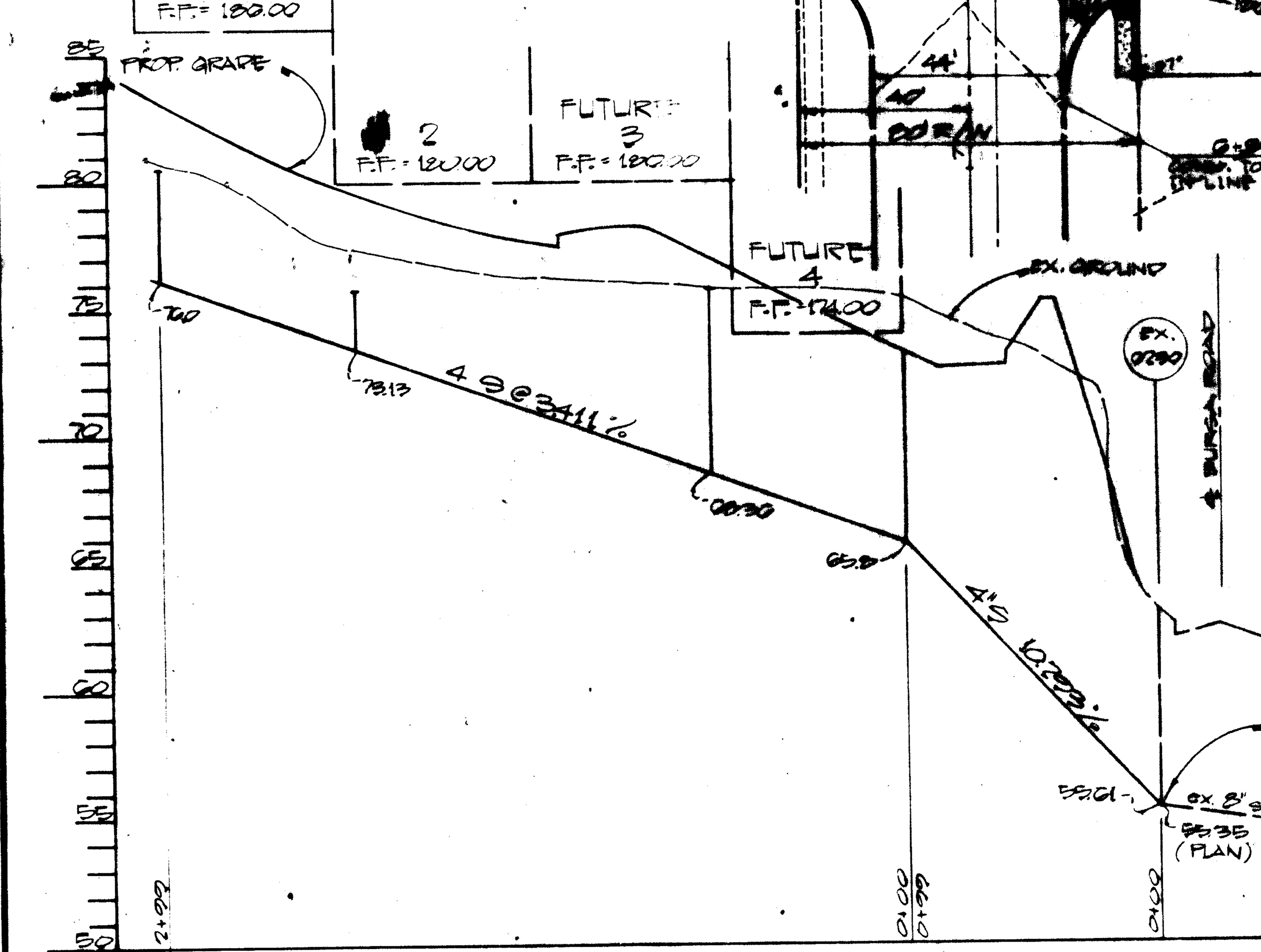
APPROVED
DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION
HOWARD COUNTY, MARYLAND
DATE 3-20-84

LEGEND:

BITUMINOUS CONCRETE PVMT. SEE DETAIL ABOVE.

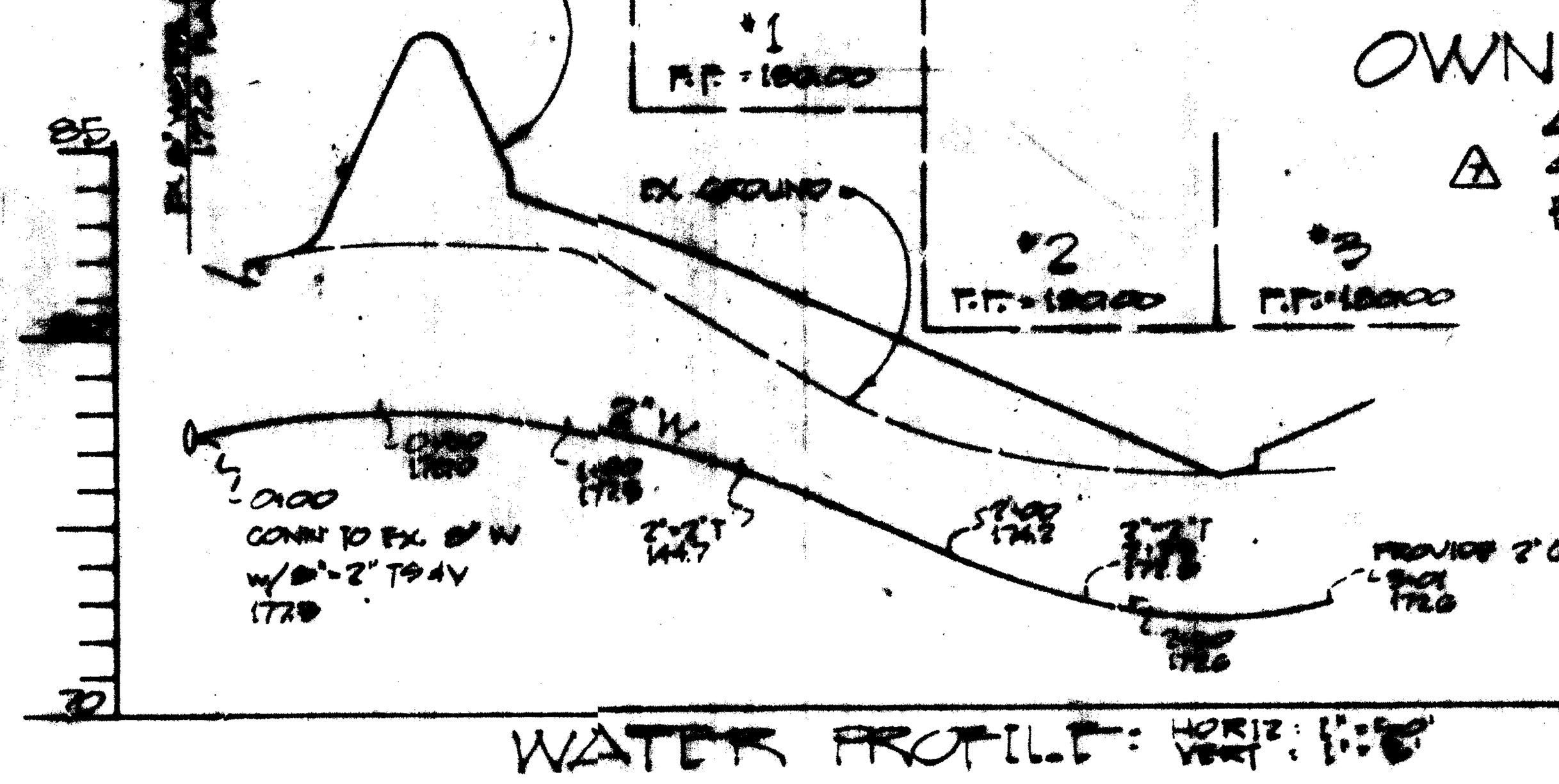
CONC PAVING

PROVIDE 24 TREES AS SHOWN. TO BE PYRUS CALLERYANA (BRADFORD CALLERY PEAR) ALL TREES TO BE 8'-10' IN HEIGHT & TO BE PLANTED 30' O.C. TYP. AS SHOWN. ALSO TO HAVE A MINIMUM CALIPER OF 2 1/2".



SEWER PROFILE HORIZ: 1" = 50' VERT: 1" = 5'

OWNER:
ALVIN MAIER
4700 ANNAPOLIS ROAD
BLADENSBURG, MD 20710



WATER PROFILE HORIZ: 1" = 50' VERT: 1" = 5'

SITE DEVELOPMENT, ENTRANCE & PAVING, ON SITE WATER, SEWER, & STORM DRAIN PLAN

MAIER INDUSTRIAL PARK · SECTION 1 PARCEL C-4

ALVIN MAIER WAREHOUSE

GUILIFORD ELECTION DISTRICT #6
HOWARD COUNTY, MARYLAND
TAX MAP 47

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAIN SYSTEMS & ROADS
HOWARD COUNTY DEPT. OF PUBLIC WORKS
DIRECTOR — DATE 6-28-84
CHIEF, BUREAU OF ENGINEERING — DATE

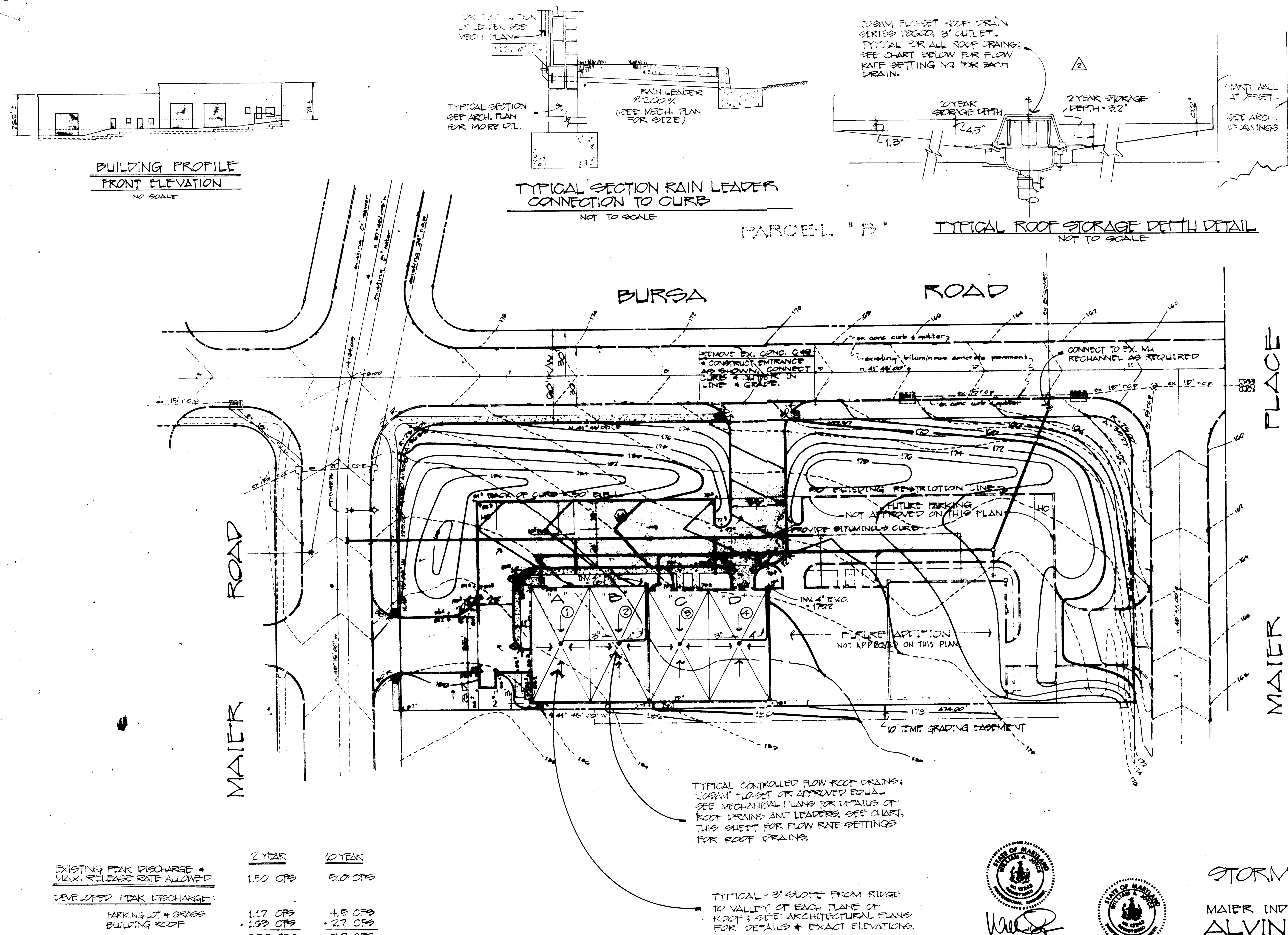
APPROVED: FOR PUBLIC WATER & PUBLIC SEWARAGE SYSTEMS
HOWARD COUNTY HEALTH DEPT.
COUNTY HEALTH OFFICER — DATE 6-30-84

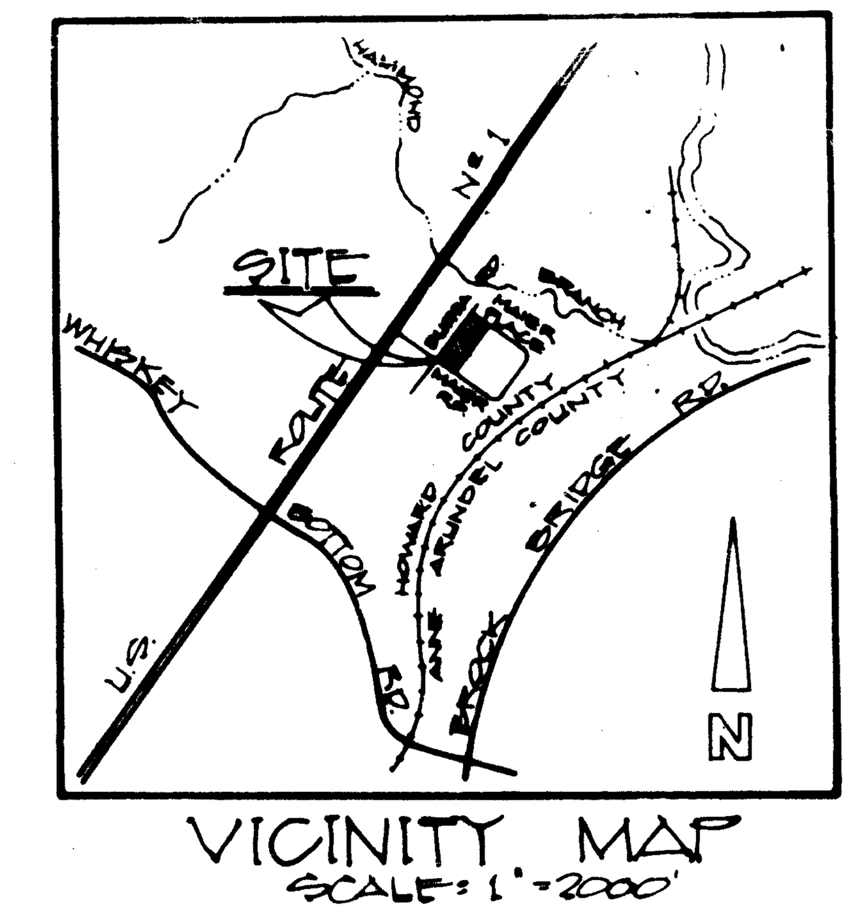
APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
PLANNING DIRECTOR — DATE 7-2-84
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMIN. — 7-2-84

REVISIONS

C-1

SDP-84-46





VICINITY MAP
SCALE: 1" = 2000'

AREA	ROOF DRAIN NUMBER	SQUARE FEET	FLOW RATE SETTING	2 YEARS FLOW RATE GPM	2 YEARS STORAGE C.F.	10 YEARS FLOW RATE GPM	10 YEARS STORAGE C.F.
A	1	2650	3	48	375.1	72	618.25
B	2	2650	3	48	375.1	72	618.25
C	3	2350	2	37	332.0	55	547.75
D	4	2350	2	37	332.0	55	547.75
TOTAL		10,000		170	1416	254	2331

OWNER:
ALVIN MAIER
4700 ANNAPOLIS ROAD
BLADENSBURG, MD 20710

APPROVED
DIVISION OF LAND DEVELOPMENT &
ZONING ADMINISTRATION
HOWARD COUNTY, MARYLAND
DATE 3-20-84

	2 YEAR	10 YEAR
EXISTING PEAK DISCHARGE & MAX. RELEASE RATE ALLOWED	1.50 CFS	5.0 CFS
DEVELOPED PEAK DISCHARGE:		
PARKING LOT & GRASS	1.17 CFS	4.5 CFS
BUILDING ROOF	+ 1.03 CFS	+ 2.7 CFS
TOTAL	= 2.80 CFS	= 7.2 CFS
TOTAL SITE		
MAX RELEASE RATE ALLOWED	1.50 CFS	5.0 CFS
UNCONTROLLED RELEASE RATE FROM PARKING LOT & GRASS	- 1.17 CFS	- 4.5 CFS
MAX RELEASE RATE FROM ROOF	0.33 CFS	0.5 CFS
MINIMUM STORAGE REQUIRED	1400 CF	2326 CF
TOTAL AREA OF ROOF	= 10,000 SQ. FT.	

STORM WATER MANAGEMENT PLAN

MAIER INDUSTRIAL PARK • SECTION 1 PARCEL C-4

ALVIN MAIER WAREHOUSE

GUILFORD ELECTION DISTRICT #6
HOWARD COUNTY MARYLAND
TAX MAP NO. 47

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAIN SYSTEMS & ROADS
HOWARD COUNTY DEPT. OF PUBLIC WORKS
DIRECTOR — DATE 6-28-84
CHIEF, BUREAU OF ENGINEERING — DATE 6-28-84

APPROVED: FOR PUBLIC WATER & PUBLIC SEWARAGE SYSTEMS
HOWARD COUNTY HEALTH DEPT.
COUNTY HEALTH OFFICER — DATE 6-30-84

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
PLANNING DIRECTOR — DATE 7-2-84
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMIN. — DATE 7-2-84

REVISIONS

DATE	DESCRIPTION	BY
10.11.83	1 REVISED TITLE BLOCK	W.A.J.
11.9.83	2 REVISED COMPUTATIONS	W.A.J.

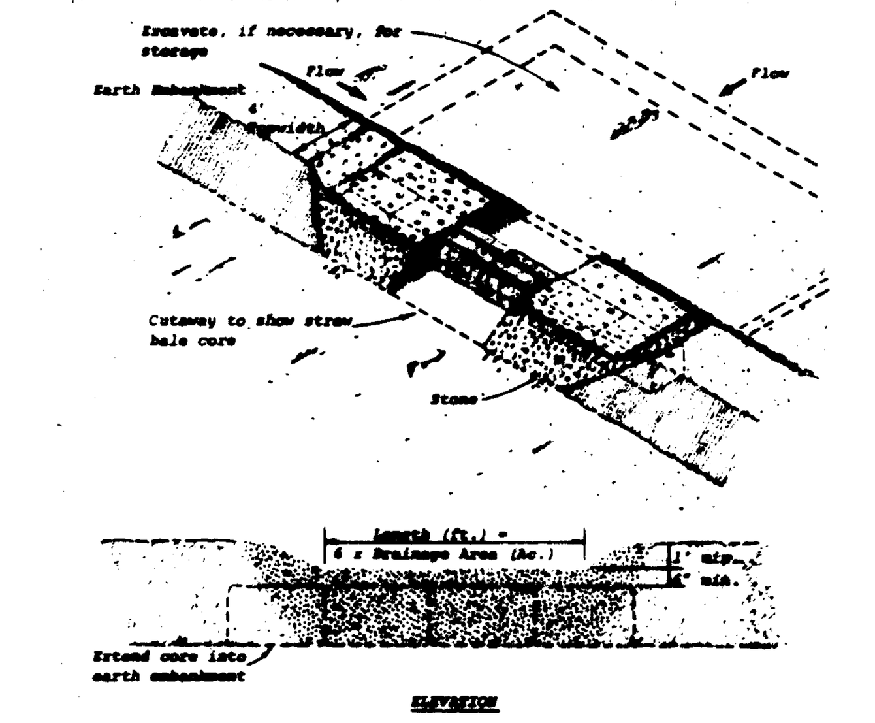
JOYCE ENGINEERING CORPORATION
Engineers • Planners • Surveyors

DES. W.A.J. | DFT. T.A.M. | SHEET 2 OF 4
SCALE: 1" = 30' | JOB NO. 83-036
DATE: AUG '84 | FILE NO. 83-036

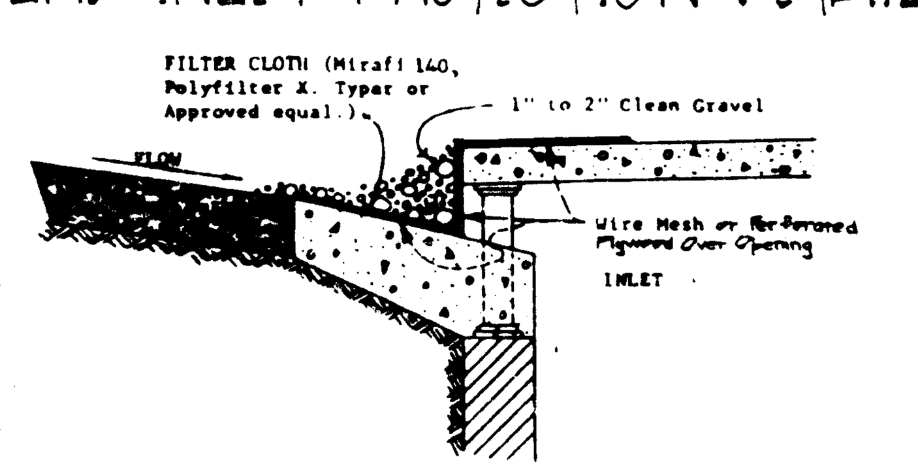
C-2

SDP-84-4

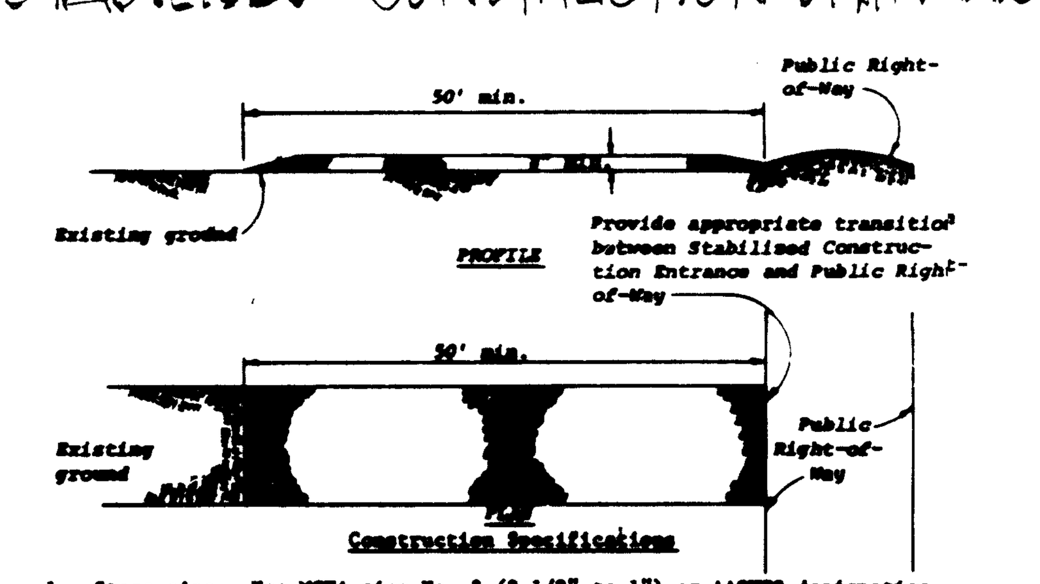
OUTLET SEDIMENT TRAP



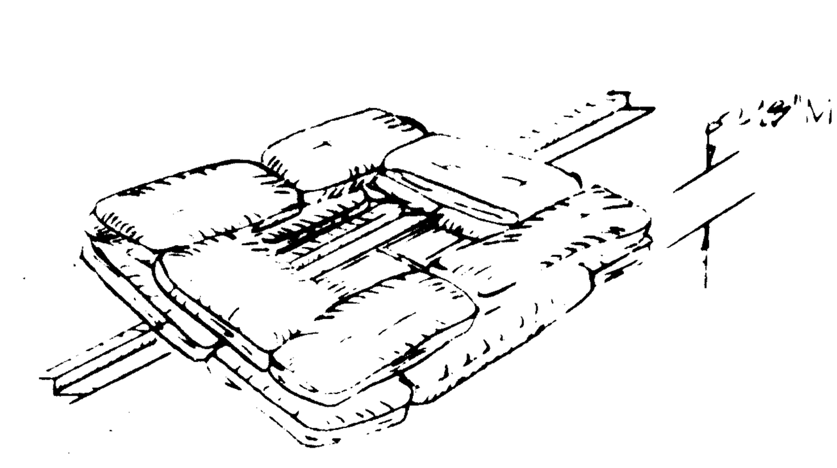
CURB INLET PROTECTION DETAIL



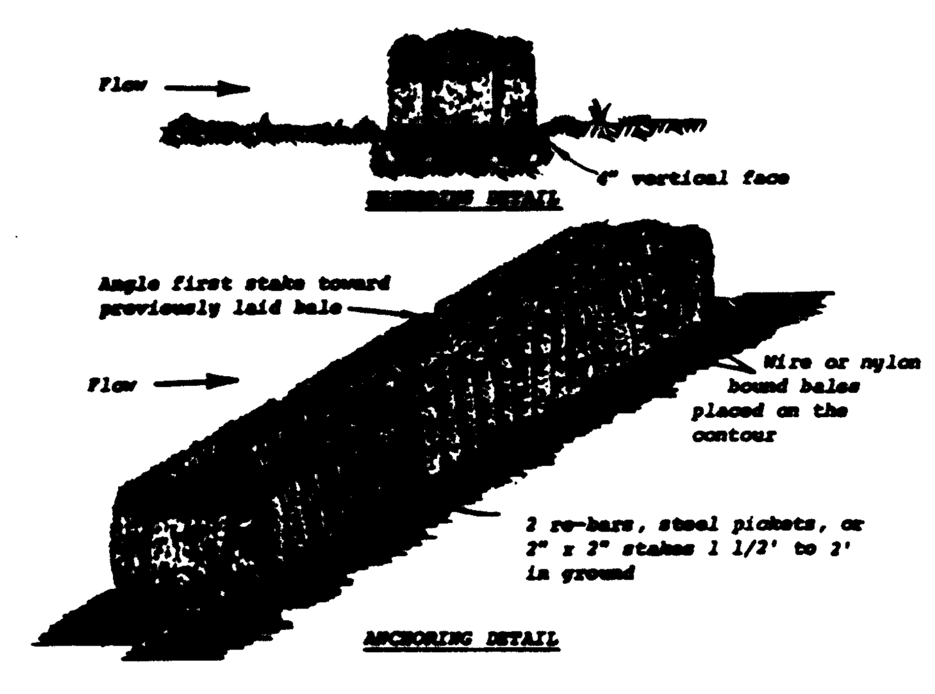
STABILIZED CONSTRUCTION ENTRANCE

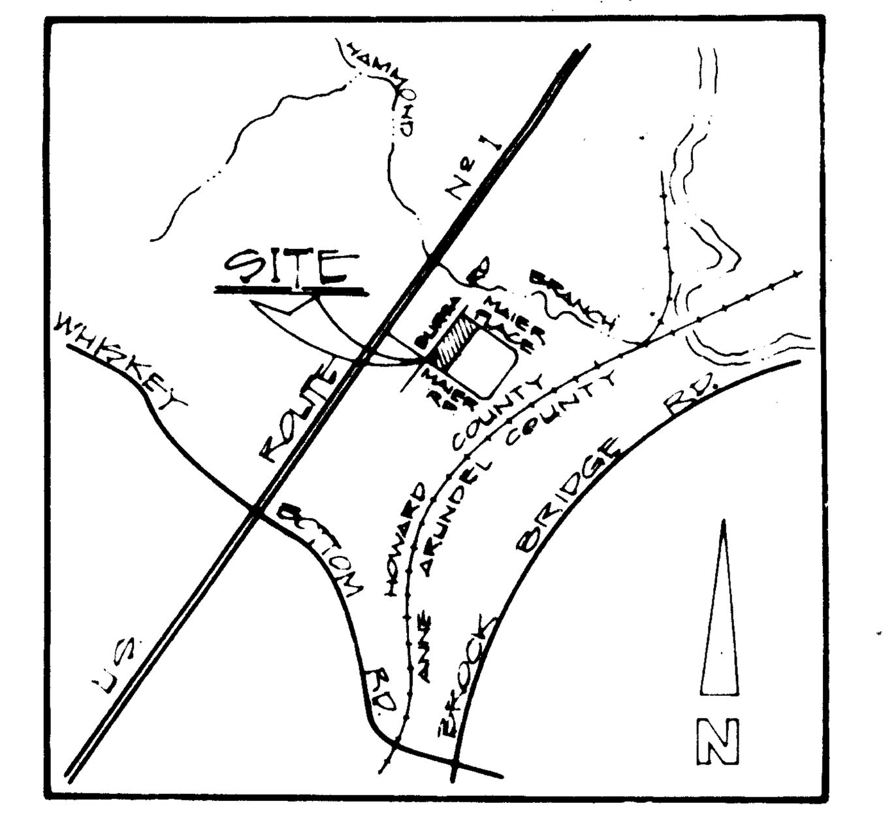


SAND BAG DETAIL



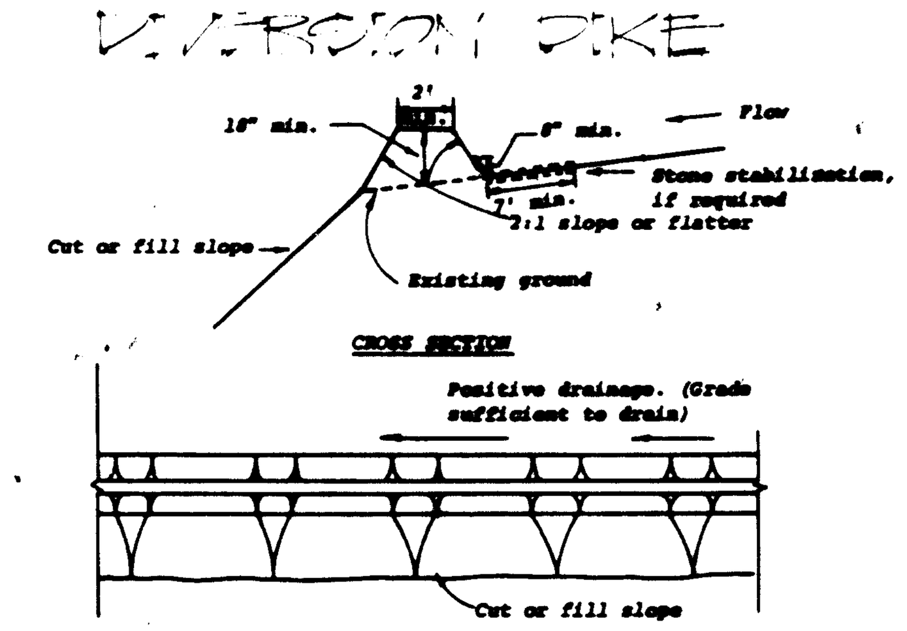
STRAW BALE DETAIL

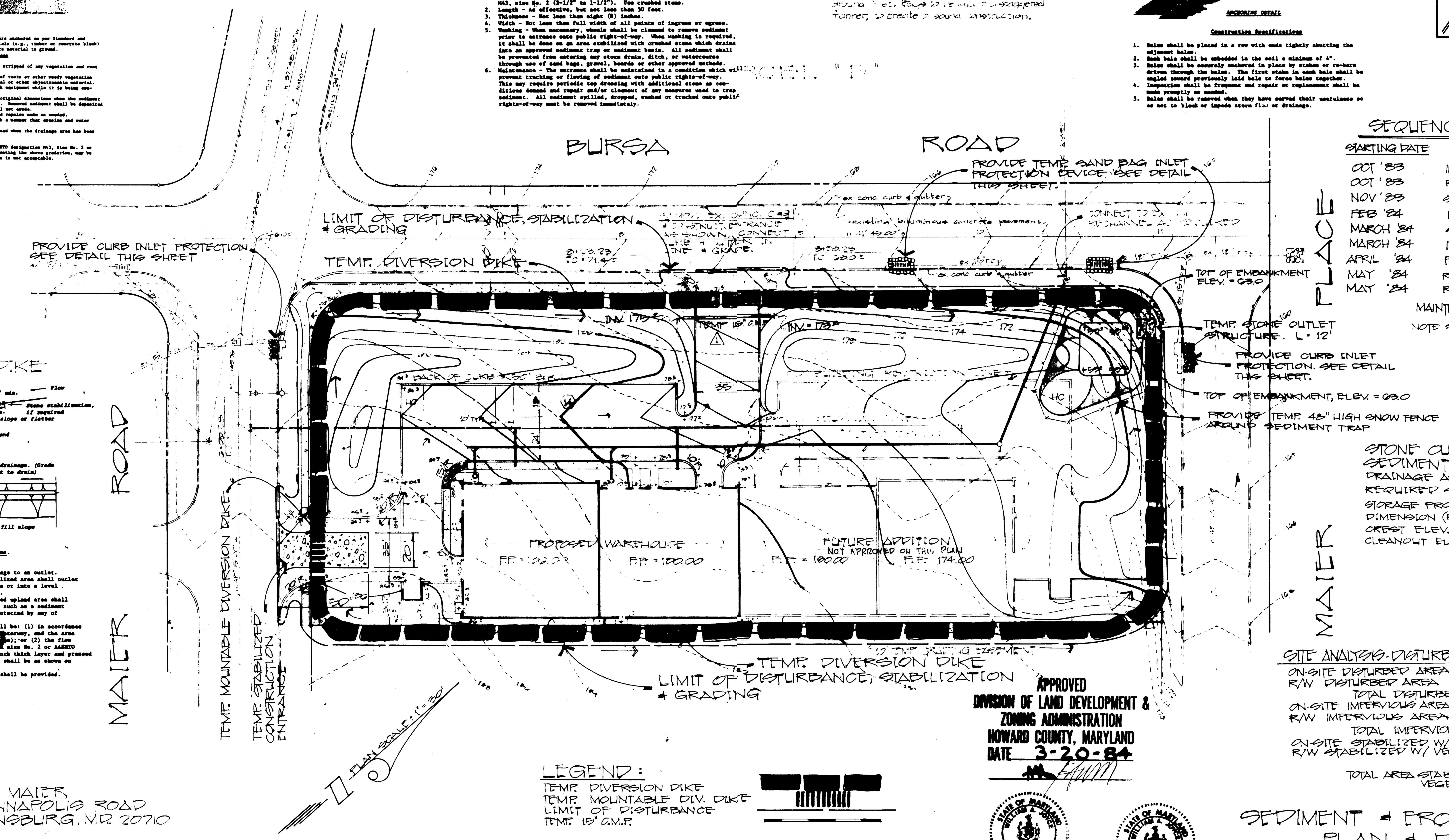




VICINITY MAP
SCALE: 1" = 2000'

DIVERSION DIKE





SEQUENCE OF CONSTRUCTION

STARTING DATE	FUNCTION	TIME
OCT '83	INSTALL SEDIMENT CONTROL	1 WEEK
OCT '83	ROUGH GRADE SITE	2 WEEKS
NOV '83	START BUILDING CONST.	20 WEEKS
FEB '84	INSTALL WATER & SEWER	4 WEEKS
MARCH '84	STABILIZE SITE	1 WEEK
MARCH '84	INSTALL C&G & ENTRANCE	2 WEEKS
APRIL '84	FINE GRADE & PAVE SITE	2 WEEKS
MAY '84	RESTABILIZE BAL. OF SITE	1 WEEK
MAY '84	REMOVE SEDIMENT CONTROL	1 WEEK

MAINTENANCE CONTINUAL

NOTE: THE CONTRACTOR MAY BE REQUIRED TO PROVIDE ADDITIONAL CONTROL AROUND THE BUILDING AFTER PAVING AT THE DIRECTION OF ENGINEER. (3)

STONE OUTLET SEDIMENT TRAP Nº 1

DRAINAGE AREA = 2.0 ACRES
REQUIRED STORAGE = 2.0 × 67 × 27 = 3618 cf
STORAGE PROVIDED = 3678 cf
DIMENSION (BOTTOM) = 3' × 25' × 25'
CREST ELEV. = 62.0
CLEANOUT ELEV. = 60.5

SITE ANALYSIS - DISTURBED/IMPERVIOUS AREAS

ON-SITE DISTURBED AREA	= 86,900 SF
R/W DISTURBED AREA	= 3,700 SF
TOTAL DISTURBED AREA	= 90,600 SF
ON-SITE IMPERVIOUS AREA (INITIAL	= 24,000 SF
R/W IMPERVIOUS AREA	= 2,800 SF
TOTAL IMPERVIOUS AREA	= 26,800 SF
ON-SITE STABILIZED W/ VEGETATION	= 62,900 SF
R/W STABILIZED W/ VEGETATION	= 900 SF
TOTAL AREA STABILIZED W/ VEGETATION	= 63,800 SF

APPROVED
DIVISION OF LAND DEVELOPMENT & ZONING ADMINISTRATION
HOWARD COUNTY, MARYLAND
DATE 3-20-84

OWNER:
ALVIN MAIER
4700 ANNAPOLIS ROAD
BLADENSBURG, MD. 20710

LEGEND:

TEMP. DIVERSION DIKE
TEMP. MOUNTABLE DIV. DIKE
LIMIT OF DISTURBANCE
TEMP. 15" C.M.P.

FOR GENERAL NOTES SEE SHEET C-4

PLAN SCALE: 1" = 30'

SEDIMENT & EROSION CONTROL PLAN & DETAILS

MAIER INDUSTRIAL PARK • SECTION 1 PARCEL C-4

ALVIN MAIER WAREHOUSE

GUILFORD ELECTION DISTRICT #6
HOWARD COUNTY, MARYLAND
TAX MAP NO. 47

DEVELOPERS CERTIFICATE:
I, WE CERTIFY THAT ALL DEVELOPMENT WILL BE DONE ACCORDINGLY TO THIS PLAN AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION. PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT & EROSION BEFORE BEGINNING THE PROJECT.
DATE: 7-2-84 SIGNATURE: [signature]

ENGINEERS CERTIFICATE:
I CERTIFY THAT THIS PLAN FOR SEDIMENT & EROSION CONTROL REPRESENTS A WORKABLE AND PRACTICAL PLAN BASED ON MY PERSONAL KNOWLEDGE OF SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF HOWARD COUNTY SOIL CONSERVATION DISTRICT.
8-2-83 [signature]
DATE WILLIAM A. JOYCE MD. P.E. # 12243

(2)

REVIEW FOR: HOWARD S.C.D.
NAME
AND MEETS TECHNICAL REQUIREMENTS
[signature] 6-22-84
U.S. SOIL CONSERVATION SERVICE DATE

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
[signature] 6/22/84
HOWARD S.C.D. DATE

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAIN SYSTEMS & ROADS
HOWARD COUNTY DEPT. OF PUBLIC WORKS
[signature] 6-28-84
DIRECTOR DATE
[signature] 6-28-84
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS
HOWARD COUNTY HEALTH DEPT.
[signature] 6-30-84
COUNTY HEALTH OFFICER

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
[signature] 7-2-84
PLANNING DIRECTOR DATE
[signature] 7-2-84
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMIN. DATE

REVISIONS		
DATE	DESCRIPTION	BY
10-11-83	(1) ADDED PIPE @ ENTRANCE AND REMOVED S.C.E.	WAJ
10-11-83	(2) REVISED TITLE BLOCK	WAJ
10-11-83	(3) CHANGED SEQUENCE AND ADDED NOTE	WAJ

JOYCE ENGINEERING CORPORATION
Engineers • Planners • Surveyors (301) 345-3074
5020 SUNNYSIDE AVE., BELTSVILLE, MD 20705

C-3

SDP-84-46

STANDARD AND SPECIFICATIONS

FOR

CRITICAL AREA STABILIZATION
(With Temporary Seeding)

Definition

Planting short-term vegetation on critical areas.

Purpose

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

Conditions Where Practice Applies

On graded or cleared areas which are subject to erosion for a year or less; permanent structures are to be installed or extensive grading of the area will be done prior to establishment of permanent vegetation.

SPECIFICATIONS

I. Site Preparation

A. Prior to seeding, install needed erosion control practices such as diversions, grade stabilization structures, berms, dikes, level spreaders, grassed waterways, and sediment basins.

B. Final grading and shaping has usually not been completed for temporary seedings.

II. Soil Amendments

For temporary seedings, fertilizer shall be applied at the rate of 600 lbs/ac. or 15 lbs/1000 sq. ft., using 10-20-10 or equivalent. Soils which are known to be highly acid should be limed.

III. Seedbed Preparation

When the area to be seeded has been recently loosened to the extent that an adequate seedbed exists, no additional treatment is required.

However, when the area to be seeded is packed, crusted, and hard, the top layer of soil shall be loosened by discing, raking or other acceptable means before seeding.

IV. Seeding

A. Select a mixture from Table 50-1.

B. Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydroseeder (slurry includes seed and fertilizer).

V. Mulching

When seedings are made on critical sites or adverse soil conditions, other than optimum seeding dates, mulch material will be applied immediately after seeding. Seedings made during optimum seeding dates and with favorable soils and site conditions will not need to be mulched.

A. Materials and Amounts

1. Straw - Material shall be unrotted small grain straw applied at the rate of 1-1/2 to 2 tons per acre, or 70 to 90 pounds per 1,000 sq. ft. Mulch materials shall be relatively free of all kinds of weeds and shall be free of prohibited noxious weeds which are: Canada thistle, Johnsongrass and quackgrass.

   Spread uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 sq. ft. section and place 70-90 lbs. of mulch in each section..

2. Wood-fiber or paper-fiber mulch at the rate of 1,500 pounds per acre or 35 pounds per 1,000 sq. ft. may be applied by hydroseeding. Use is limited to <3% and <150' length of slope and during optimum seeding periods in spring and fall.

3. Mulch nettings such as jute or excelsior blanket may be used. Staple to surface in waterways and on steep slopes. Lighter materials of paper, plastic and cotton mulch nettings may be used where erosion hazard is not severe. If area is to be mowed, do not use metal staples.

4. Wood chips at the rate of approximately 6 tons per acre or 275 lbs. per 1,000 sq. ft. may be used when available and when feasible to use.

B. Mulch anchoring shall be accomplished immediately after mulch placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon size of area, erosion hazard, and cost. On sloping land, practice No. 3 below, should be done on the contour wherever possible, except "tracking" should be done up and down the slope with 1-1/2 inch cleat marks running across the slope.

1. Peg and Twine - Drive 8 to 10-inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross within a square pattern. Secure twine around each peg with two or more round turns.

2. Mulch Nettings - Staple lightweight biodegradable paper, plastic or cotton nettings over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4 feet wide and up to 300 feet long.

3. Mulch Anchoring Tool (not a disc) - A tractor drawn implement designed to punch and anchor mulch into the surface 2 inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely. Tracking - primarily used on steeper than 3:1 cut and fill slopes to cut the mulch into the soil with cleated bulldozer tracks.

4. Liquid Mulch Binders
   Applications of liquid binders should be heavier at edges where wind catches mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance. Caution should be used with asphalt in residential and similar areas.

   a. Cutback asphalt - rapid curing (RC-70, RC-250, and RC-800) or medium curing (MC-250 or MC-800). Apply 5 gallons per 1,000 sq. ft. or 218 gallons per acre on flat areas, and on slopes less than 8 feet high. On slopes 8 feet or more high, use 8 gallons per 1,000 sq. ft. or 348 gallons per acre.

   b. Emulsified asphalt - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, and CRS-2). Apply 5 gallons per 1,000 sq. ft. or 218 gallons per acre on flat areas and on slopes less than 8 feet high. On slopes 8 ft. or more high, use 8 gallons per 1,000 sq. ft. or 348 gallons per acre.

   All asphalt designations are from the Asphalt Institute Specifications.

   c. Synthetic binders - Synthetic binders such as Curasol, DCA-70, Petroset and Terra Tack may be used at rates recommended by the manufacturer to anchor mulch material.

   Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

APPROVED
DIVISION OF LAND DEVELOPMENT &
ZONING ADMINISTRATION
HOWARD COUNTY, MARYLAND
DATE 3-20-84

STANDARD AND SPECIFICATIONS

FOR

CRITICAL AREA STABILIZATION
(With Sod)

Definition

Stabilizing silt-producing areas by establishing long-term stands of grass with sod.

Purpose

To stabilize the soil; reduce damage from sediment and runoff to downstream areas; enhance natural beauty.

Conditions Where Practice Applies

On exposed soils that have a potential for causing off-site environmental damage where a quick vegetative cover is desired; on sites which can be maintained with ground equipment. (2:1 or flatter slopes)

SPECIFICATIONS

1. Class of turfgrass sod shall be Maryland or Virginia State Certified, or Maryland or Virginia State approved sod.

2. Sod shall be machine cut at a uniform soil thickness of 3/4 inch, plus or minus 1/4 inch, at the time of cutting. Measurement for thickness shall exclude top growth and thatch.

3. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically from a firm grasp on the upper 10% of the section.

4. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5%. Broken pads and torn or uneven ends will not be acceptable.

5. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

6. Sod shall be harvested, delivered and installed within a period of 36 hours. Sod not transplanted within this period shall be inspected and approved by the contracting officer or his designated representative prior to its installation.

I. Site Preparation

Fertilizer and lime application rates shall be determined by soil tests. Under unusual circumstances where there is insufficient time for a complete soil test and the contracting officer agrees, fertilizer and lime materials may be applied in amounts shown under B. and C., below.

A. Prior to sodding, the surface shall be cleared of all trash, debris, and of all roots, brush, wire, grade stakes and other objects that would interfere with planting, fertilizing or maintenance operations.

B. Where the soil is acid or composed of heavy clays, ground limestone shall be spread at the rate of 100 pounds per 1,000 square feet. In all soils 30 pounds of 5-10-5, or equivalent, per 1,000 square feet shall be uniformly applied and mixed into the top 3 inches of soil with the required lime.

C. Slow release nitrogen at the rate of 3.5 lbs. N/1000 square feet shall be applied to the prepared soil just prior to sod installation. This material shall be approximately 1/3 immediately available and 2/3 water insoluble nitrogen. Urea formaldehyde (UF) and isobutylidene urea (IBDU) meet these standards.

II. Sod Installation

A. During periods of excessively high temperature the soil shall be lightly irrigated immediately prior to laying the sod.

B. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Insure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

C. On sloping areas where erosion may be a problem, sod shall be laid with the long edges parallel to the contour and with staggered joints. Secure the sod by tamping and pegging or other approved methods.

D. As sodding is completed in any one section, the entire area shall be rolled or tamped to insure solid contact of roots with the soil surface. Sod shall be watered immediately after rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

III. Sod Maintenance

A. In the absence of adequate rainfall, watering shall be performed daily or as often as deemed necessary by the inspector during the first week and in sufficient quantities to maintain moist soil to a depth of 4 inches. Watering should be done during the heat of the day to help prevent wilting.

B. After the first week, sod shall be watered as necessary to maintain adequate moisture and insure establishment.

C. First mowing should not be attempted until sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2 and 3 inches unless otherwise specified.

D. Maintenance of established sod should follow specifications outlined in table 54-1.

References

1. Guideline Specifications, Soil Preparation and Sodding. MD-VA. Pub. #1. Cooperative Extension Service, University of Maryland-Virginia Polytechnic Institute. Revised 1973.

2. Guideline Specifications for Sodding. American Sod Producers Association, Inc. New Brunswick, N. J.

3. USDA, Soil Conservation Service Field Office Technical Guides.

Note: Maryland Water Resources Administration has developed an Audiovisual Training Program, "Vegetative Soil Stabilization", which relates to this subject.

Temporary Seedings by Rates, Depths and Dates

Species 3/	Seeding Rate: Per Acre	Seeding Rate: Lbs/1000 sq. ft.	Planting Depth 2/ (Inches)	Coastal Plain 2/1-4/30	Coastal Plain 5/1-8/14	Coastal Plain 8/15-11/30	Piedmont 3/1-4/30	Piedmont 5/1-8/14	Piedmont 8/15-11/15	Mountains 3/15-5/31	Mountains 6/1-7/31	Mountains 8/1-10/31
* Choose one:				5/			5/					
Barley	2-1/2 bu.	2.8	1-2	x	-	By 10/15	x	-	By 10/15	x	-	By 10/1
Oats	3 bu.	2.2	1-2	x	-	-	x	-	-	x	-	-
Rye	2-1/2 bu.	3.2	1-2	x	-	x	x	-	x	x	-	x
Italian or perennial ryegrass 1/	40 lbs.	.92	1/4-1/2	5/ x	-	By 11/1	5/ x	-	By 11/1	x	-	By 8/15
Millet	40 lbs.	.92	1-2	-	x	-	-	x	-	-	x	-
* Weeping, Boer, or Lehmann's lovegrass	3 lbs.	.07	1/4-1/2	-	x	-	-	x	-	-	x	-
Sudangrass 4/	40 lbs.	.92	1-2	-	x	-	-	x	-	-	x	-

1/ Use only on areas where seed stalks and volunteer growth are acceptable.

2/ Applicable on slopes 3:1 or less.

3/ Use varieties currently recommended for Maryland. Use certified seed when available.

4/ Use common sudangrass varieties only. Do not use hybrids.

5/ Twenty pounds per acre of annual lespedeza may be added to 1/2 the seeding rate of any species used for spring seedings.

6/ Between fall and spring seeding dates, use mulching only or sodding practices

x Applicable during entire period.

- Not applicable in period.

* TEMPORARY SEEDING OF THIS PROJECT SHALL BE ONE OF THESE TYPES, DEPENDING ON TIME OF YEAR SEEDING IS PERFORMED. △1

STANDARD AND SPECIFICATIONS

FOR

CRITICAL AREA STABILIZATION
(With Mulching Only)

Definition

Applying plant residues or other suitable materials not produced on the site to the soil surface.

Purpose

To conserve moisture; prevent surface compaction or crusting; reduce runoff and erosion; control weeds; and help establish plant cover.

Conditions Where Practice Applies

On graded or cleared areas (not to finished condition) which are subject to erosion for 6 months or less; where seedings may not have a suitable growing season to produce an erosion retardant cover, but which can be stabilized with a mulch cover.

SPECIFICATIONS

I. Site Preparation

A. Prior to mulching, install needed erosion control practices such as diversions, grade stabilization structures, berms, dikes, level spreaders, grassed waterways and sediment basins.

B. Final grading is not required prior to mulching. However, mulching may be applied after final grade is reached.

II. Mulching

A. Materials and Amounts

1. Straw - Straw shall be unrotted small grain straw applied at the rate of 1-1/2 to 2 tons per acre, or 70 to 90 pounds per 1,000 sq. ft. Mulch materials shall be relatively free of all kinds of weeds and shall be free of prohibited noxious weeds which are: Canada thistle, Johnsongrass and quackgrass.

   Spread uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 sq. ft. section and place 70-90 lbs. of mulch in each section.

2. Asphalt emulsion or cutback asphalt at 600 to 1,200 gallons per acre. This is suitable for a limited period of time where travel by people, animals or machines is not a problem.

3. Synthetic soil stabilizers may be used according to manufacturers recommendations--under suitable conditions.

4. Mulch nettings such as jute or excelsior blanket may be used. Staple to surface in waterways and on steep slopes. Lighter materials of paper, plastic and cotton mulch nettings may be used where erosion hazard is not severe. If area is to be mowed, do not use metal staples.

5. Wood chips at the rate of approximately 6 tons per acre or 275 lbs. per 1,000 sq. ft. may be used when available and when feasible to use.

6. Crushed rock, stones, gravel or shale blankets. Apply at rate of 20 to 100 tons per acre or 900 to 4,500 lbs. per 1,000 sq. ft. with coarsest material applied at the highest rate.

B. Mulch anchoring shall be accomplished immediately after mulch placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon size of area, erosion hazard, and cost. On sloping land, practice No. 3 below, should be done on the contour wherever possible. Applies to straw and to wood chips on more ctitical sites, except "tracking" should be done up and down the slope with 1-1/2" cleats making grooves across the slope.

1. Peg and Twine - Drive 8 to 10-inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross within a square pattern. Secure twine around each peg with two or more round turns.

2. Mulch Nettings - Staple lightweight biodegradable paper, plastic or cotton netting over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4 feet wide and up to 300 feet long.

3. Mulch Anchoring Tool - (not a disc) - A tractor drawn implement designed to punch and anchor mulch into the surface 2 inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely, primarily used on steeper than 3:1 cut and fill slopes to cut the mulch into the soil with bulldozer cleats.

4. Liquid Mulch Binders

   Applications of liquid binders should be heavier at edges where wind catches mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance. Caution should be used with asphalt in residential and similar areas.

   a. Cutback asphalt - rapid curing (RC-70, RC-250 and RC-800) or medium curing (MC-250 or MC-800). Apply 5 gallons per 1,000 sq. ft. or 200 gallons per acre on flat areas and on slopes less than 8 feet high. On slopes 8 feet or more high, use 8 gallons per 1,000 sq. ft. or 348 gallons per acre.

   b. Emulsified asphalt - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, and CRS-2). Apply 5 gallons per 1,000 sq. ft. or 200 gallons per acre on flat areas and on slopes less than 8 feet high. On slopes 8 ft. or more high, use 8 gallons per 1,000 square feet or 348 gallons per acre.

   All asphalt designations are from the Asphalt Institute Specifications.

   c. Synthetic binders - Synthetic binders such as Curasol, DCA-70, Petroset and Terra Tack may be used at rates recommended by the manufacturer to anchor mulch material.

   Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

References

1. USDA - Soil Conservation Service Field Office Technical Guides.

2. Mulches for Wind and Water Erosion Control, USDA, ARS 41-84, July 1963.

3. Applied Mulches and Mulching, USDA, ARS Special Report, ARS 22-71, August 1961.

Note: Maryland Water Resources Administration has developed an audiovisual program, "Temporary Soil Stabilization", which relates to this subject.

STANDARD AND SPECIFICATIONS

FOR

CRITICAL AREA STABILIZATION
(With Permanent Seedings)

Definition

Planting vegetation such as grasses and legumes on critical areas.

Purpose

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

Conditions Where Practices Apply

Graded or cleared areas subject to erosion and where a permanent, long-lived vegetative cover is needed.

SPECIFICATIONS

Vegetation cannot be expected to provide an erosion control cover and prevent soil slippage on a soil that is not stable due to its texture, structure, water movement or excessive slope.

Minimum soil conditions needed for the establishment and maintenance of a long-lived vegetative cover:

A. Enough fine-grained materials (over 30 percent silt plus clay) to provide the capacity to hold at least a moderate amount of available moisture. Noticeable exception would be planting lovegrass and sericea lespedeza which can be planted on a sandier soil.

B. Sufficient pore space to permit adequate root penetration.

C. The soil shall be free from any material harmful to plant growth.

D. If these minimum conditions cannot be met, see specification, Topsoiling (57.01).

I. Site Preparation

A. Install needed erosion control practices such as interceptor dikes, berms and spreaders, contour ripping, erosion stops, channel liners and sediment basins.

B. Grade as needed and feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application, anchoring and maintenance.

II. Seedbed Preparation

Flat areas and slopes up to 3 to 1 grade shall be loose and friable to a depth of at least 3 inches. The top layer of soil shall be loosened by raking, discing or other acceptable means before seeding.

Slopes steeper than 3 to 1 shall have the top 1-3 inches of soil loose and friable before seeding.

III. Soil Amendments

Lime and fertilize according to soil tests. Lime and fertilizer needs can be determined by a soil testing laboratory, such as the University of Maryland's Soil Testing Laboratory.

In lieu of soil test results, apply 2 tons dolomitic limestone and 600 pounds 0-20-20, or equivalent per acre before seeding. Harrow or disc lime and 0-20-20, or equivalent fertilizer uniformly into the soil to minimum depth of 3 inches on slopes flatter than 3 to 1. On slopes of greater than 3 to 1 grade, the lime and fertilizer shall be worked in as directed by the contracting officer. On sloping land, the final harrowing or discing operation should be on the contour wherever feasible. No attempt should be made to drag any disced area to make the soil surface very smooth after discing. At time of seeding, apply 400 pounds 38-0-0 ureaform fertilizer and 500 pounds 10-20-20, or equivalent fertilizer per acre. For mixtures containing perennial legumes, the 500 pounds of 10-20-20 may be omitted.

IV. Seeding

A. Select a mixture from table 51-1.

B. Apply seed uniformly with a cyclone seeder, drill, cultipacker seeder or hydroseeder (slurry includes seed and fertilizer) on a firm, moist seedbed. Maximum seeding depth should be 1/4 inch on clayey soils and 1/2 inch on sandy soils, when using other than hydroseeder method of application.

V. Mulching

A. Materials and Amounts

1. Straw - Straw shall be unrotted small grain straw applied at the rate of 1-1/2 to 2 tons per acre, or 70 to 90 pounds per 1,000 sq. ft. Mulch materials shall be relatively free of all kinds of weeds and shall be free of prohibited noxious weeds which are: Canada thistle, Johnsongrass and quackgrass.

   Spread uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 sq. ft. section and place 70-90 lbs. of mulch in each section.

2. Wood-fiber or paper-fiber mulch at the rate of 1,500 pounds per acre or 35 pounds per 1,000 sq. ft. may be applied by hydroseeding. Use is limited to < 3% and < 150' length of slope and during optimum seeding periods in spring and fall.

3. Mulch nettings such as jute or excelsior blanket may be used. Staple to surface in waterways and on steep slopes. Lighter materials of paper, plastic and cotton mulch nettings may be used where erosion hazard is not severe. If area is to be mowed, do not use metal staples.

4. Wood chips at the rate of approximately 6 tons per acre or 275 lbs. per 1,000 sq. ft. may be used when available and when feasible to use. Particularly well-suited for utility and road rights-of-way.

B. Mulch anchoring shall be accomplished immediately after mulch placement to minimize loss by wind or water. This may be done by one of the following methods, depending upon size of area, erosion hazard, and cost. On sloping land, practice No. 3 below, should be done on the contour wherever possible. Applies to all straw and to wood chips or more critical sites, except "tracking" should be done up and down the slope with 1-1/2 inch cleat marks running across the slope.

1. Peg and Twine - Drive 8 to 10-inch wooden pegs to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying mulch. Secure mulch to soil surface by stretching twine between pegs in a criss-cross within a square pattern. Secure twine around each peg with two or more round turns.

2. Mulch Nettings - Staple lightweight biodegradable paper, plastic or cotton nettings over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4 feet wide and up to 300 feet long.

3. Mulch Anchoring Tool - A tractor drawn implement designed to punch and anchor mulch into the surface 2 inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely. Tracking - primarily used on > 3:1 cut and fill slopes to cut the mulch into the soil with bulldozer cleats.

4. Liquid Mulch Binders

   Applications of liquid binders should be heavier at edges where wind catches mulch, in valleys, and at crests of banks. Remainder of area should be uniform in appearance. Caution should be used with asphalt in residential and similar areas.

   a. Cutback asphalt - rapid curing (RC-70, RC-250, and RC-800) or medium curing (MC-250 or MC-800). Apply 5 gallons per 1,000 sq. ft. or 200 gallons per acre on flat areas, and on slopes less than 8 feet high. On slopes 8 feet or more high, use 8 gallons per 1,000 sq. ft. or 348 gallons per acre.

   b. Emulsified asphalt - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, and CRS-2). Apply 5 gallons per 1,000 sq. ft. or 200 gallons per acre on flat areas and on slopes less than 8 feet high. On slopes 8 feet or more high, use 8 gallons per 1,000 sq. ft. or 348 gallons per acre.

   All asphalt designations are from the Asphalt Institute Specifications.

   c. Synthetic binders - Synthetic binders such as Curasol, DCA-70, Petroset and Terra Tack may be used at rates recommended by the manufacturer to anchor mulch material.

   Note: All names given above are registered trade names. This does not constitute a recommendation of these products to the exclusion of other products.

VI. Irrigation

If soil moisture is deficient, supply new seedings with adequate water for plant growth until they are firmly established, if feasible. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

VII. Maintenance

Maintenance is a vital factor in maintaining an adequate vegetative erosion control cover. See Table 51-2.

A. Irrigation - If soil moisture becomes deficient, irrigate to prevent loss of stand of protective vegetation, if feasible.

B. Repairs - Inspect all seed areas for failures and make necessary repairs, replacements, and reseedings within the planting season, if possible.

1. If stand is inadequate for erosion control, overseed and fertilize using half of the rates originally applied.

2. If stand is over 60% damaged, reestablish following original lime, fertilizer, seedbed preparation and seeding recommendations.

References

1. Lawn Care in Maryland, Bulletin 171; Cooperative Extension Service, University of Maryland, College Park, Maryland.

2. Maryland State Highway Administration Specifications for Materials.

3. USDA - Soil Conservation Service Field Office Technical Guides.

Note: Maryland Department of Water Resources has developed an audiovisual training program, "Plant Materials and Vegetative Soil Stabilization", which relates to this practice.

Maintenance Fertilization for Permanent Sod
Use Soil Test Recommendations or Rates Shown Below

Seeding Mixtures	Formulation*	Lbs/Ac.	Lbs/1000 sq.ft.	Time	Mowing
'Ky-31' tall fescue and)	20-10-10	250	6.75	Sept. 1 - Oct. 1	Mow no closer than 2 inches for bluegrass and 3 inches for fescue.
Kentucky bluegrass-)	20-10-10	250	6.75	30 days later.	
Red fescue mixture)	20-10-10	250	6.75	December.	
	20-10-10	85	2.25	May 20 - June 30, as needed.	
Bermudagrass, 'Tufcote'	20-10-10	200	5.00	May 1, July 1	1-2"
	0-10-10	200	5.00	August 15	

*Equivalent amounts of plant food may be applied with other formulations.

Permanent Seedings and Seeding Dates,

Mix. No.	Seeding Mixtures (Use Certified Seed if available)	Seeding Rate Lbs/Acre	Seeding Rate Lbs/1000 Sq. Ft.	Coastal Plain 2/1-4/30	Coastal Plain 5/1-8/14	Coastal Plain 8/15-10/31	Piedmont 3/1-4/30	Piedmont 5/1-7/31	Piedmont 8/1-10/15	Mountains 3/15-5/31	Mountains 6/1-7/31	Mountains 8/1-[illegible]
1.	'Kentucky 31' Tall Fescue *	60	1.38	x	-	x	x	-	x	x	-	[illegible]
** 2.	'Kentucky 31' Tall Fescue * / Weeping lovegrass (a)	60 / 2	1.38 / .05	-	x	-	-	x	-	-	x	[illegible]
3.	'Kentucky 31' Tall Fescue * / 'Kobe' lespedeza (b) inoculated	50 / 15	1.15 / .34	x	-	-	x	-	-	-	-	[illegible]
4.	'Kentucky 31' Tall Fescue * / Sericea lespedeza (b) inoculated	40 / 20	.92 / .46	x	-	x	x	-	x	x	-	[illegible]
5.	'Kentucky 31' Tall Fescue * / Birdsfoot trefoil, inoculated	40 / 10	.92 / .23	-	-	-	-	-	-	x (2000' elev. & above)	-	[illegible]
6.	Crownvetch, inoculated / Redtop	15 / 3	.34 / .07	x	-	-	x	-	-	x	-	[illegible]
7.	Crownvetch, inoculated / 'Kentucky 31' Tall Fescue *	15 / 40	.46 / .92	x	-		x	-		x	-	[illegible]
8.	Droughty Areas: 'Kentucky 31' Tall Fescue * / Redtop	30 / 5	.69 / .11	x	-	x	x	-	x	x	-	[illegible]
9.	Weeping lovegrass / Sericea lespedeza (b) inoculated,	2 / 20	.05 / .46	x	x	-	x	x	-	x	x	[illegible]
10.	Poorly Drained Areas: 'Kentucky 31' Tall Fescue *	30	.69	x	-	x	x	-	x	x	-	[illegible]
11.	Reed canarygrass (c)	10	.23									
12.	Shaded Areas: 'Kentucky 31' Tall Fescue *	60	1.38	x	-	x	x	-	x	x	-	x
13.	Red Fescue 'Jamestown' or 'Pennlawn'	40	.92	x	-	x	x	-	x	x	-	x
14.	Lawns & High Maintenance Areas: 'Merion' Kentucky Bluegrass * / Common Kentucky Bluegrass* (d) / Red Fescue, 'Pennlawn' or 'Jamestown'	40 / 40 / 20	.92 / .92 / .46	x	-	x	x	-	x	x	-	x
15.	'Kentucky 31' Tall Fescue * (g)	230-260	5-6	x	x (f)	x	x	x (f)	x	x	x (f)	x

* Use certified seed only

** USE SEEDING MIXTURE NO. 2 FOR PERMANENT SEEDING ON THIS PROJECT.

SEDIMENT & EROSION CONTROL NOTES

MAIER INDUSTRIAL PARK · SECTION 1 PARCEL C-4

ALVIN MAIER WAREHOUSE

GUILIFORD ELECTION DISTRICT # 6
HOWARD COUNTY MARYLAND
TAX MAP NO. 47

OWNER:
ALVIN MAIER
4700 ANNAPOLIS ROAD
BLADENSBURG, MD. 20710

4-7-84

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY SOIL CONSERVATION DISTRICT.
6/22/84
HOWARD COUNTY S.C.D. DATE

REVIEW FOR: HOWARD S.C.D
NAME
AND MEETS TECHNICAL REQUIREMENTS 6-22-84
U.S. SOIL CONSERVATION SERVICE DATE

APPROVED: FOR PUBLIC WATER, PUBLIC SEWERAGE & STORM DRAIN SYSTEMS & ROADS
HOWARD COUNTY DEPT. OF PUBLIC WORKS 6-28-84
DIRECTOR DATE
6-28-84
CHIEF, BUREAU OF ENGINEERING DATE

APPROVED: HOWARD COUNTY OFFICE OF PLANNING & ZONING
7-2-84
PLANNING DIRECTOR DATE
7-2-84
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING ADMIN. DATE

APPROVED: FOR PUBLIC WATER & PUBLIC SEWARAGE SYSTEMS
HOWARD COUNTY HEALTH DEPT.
6-31-84
COUNTY HEALTH OFFICER DATE

REVISIONS

DATE	DESCRIPTION	BY
10.11.83	REVISED TITLE BLOCK	WAJ

JOYCE ENGINEERING CORPORATION
Engineers • Planners • Surveyors (301) 345-3074
5020 SUNNYSIDE AVE, BELTSVILLE, MD. 20705

DES. W.A.J. DFT. T.A.M. SHEET 4 OF 4
SCALE: NONE JOB NO. 83-036
DATE: AUG 1983 FILE NO. 83-036

C-4

JEC FILE # 83-036

SDP-84-46