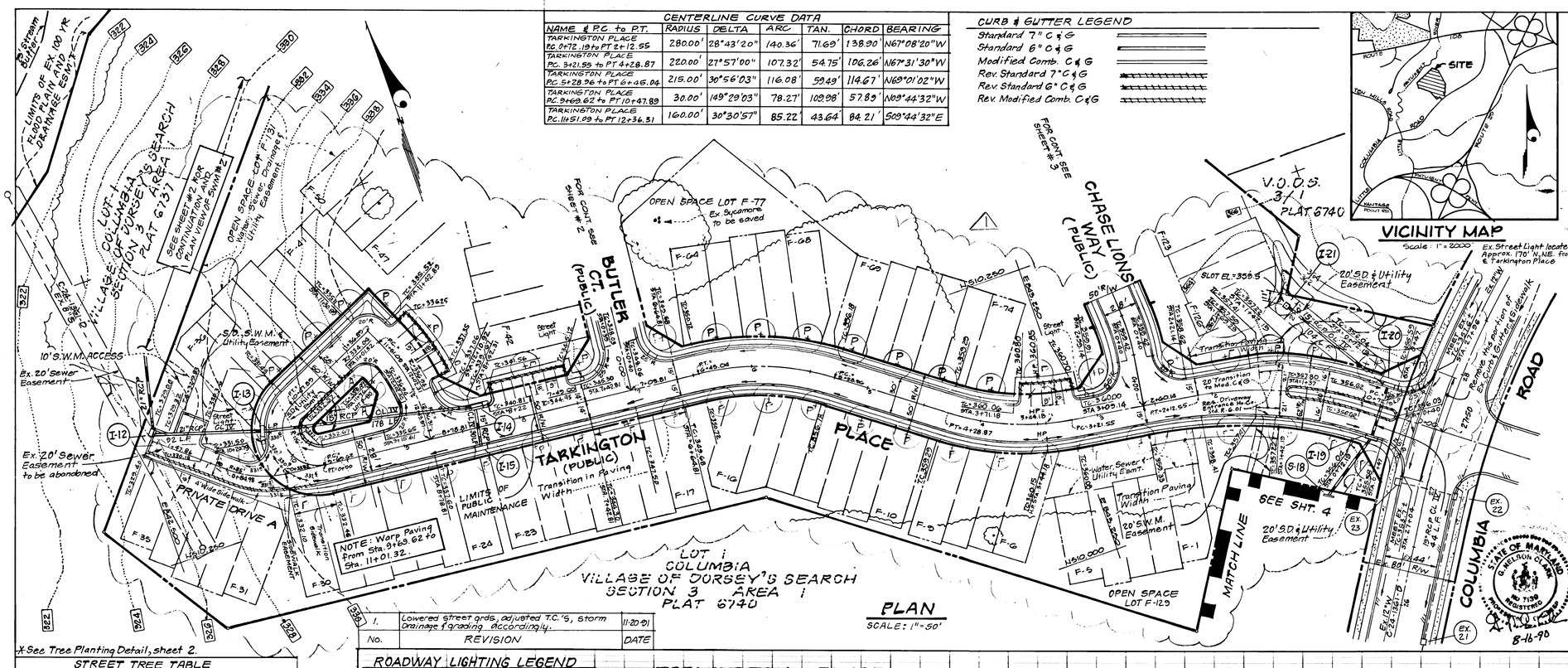
CENTERLINE CURVE DATA						
NAME & P.C. to P.T.	RADIUS	DELTA	ARC	TAN.	CHORD	BEARING
TARKINGTON PLACE P.C. 0+72.19 to P.T 2+12.55	280.00'	28°43'20"	140.36'	71.69'	138.90'	N67°08'20"W
TARKINGTON PLACE P.C. 3+21.55 to P.T 4+28.87	220.00'	27°57'00"	107.32'	54.75'	106.26'	N67°31'30"W
TARKINGTON PLACE P.C. 5+28.96 to P.T 6+44.04	215.00'	30°56'03"	116.08'	59.49'	114.67'	N69°01'02"W
TARKINGTON PLACE P.C. 9+69.62 to P.T 10+47.89	30.00'	149°29'03"	78.27'	109.98'	57.89'	N09°44'32"W
TARKINGTON PLACE P.C. 11+51.09 to P.T 12+36.31	160.00'	30°30'57"	85.22'	43.64'	84.21'	S09°44'32"E

CURB & GUTTER LEGEND

- Standard 7" C & G
- Standard 6" C & G
- Modified Comb. C & G
- Rev. Standard 7" C & G
- Rev. Standard 6" C & G
- Rev. Modified Comb. C & G



PLAN
SCALE: 1" = 50'

GENERAL NOTES

1. All work shall be done in accordance with "Ho. Co. Design Manual", Vol. IV Stds. and Specs. and Details for Construction, 1985 Amendments.
2. Types of Storm Drainage refer to the standard details of Ho. Co. & M.D.S.H.A.
3. Trench Compaction for Storm Drains within road or street right-of-way limits shall be in accordance with "Ho. Co. Design Manual, Vol. IV", Std. G. 2.01.
4. Information concerning underground utilities was obtained from available records, but the Contractor must determine the exact location and elevation of mains by digging test pits, by hand, at all utility crossings well in advance of Construction.
5. All utility companies shall be notified 24 hrs. in advance of construction.
6. All traffic services, parking and signing to be done in accordance with the "Manual of Uniform Traffic Control Devices" 1984 Revised Edition.
7. Sag and Crest Vertical Curves were designed in accordance with the "Ho. Co. Design Manual," Vol. III.
8. Provide Conc. Sidewalk Ramps where shown on plan. See Detail Sheet # 5.
9. Design Speed: 30 MPH Zoning: N.T. S.F. (attached).
10. The Contractor or Developer shall contact the Construction Inspection/Survey Division 24 hrs. in advance of commencement of work - 992-7272
11. Stormwater Management is provided Off-site.
12. Street lights to be placed 2'-10' behind curb and in accordance with Howard County Design Manual Vol. III.
13. File Reference: F-86-26, FDP 191 A, WP-89-179, S-89-89, P-90-30 and FDP-191-A1 & F-91-35.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, LAND DEVELOPMENT DIVISION — DATE 11/7/90

CHIEF, BUREAU OF HIGHWAYS — DATE 10/23/90

CHIEF, BUREAU OF ENGINEERING — DATE 11-8-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.

CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT — DATE 11/5/90

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 – BALTO. • (301) 621-8100 – WASH.

DESIGNED D.G.T.	ROAD CONSTRUCTION PLANS TARKINGTON PLACE & BUTLER COURT	SCALE As Shown
DRAWN P.E.R. V.L.M.	COLUMBIA VILLAGE OF DORSEY'S SEARCH SECTION 3, AREA 1 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	DRAWING 1 OF 8
CHECKED D.G.T.		JOB NO. 90-120
DATE 8-10-90	FOR: HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 Little Patuxent Parkway Columbia, Maryland 21044	FILE NO. 90-120-D

STATE OF MARYLAND — DANIEL G. NEILSON — No. 11198 — REGISTERED PROFESSIONAL ENGINEER — 8-16-90

No.	REVISION	DATE
1.	Lowered street grds. adjusted T.C.'s, Storm Drainage & grading accordingly.	11-20-91

* See Tree Planting Detail, sheet 2.

STREET TREE TABLE

SYM.	TYPE	SIZE	QUANT.	REMARKS
(P)	Platanus Acerfolia 'Bloodgood' London Plane Tree	2½-3" cal. 12-14' Ht.	57	-
(A)	Acer Rubrum Red Sunset Red Sunset Maple	"	61	-

1. The Contractor shall verify location of underground utilities prior to staging. Location of trees may be adjusted slightly to meet field conditions.
2. The location and type of trees shown are tentative and are used for bond purposes only. The final location and variety of trees may vary to accomodate field conditions and builders landscape program. Bond release is contingent upon Section 16.131 of the Howard County Subdivision Regulations as approved by the Office of Planning and Zoning.

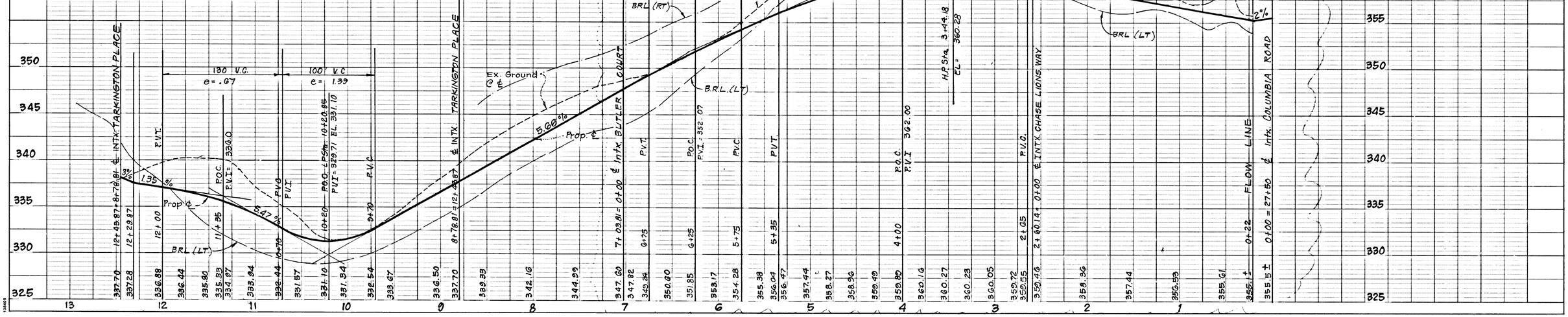
ROADWAY LIGHTING LEGEND

○ 150 Watt "Modern" Sodium Vapor Lamp post top fixture on a 14' bronze Fiberglass pole.

TARKINGTON PLACE (PUBLIC)

PROFILE SCALE
HORIZ. = 1" = 50'
VERT. = 1" = 5'

PROFILE LEGEND
- Profile Grade Line
- Existing ℄
- B.R.L. (Rt)
- B.R.L. (Lt)



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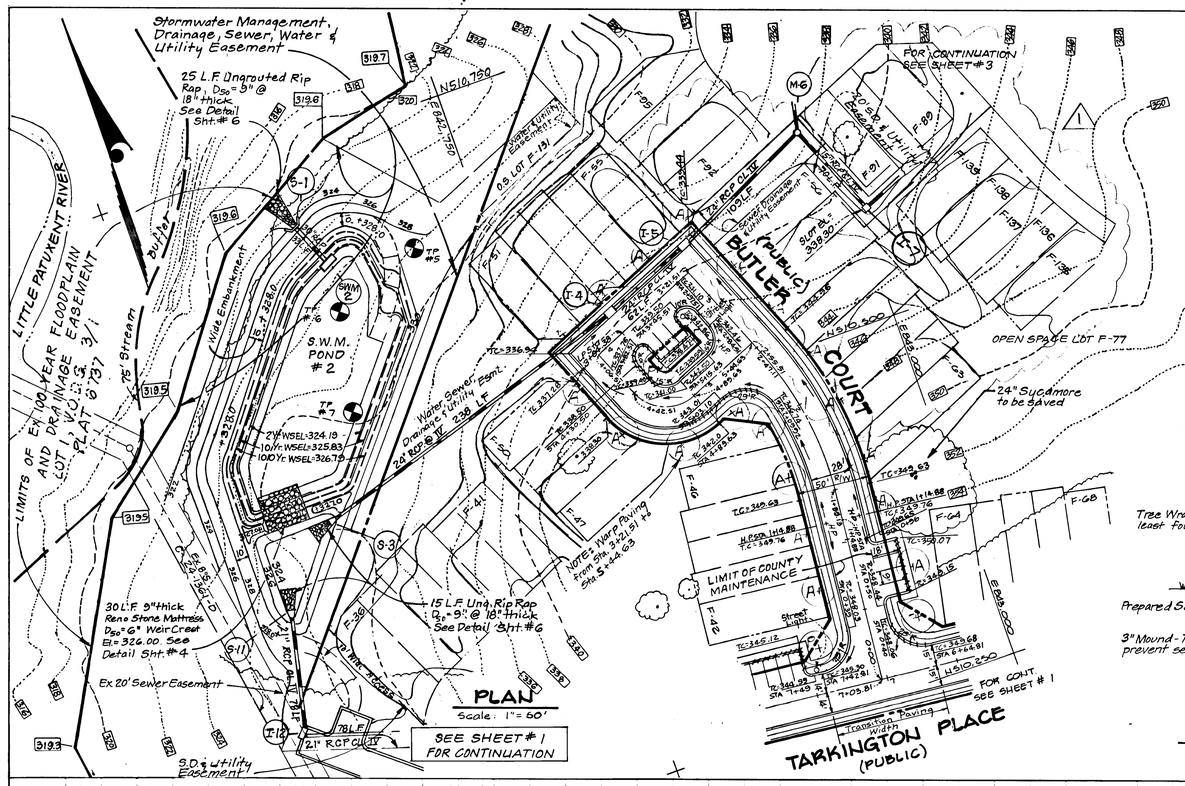
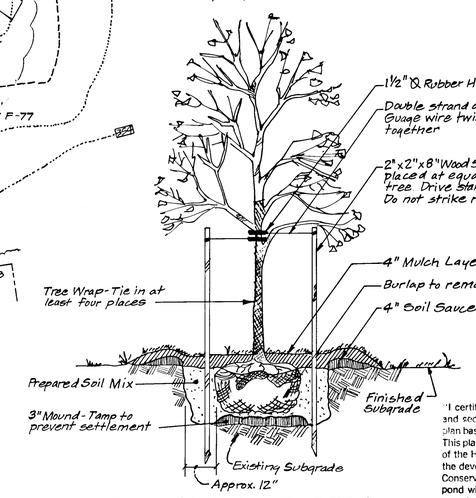


CENTERLINE CURVE DATA						
NAME & PC to PT	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
BUTLER COURT PC 1+35.13 to PT 2+47.11	225.00'	28°30'57"	111.98'	57.18'	110.83'	N08°44'32"W
BUTLER COURT PC 4+42.51 to PT 4+80.63	30.00'	90°00'00"	47.12'	30.00'	42.43'	S68°00'00"E

CURB & GUTTER LEGEND

- Standard 7" C & G
- Standard 6" C & G
- Modified Comb. C & G
- Rev. Standard 7" C & G
- Rev. Standard 6" C & G
- Rev. Modified C & G



TREE PLANTING DETAIL

NO SCALE

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved _____ Howard S.C.D. 10/15/90 Date

Plan Number

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements for small pond construction, soil erosion and sediment control.

_____ U.S. Soil Conservation Service 10/15/90 Date

Developers Certification:

"We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of *Environment* Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

_____ Signature of Developer 8/15/90 Date

ENGINEER'S CERTIFICATE

"I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

_____ Signature of Engineer 8-16-90 Date

STATE OF MARYLAND G. NELSON CLARK NO. 7198 REGISTERED PROFESSIONAL ENGINEER 8-16-90

№	REVISIONS	Date
1	Rev. grd., lot lines per resub plat, Blot El. for Str. #7	11-20-91

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, LAND DEVELOPMENT DIVISION — DATE 4/7/90

CHIEF, BUREAU OF HIGHWAYS — DATE 10/23/90

CHIEF, BUREAU OF ENGINEERING — DATE 11-8-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT — DATE 11/5/90

CLARK • FINEFROCK & SACKETT, INC.

ENGINEERS • PLANNERS • SURVEYORS

7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 – BALTO. • (301) 621-8100 – WASH.

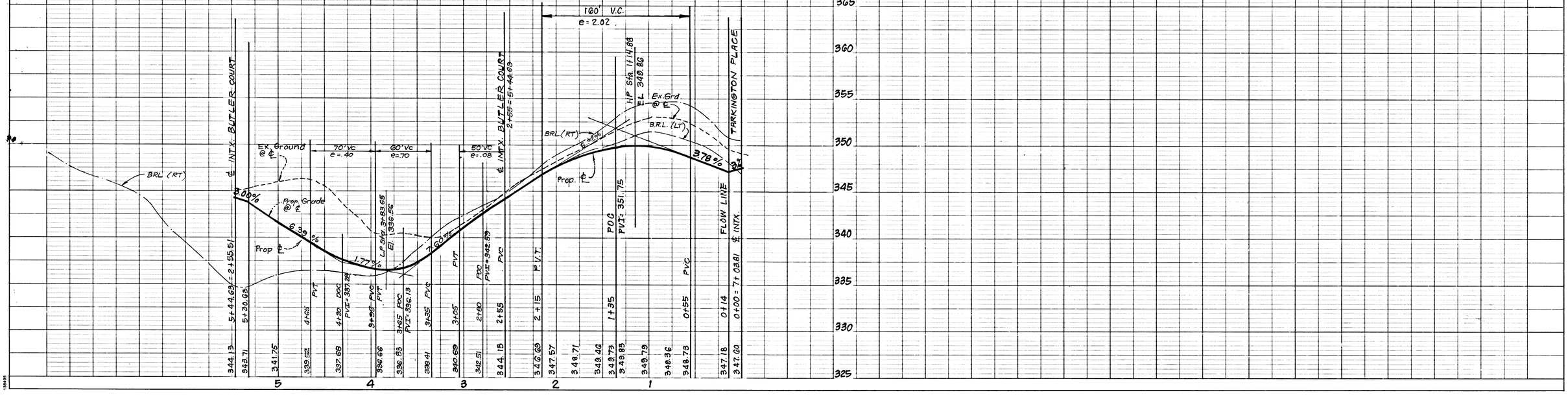
DESIGNED D.G.T.	ROAD CONSTRUCTION PLANS TARKINGTON PLACE & BUTLER WAY	SCALE As Shown
DRAWN P.E.R.	COLUMBIA VILLAGE OF DORSEY'S SEARCH SECTION 3, AREA 1 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	DRAWING 2 OF 8
CHECKED D.G.T.		JOB NO. 90-120
DATE 8-10-90	FOR: HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 Little Patuxent Parkway Columbia, Maryland 21044	FILE NO. 90-120-D

PROFILE SCALE

HORIZ. = 1"=50'
VERT. = 1"=5'

PROFILE LEGEND

- Profile Grade Line
- Existing ℄
- B.R.L. (Rt.)
- B.R.L. (Lt.)



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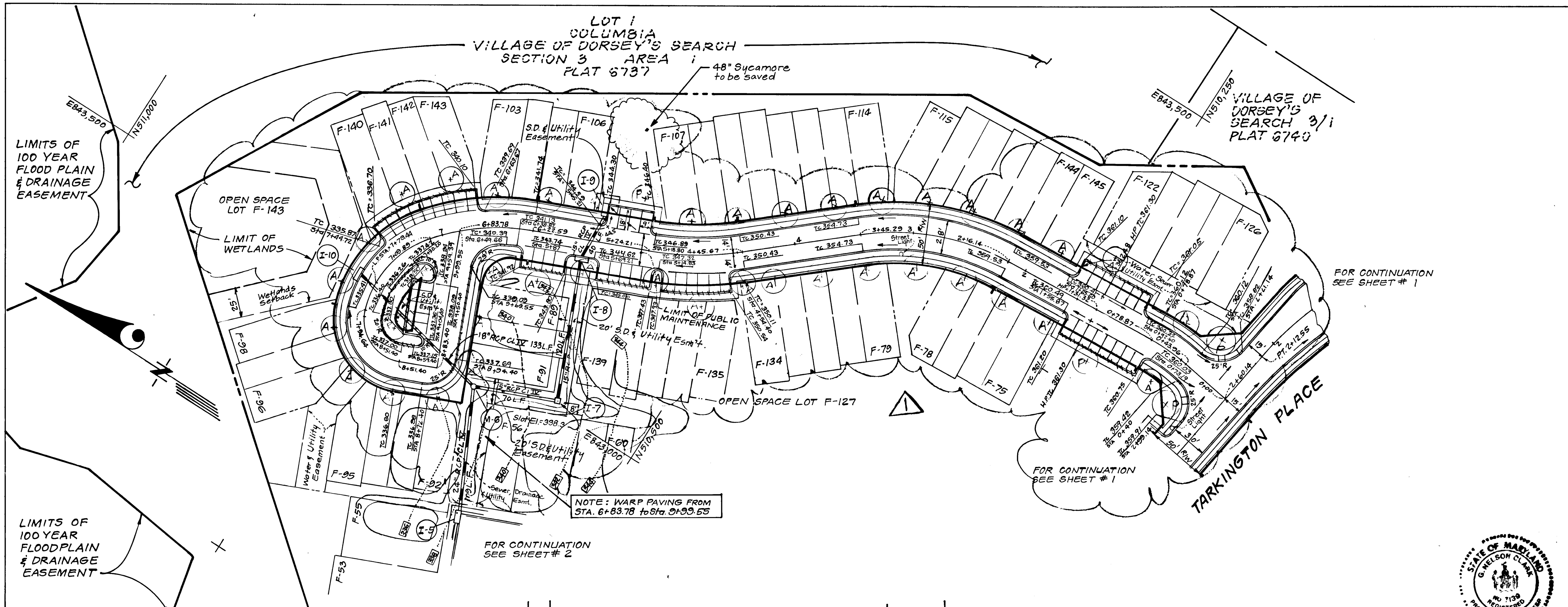

Nº	REVISIONS	Date
1	Lowered street Grade, Adjusted Tc's, Added parking Bays, relocated Street Trees, Rev. Lot Lines per resub plat.	11-20-91

CENTERLINE CURVE DATA

NAME & P.C. to P.T.	RADIUS	DELTA	ARC	TAN	CHORD	BEARING
CHASE LIONS WAY P.C. 0+43.96 to P.T. 0+78.87	160.00'	12°30'00"	34.91'	17.52'	34.84'	N02°15'00"E
CHASE LIONS WAY P.C. 2+16.14 to P.T. 3+45.29	200.00'	37°00'00"	129.15'	66.92'	126.92'	N22°30'00"W
CHASE LIONS WAY P.C. 4+45.67 to P.T. 5+24.21	250.00'	18°00'00"	78.54'	39.60'	78.22'	N32°00'00"W
CHASE LIONS WAY P.C. 6+22.59 to P.C.C. 7+09.89	175.00'	28°34'54"	87.30'	44.58'	86.40'	N37°17'27"W
CHASE LIONS WAY P.C.C. 7+09.89 to P.C.C. 7+94.64	83.00'	58°30'05"	84.75'	46.48'	81.11'	N80°49'57"W
CHASE LIONS WAY P.C.C. 7+94.64 to P.T. 8+51.40	35.00'	92°55'00"	56.76'	36.83'	50.74'	S23°27'30"W

CURB & GUTTER LEGEND

- Standard 7" C & G
- Standard 6" C & G
- Modified C & G
- Rev. Standard 7" C & G
- Rev. Standard 6" C & G
- Rev. Mod. Comb. C & G

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION	DATE 1/7/90
CHIEF, BUREAU OF HIGHWAYS	DATE 10/23/90
CHIEF, BUREAU OF ENGINEERING	DATE 11.8.90

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING AND LAND DEVELOPMENT	DATE 1/3/9_

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 – BALTO • (301) 621-8100 – WASH

STATE OF MARYLAND — G. NELSON CLARK — No. 7138 — REGISTERED PROFESSIONAL ENGINEER — 1-16-90

DESIGNED D.G.T.	ROAD CONSTRUCTION PLANS CHASE LIONS WAY **COLUMBIA** VILLAGE OF DORSEY'S SEARCH SECTION 3, AREA 1 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE As Shown
DRAWN V.L.M.		DRAWING 3 OF 8
CHECKED D.G.T.		JOB NO. 90-120
DATE 8-10-90	FOR: HOWARD RESEARCH & DEVELOPMENT COMPANY 10275 Little Patuxent Parkway Columbia, Maryland 21044	FILE NO. 90-120-D

1159

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INFILTRATION BASIN NOTES

(IB)

3.2.1. Description

An infiltration basin is a water impoundment made by constructing a dam or an embankment or by excavating a pit or a dugout in or down to relatively permeable soils. The purpose of the basin is to temporarily store the surface runoff for a selected design storm and to maintain or increase ground water recharge by infiltration through the bed and sides of the basin.

3.2.2. Applicability

An infiltration basin will generally be used in the same manner as a detention basin. The infiltration basin will typically be constructed in drainage areas of 5 to 50 acres. An infiltration basin may be constructed jointly with a detention basin by raising the outlet pipe.

3.2.3. Planning Considerations

An infiltration basin has relatively large surface area requirements in comparison to either an infiltration trench or a dry well. Whereas a trench or a dry well is generally associated with small drainage areas of 1 acre or less, infiltration basins are better suited to control larger drainage areas generally ranging from 5 to 50 acres in size.

A typical infiltration basin will range from 3 to 12 feet in depth. The seasonally high groundwater table should be located at least 2 to 4 feet below the bottom of the basin. Similarly, bedrock should also be located at least 2 to 4 feet below the bottom of the basin.

The permeability or final infiltration rate of the various soil types will determine how rapidly the stormwater ponded in the basin at the end of the storm will be infiltrated into the ground. Table 2-2 provides the maximum allowable depth of ponding for the various soil textures for a range of allowable ponding times. The table indicates that for soil textural classes with final infiltration rates (f) of 0.52 in/hr and larger allow for the design of basins with a ponding depth of approximately 3 feet and deeper, provided that the criteria for depth to high water table and bedrock are satisfied.

The soil textural class with an f value of 0.27 inches per hour (silt loam) may have some limited suitability for a very shallow infiltration basin. This shallow basin will of course control a smaller drainage area than the deeper basins and thus will require more surface area to provide an equivalent level of control. Due to the high cost of land being converted to urban uses, the designer or developer will generally seek to minimize land costs by using fewer, smaller, and deeper basins. This constraint will make soils with infiltration rates less than 0.27 inches per hour unsuitable for use of infiltration basins. The infiltration capacities of soils which allows them to infiltrate 36 inches of stored runoff over a 3 day period makes them well suited for an infiltration basin.

3.2.4. Design Criteria

The design of infiltration basins will follow the criteria of the Maryland SCS Standard and Specification 378-Ponds dated July, 1981 or subsequent revisions for embankment design, in conjunction with an adequate, non-erosive outlet channel, and the additional criteria set forth below.

3.2.4.1. Design Storm

All hydrologic and hydraulic calculations shall be based on the design storm criteria provided in the Maryland SWM Regulations (COMAR 08.05.05).

3.2.4.2. Ponding Time

All infiltration basins shall be designed to completely drain stored runoff within 3 days following the occurrence of a storm event. Thus an allowable maximum ponding time (T_p) of 72 hours shall be used.

3.2.4.3. Water Table, Bedrock, and Groundwater Conditions

Infiltration basins should be located only in areas where the bottom of the basin will be at least 2 to 4 feet above the seasonally high groundwater table or bedrock at all times. Also infiltration basins shall be located at least 100 feet horizontally away from any water supply well.

Concerns related to the development of a groundwater mound below the infiltration facility as well as the potential for polluting downgradient groundwater supplies often arise when infiltration facilities are considered. The data base evaluated in the preparation of these specifications indicates that due to the intermittent nature of precipitation patterns and the associated operation of infiltration practices, groundwater mounding has not been observed to be a problem. Also, the data base indicates that groundwater pollution has not been observed to be a problem.

3.2.4.4. Runoff Filtering

Grease, oil, floatable organic materials, and settleable solids should be removed from runoff water before it enters the infiltration basin. These materials can take up storage capacity and reduce infiltration rates.

Runoff filtering devices such as vegetative filters (see Section 3.7), sediment traps, and grease traps can be used to remove objectionable materials. In addition, modified basin designs such as illustrated in Figures 3-1 and 3-2 can be used to enhance and prolong the infiltration capacity of the basin bottom. Even when the basin bed becomes clogged by layers of accumulated sediment, infiltration can still be achieved through the sides of the basins, as shown in Figure 3-3, provided that the side materials are relatively permeable.

When a runoff filtering system or structure is included in the design, the maintenance requirements and schedule of the filter structure must be included.

3.2.4.5. Principal Spillway for Combination Structure

The bottom elevation of the low-stage orifice should be designed to

coincide with the 3 day infiltration capacity of the basin. All other aspects of the principal spillway design will follow the guidelines provided in the Maryland SCS Standards and Specifications 378-Ponds dated July, 1981 or subsequent revisions. Level spreaders should be utilized for stormwater inflow into the basin to reduce erosion.

3.2.4.6. Emergency Spillway

An emergency spillway shall be provided for all basins created by an embankment. All excavated basins shall have a nonerosive outlet channel. The emergency spillway design shall comply with the requirements of the Maryland SCS Standards and Specifications 378-Ponds dated July, 1981 or subsequent revisions.

3.2.4.7. Vegetation

The embankment, emergency spillway, spoil and borrow areas, and other disturbed areas shall be stabilized and planted in accordance with the appropriate vegetative measure standards in the Maryland Standards and Specifications for Soil Erosion and Sediment Control. The emergency spillway is often the most critical area. Additionally, a grass strip or other vegetative buffer at least 20 feet wide shall be provided around the basin to protect against erosion.

3.2.4.8. Fencing

The embankment and basin shall be fenced where and when deemed necessary by the land developer or local jurisdiction to provide public safety or protection of vegetation.

3.2.4.9. Hydrologic Design Method

A hydrologic design method based on SCS TR-55 procedures is provided in Chapter 4, Hydrologic Design Methods.

/3.2.5. Water Quality

The effectiveness of this practice for runoff and pollution control is dependent upon the size and design of the infiltration facility. If a basin is designed to collect and infiltrate the storm runoff over a given drainage area, the practice should be effective for both runoff control and pollution abatement for storms up to and including the design storm.

3.2.6. Construction Specifications

The construction of all infiltration basins should comply with the criteria set forth in the Maryand SCS Standards and Specifications 378-Ponds dated July, 1981 or subsequent revisions and the additional criteria provided below.

3.2.6.1. Schedule

The sequence of various phases of basin construction shall be coordinated with the overall project construction schedule. A program should schedule

rough excavation of the basin with the rough grading phase of the project to permit use of the material as fill in earthwork areas. The partially excavated basin could serve as a sedimentation basin in order to assist in erosion and sediment control during construction. However, basins near final stages of excavation should never be used prematurely for runoff disposal. Drainage from untreated, freshly constructed slopes within the watershed area would load the newly formed basin with a heavy concentration of fine sediment. This could seriously impair the natural infiltration characteristics of the basin floor. Final grade of an infiltration basin shall not be attained until after its use as a sediment control basin is completed.

Specifications for basin construction should state: (1) the earliest point in progress when storm drainage may be directed to the basin, and (2) the means by which this delay in use is to be accomplished. Due to the wide variety of conditions encountered among projects, each should be separately evaluated in order to postpone use as long as is reasonably possible.

3.2.6.2. Excavation

Initial basin excavation should be carried to within 1 foot of the final elevation of the basin floor. Final excavation to the finished grade should be deferred until all disturbed areas on the watershed have been stabilized or protected. The final phase excavation should remove all accumulated sediment. Relatively light tracked equipment is recommended for this operation to avoid compaction of the basin floor. After the final grading is completed, the basin floor should be deeply tilled by means of rotary tillers or disc harrows to provide a well-aerated, highly porous surface texture.

3.2.6.3. Lining Material

Infiltration basins may be lined with a 6- to 12-inch layer of filter material such as coarse sand to help prevent the buildup of impervious deposits on the soil surface. The filter layer can be replaced or cleaned when it becomes clogged. When a 6-inch layer of coarse organic material is specified for discing (such as hulls, leaves, stems, etc.) or spading into the basin floor to increase the permeability of the soils, the basin floor should be soaked or inundated for a brief period, then allowed to dry subsequent to this operation. This induces the organic material to decay rapidly, loosening the upper soil layer.

Establishing dense vegetation on the basin side slopes and floor is recommended. A dense vegetative stand will not only prevent erosion and sloughing, but will also provide a natural means of maintaining relatively high infiltration rates. Erosion protection of inflow points to the basin shall also be provided. Removal of accumulated sediment is a problem only at the basin floor. Little maintenance is normally required to maintain the infiltration capacity of slope areas.

Selection of suitable vegetative materials for the side slope and all other areas to be stabilized with vegetation and application of required fertilizer and mulches shall be done in accordance with the Maryland Standards and Specifications for Soil Erosion and Sediment Control. Local Extension Agencies should also be consulted.

3.2.7. Maintenance

3.2.7.1. Inspection Schedule

Drainage systems must be inspected on a routine basis to ensure that they are functioning properly. Inspections can be on a semiannual basis but should always be conducted following major storms.

3.2.7.2. Sediment Control Effect on Vegetated Basins

Cleanout frequency of infiltration basins will depend on whether they are vegetated or nonvegetated and will be a function of their storage capacity, recharge characteristics, volume of inflow, and sediment load. Infiltration basins should be inspected at least once a year. Sedimentation basins and traps may require more frequent inspection and cleanout.

Grass bottoms on infiltration basins seldom need replacement since grass serves as a good filter material. This is particularly true of Kentucky 31 Tall Fescue, which is extremely hardy and can withstand several days of submergence. If silty water is allowed to trickle through the turf, most of the suspended material is strained out within a few yards of surface travel. Well established turf on a basin floor will grow up through sediment deposits, forming a porous turf and preventing the formation of an impermeable layer. Grass filtration would work well with long, narrow, shoulder-type (swales, ditches, etc.) depressions where highway runoff flows down a grassy slope between the roadway and the basin. Kentucky 31 Tall Fescue demands very little attention and looks attractive when trimmed. Grass planted on basin side slopes will also prevent erosion.

3.2.7.3. Sediment Removal From Nonvegetated Basin

(a) Technique. Remove sediment only when the basin floor is completely dry, after the silt layer has mud-cracked and separated from the basin floor. Equipment maneuverability and precise blade control are essential in small areas and can greatly reduce the quantity of material to be removed.

(b) Frequency. All sediment must be removed prior to tilling operations. As tilling is required periodically and at least once annually, the frequency of sediment removal will be reduced to small operations on a regular basis.

3.2.7.4. Tilling of Nonvegetated Basin Floor

In all cases, tilling must be preceded by thorough removal of surface sediment as previously above.

(a) Purposes. It is necessary to restore the natural infiltration capacity by overcoming the effects of surface compaction, and to control weed growth on the basin floor.

(b) Technique. Rotary tillers or disc harrows will normally serve this purpose. Light tractors should be employed for these operations. In the event that heavy equipment has caused deeper than normal compaction of the surface, these operations should be preceded by deep plowing. In its final condition after tilling, the basin floor should be level, smooth, and free of ridges and furrows to ease future removal of sediment and minimize the material to

be removed during future cleaning operations. A levelling drag, towed behind the equipment on the last pass, will accomplish this.

(c) Frequency. In the spring, the basin surface is usually quite porous due to the effects of frost and subsequent thawing. The infiltration capacity diminishes rapidly thereafter. To enhance infiltration capacity, tilling should be thorough once each season, from late June through September. To control vegetative growth, an additional light tillage may be advisable during the growing season. Precautions must be observed, however, to avoid any possibility of working sediment accumulations into the basin floor as a part of light cultivation for the purpose of weed control. It is therefore stressed again that any cultivation or tilling operation be preceded in all cases by careful sediment removal.

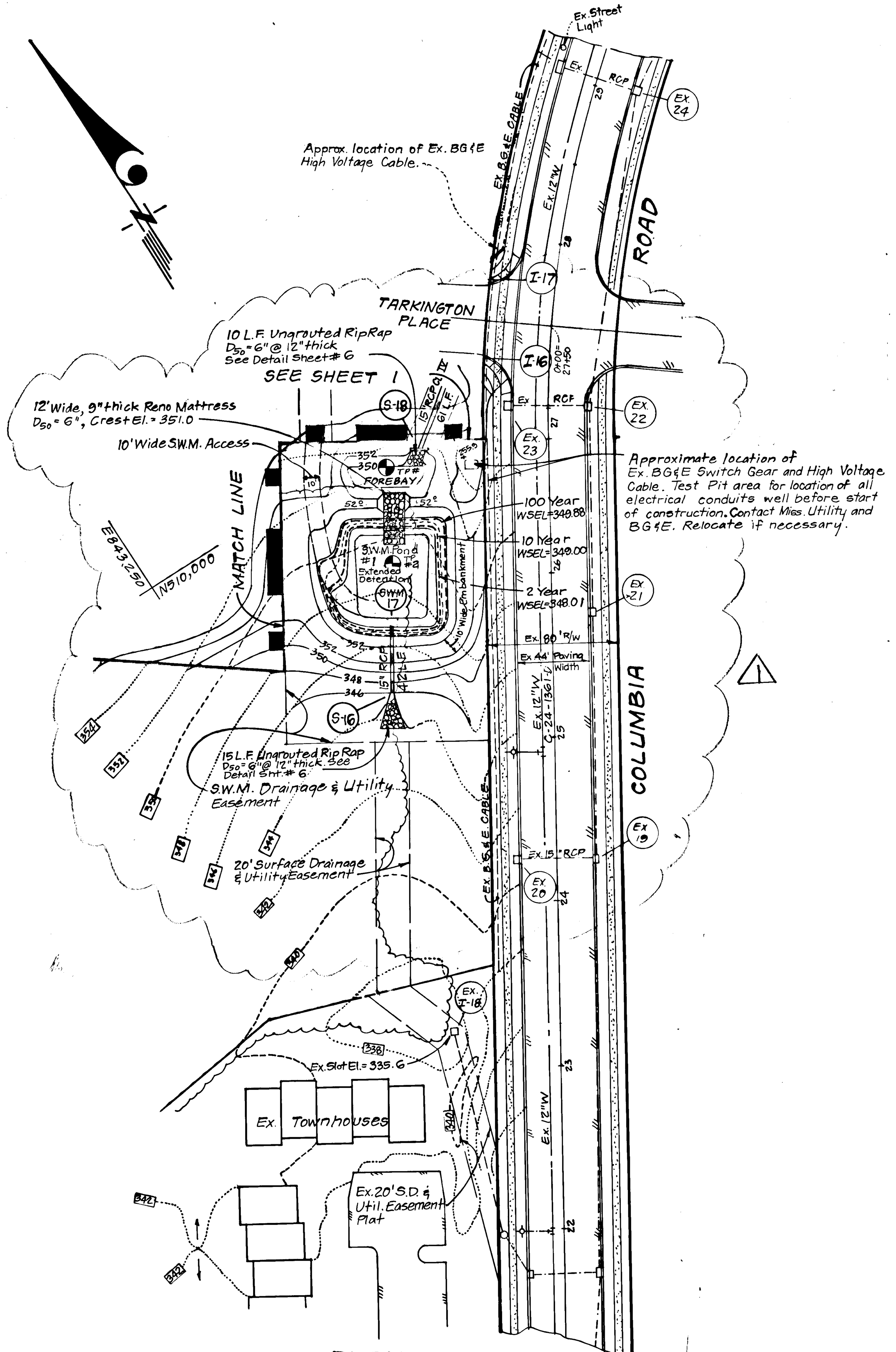
3.2.7.5. Side Slope Maintenance

(a) Purpose. To promote a dense turf with extensive root growth, thereby enhancing infiltration through the slope surface and prevent weeds from gradually taking over the slope areas.

(b) Frequency. Grasses of the fescue family are recommended for seeding primarily due to their adaptability to dry sandy soils, drought resistance, hardiness, and ability to withstand brief inundations. The use of fescues will also permit long intervals between mowings. This is important due to the relatively steep slopes which make mowing difficult. Mowing twice a year, once in June and again in September, is generally satisfactory. Refertilization with 10-6-4 ratio fertilizer at a rate of 500 lb per acre (11 lb per 1000 sq ft) may be required the second year after seeding.

3.2.8. References

1. Becker, B.C., M.L. Clar, R.R. Kautzman, Approaches to Stormwater Management, prepared by Hittman Associates, Inc., for the Office of Water Research, USDI, November, 1973.
2. Tourbier, J.T., R. Westmacott, A Handbook of Measures to Protect Water Resources in Land Development, Urban Land Institute, Washington, DC, 1981.
3. Anonymous, Controlling Storm Water Runoff in Developing Areas: Selected Best Management Practices, Metropolitan Washington Council of Governments, July 1979.
4. Hannon, J.B., Underground Disposal of Storm Water Runoff, Design Guidelines Manual, prepared by the California Department of Transportation in cooperation with the Federal Highway Administration, U.S. Department of Transportation, February 1980.
5. Weaver, R.J., Recharge Basins for Disposal of Highway Storm Drainage, Research Report 69-2, Engineering Research and Development Bureau, New York State Department of Transportation, Albany, NY, March 1971.
6. Aronson, D.A. and G.E. Seaburn, Appraisal of Operating Efficiency of Recharge Basins on Long Island, New York in 1969, U.S. Geological Survey Water Supply Paper 2001-D, 1974.



PLAN
SCALE: 1"=50'

S.W.M. POND NOTES

I. SITE PREPARATION

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the pond or reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

II. EARTH FILL

Material

The fill material shall be taken from approved designated borrow area or areas. It shall be free of roots, stumps, wood, rubbish, oversize stones, frozen or other objectionable materials. The embankment shall be constructed to an elevation which provides for anticipated settlement to the design elevation. The fill height all along the length of the embankment shall be increased above the design elevation (including freeboard) as shown on the plans.

Placement

Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in 8-inch maximum thickness (before compaction) layers which are to be continuous over the entire length of the fill. The most porous borrow material shall be placed in the downstream portions of the embankment.

Compaction

The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction can be obtained with the equipment used.

Where a minimum required density is specified, each layer of fill shall be compacted as necessary to obtain that density and is to be certified by the Engineer.

Cutoff Trench

Where specified, a cutoff trench shall be excavated along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be as shown on the drawings, with the minimum width being four feet. The depth shall be at least four feet or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill material for the cutoff trench shall be the most impervious material available and shall be compacted with equipment or rollers to assure maximum density and minimum permeability.

III. STRUCTURAL BACKFILL

Backfill material shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe unless there is a compacted fill of twenty-four inches or greater over the structure or pipe.

IV. PIPE CONDUITS

All pipes shall be circular in cross section.

A. Corrugated Metal Pipe

1. Materials - (Steel Pipe) - This pipe and its appurtenances shall be galvanized and fully bituminous coated and shall conform to the requirements of AASHTO Specification M-190 Type A with watertight coupling bands. Any bituminous coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound.

   Steel pipes with polymeric coatings shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The following coatings are commercially available: Nexon, Plasti-Cote, Blac-Klad, and Beth-Cu-Loy. Coated corrugated steel pipe shall meet the requirements of AASHTO M-245 and M-246.

   Materials - (Aluminized Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-274-79I with watertight coupling bands or flanges.

   Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-196 or M-211 with watertight coupling bands or flanges. Coupling bands, anti-seep collars, end sections, etc. must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soils shall be less than 9 and greater than 4.

2. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Watertight coupling bands or flanges shall be used at all joints. Anti-seep collars shall be connected to the pipe in such a manner as to the completely watertight. Dimple bands are not considered to be watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Laying pipe - The pipe shall be placed with inside circumferential laps pointing downstream and with the longitudinal laps at the sides.

5. Backfilling shall conform to structural backfill as shown above.

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

B. Reinforced Concrete Pipe

1. Materials - Reinforced concrete pipe shall have a rubber gasket joint and shall equal or exceed ASTM Specification C-361. An approved equivalent is AWWA Specification C-301.

2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3", or as shown on the drawings.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe.

4. Backfilling shall conform to structural backfill as shown above.

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

C. For pipes of other materials, specific specifications shall be shown on the drawings.

V. CONCRETE

1. Materials

   a. Cement - Normal Portland cement shall conform to the latest ASTM Specification C-150.

   b. Water - The water used in concrete shall be clean, free from oil, acid, alkali, scales, organic matter or other objectionable substances.

   c. Sand - The sand used in concrete shall be clean, hard, strong and durable, and shall be well graded with 100 percent passing a one-quarter inch sieve. Limestone sand shall not be used.

   d. Coarse Aggregate - The coarse aggregate shall be clean, hard, strong and durable, and free from clay or dirt. It shall be well graded with a maximum size of one and one-half (1-1/2) inches.

   e. Reinforcing Steel - The reinforcing steel shall be deformed bars of intermediate grade billet steel or rail steel conforming to ASTM Specification A-615.

2. Design Mix - The concrete shall be mixed in the following proportions, measured by weight. The water-cement ratio shall be 5-1/2 to 6 U.S. Gallons of water per 94 pound bag of cement. The proportion of materials for the trial mix shall be 1:2:3-1/2. The combination of aggregates may be adjusted to produce a plastic and workable mix that will not produce harshness in placing or honeycombing in the structure.

3. Mixing - The concrete ingredients shall be mixed in batch mixers until the mixture is homogeneous and of uniform consistency. The mixing of each batch shall continue for not less than one and one-half minutes after all the ingredients, except the full amount of water, are in the mixer. The minimum mixing time is predicted on proper control of the speed of rotation of the mixer and of the introduction of the materials, including water, into the mixer. Water shall be added prior to, during, and following the mixer-charging operations. Excessive overmixing requiring the addition of water to preserve the required concrete consistency shall not be permitted. Truck mixing will be allowed provided that the use of this method shall cause no violation of any applicable provisions of the specifications given here.

4. Forms - The forms shall have sufficient strength and rigidity to hold the concrete and to withstand the necessary pressure, tamping, and vibration without deflection from the prescribed lines. They shall be mortar-tight and constructed so that they can be removed without hammering or prying against the concrete.

   The inside of forms shall be oiled with a non-staining mineral oil or thoroughly wetted before concrete is placed.

   Forms may be removed 24 hours after the placement of concrete. All wire ties and other devices used shall be recessed from the surface of the concrete.

5. Reinforcing Steel - All reinforcing material shall be free of dirt, rust, scale, oil, paint or any other coatings. The steel shall be accurately placed and securely tied and blocked into position so that no movement of the steel will occur during placement of concrete.

6. Consolidating - Concrete shall be consolidated with internal type mechanical vibrators. Vibration shall be suplemented by spading and hand tamping as necessary to insure smooth and dense concrete along form surfaces, in corners, and around embedded items.

7. Finishing - Defective concrete, honeycombed areas, voids left by the removal of tie rods, ridges on all concrete surfaces permanently exposed to view or exposed to water on the finished structure, shall be repaired immediately after the removal of forms. All voids shall be reamed and completely filled with dry-patching mortar.

8. Protection and Curing - Exposed surfaces of concrete shall be protected from the direct rays of the sun for at least the first three (3) days. All concrete shall be kept continuously moist for at least ten (10) days after being placed. Moisture may be applied by spraying or sprinkling as necessary to prevent the concrete from drying. Concrete shall not be exposed to freezing during the curing period. Curing compunds may also be used.

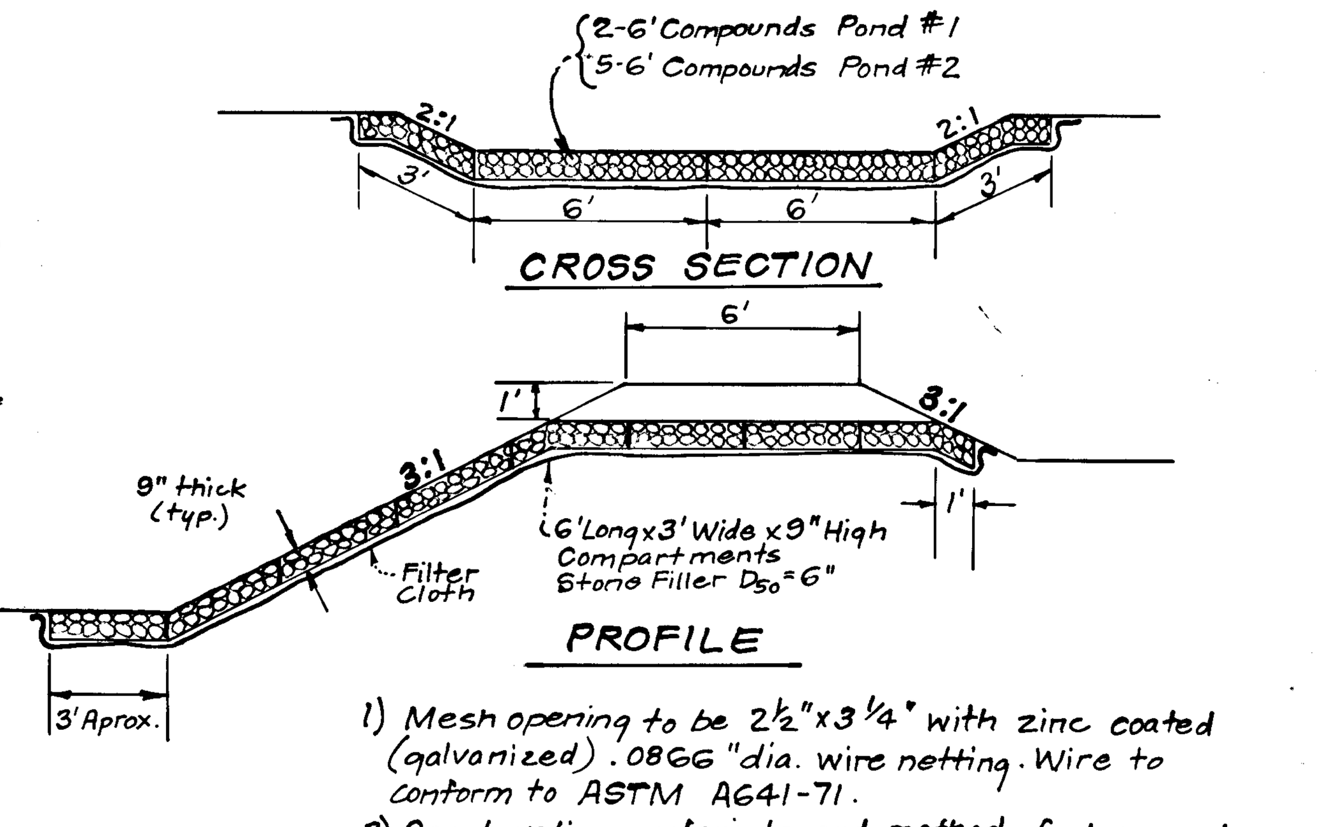
9. Placing Temperature - Concrete may not be placed at temperatures below 37° F with the temperature falling, or 34° with the temperature rising.

VI. STABILIZATION

All borrow areas shall be graded to provide proper drainage and left in a sightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching (if required) in accordance with the vegetative treatment specifications or as shown on the accompanying drawings.

VII. EROSION AND SEDIMENT CONTROL

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.



1) Mesh opening to be 2½"x3¼" with zinc coated (galvanized) .0866 "dia. wire netting. Wire to conform to ASTM A641-71.
2) Construction materials and method of placement shall be in accordance with MACCAFERRI GABIONS Inc. Specifications or equivalent.

DETAIL - RENO MATTRESS STONE WEIR
SWM POND #1 AND SWM POND #2
NO SCALE

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved [signature] 10/15/90
Howard S.C.D. Date

Plan Number

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirement for small pond construction, soil erosion and sediment control.

[signature] 10/15/90
U.S. Soil Conservation Service Date

Developers Certification:

"I/We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of *Environment* Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

[signature] 8/15/90
Signature of Developer Date

ENGINEER'S CERTIFICATE

"I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

[signature] 8/15/90
Signature of Engineer Date

STATE OF MARYLAND · G. NELSON CLARK · No 7139 · REGISTERED · PROFESSIONAL ENGINEER
8-15-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

[signature] CHIEF, LAND DEVELOPMENT DIVISION	11/7/90 DATE
[signature] CHIEF, BUREAU OF HIGHWAYS	10/23/90 DATE
[signature] CHIEF, BUREAU OF ENGINEERING	11-8-90 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.

[signature] CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT	11/3/9. DATE

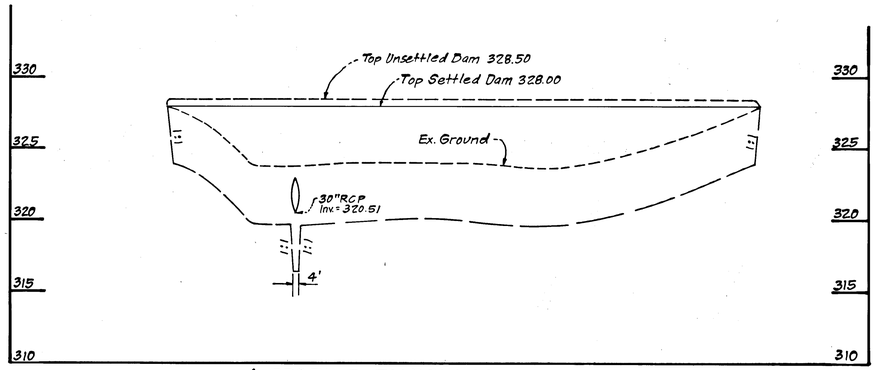
No.	REVISION	Date
1.	Revise grading, WSEL's in Pond.	11-20-91

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD 21045 • (301) 381-7500 – BALTO. • (301) 621-8100 – WASH.

DESIGNED D.G.T.	STORM WATER MANAGEMENT PLAN AND NOTES	SCALE As Shown
DRAWN V.L.M.	COLUMBIA	DRAWING 4 OF 8
CHECKED D.G.T.	VILLAGE OF DORSEY'S SEARCH SECTION 3, AREA 1 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 90-120
DATE 8-10-90	FOR: HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 Little Patuxent Parkway Columbia, Maryland 21044	FILE NO. 90-120-D

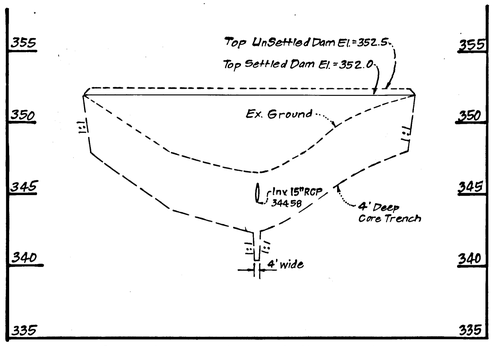
F 9135

1159



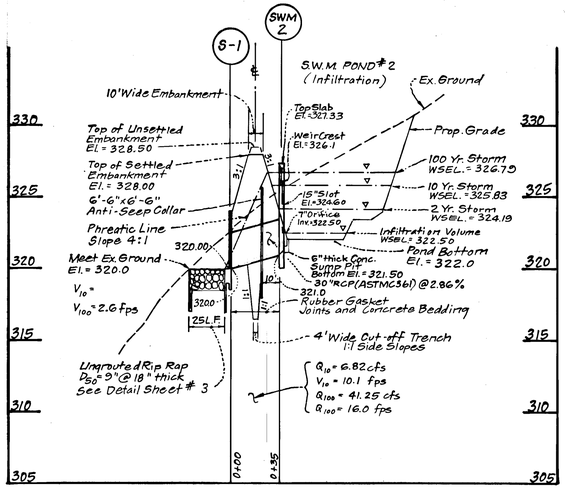
& PROFILE EMBANKMENT POND # 2

SCALE: HORZ. 1"=50'
VERT 1"=5'



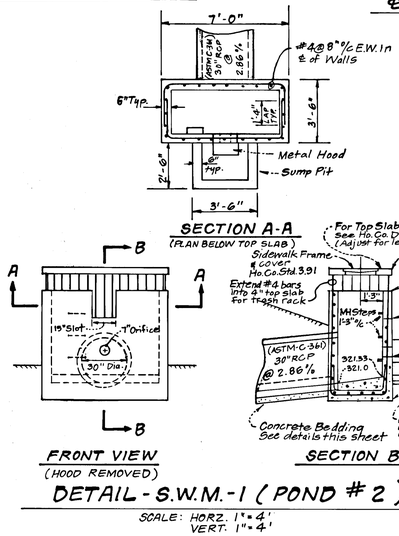
& PROFILE EMBANKMENT POND # 1

SCALE: HORZ. 1"= 50'
VERT. 1" = 5'



PROFILE - STORM WATER MANAGEMENT POND # 2

SCALE: HORZ. 1"=50'
VERT. 1"=5'



SECTION A-A

(PLAN BELOW TOP SLAB)

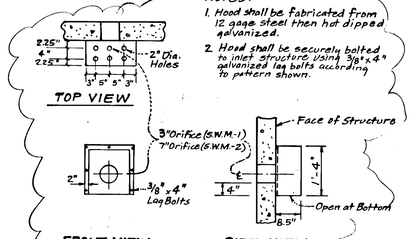
FRONT VIEW

(HOOD REMOVED)

SECTION B-B

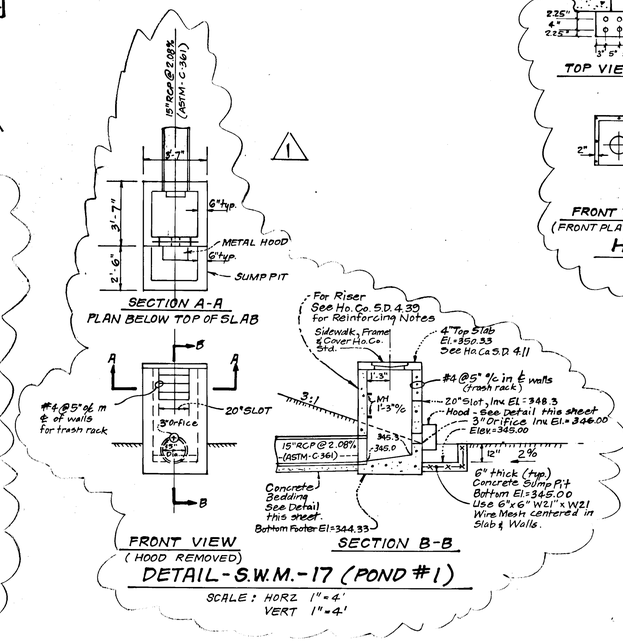
DETAIL - S.W.M. - 1 (POND # 2)

SCALE: HORZ. 1"= 4'
VERT. 1"= 4'



HOOD DETAIL

SCALE: 1" = 2'

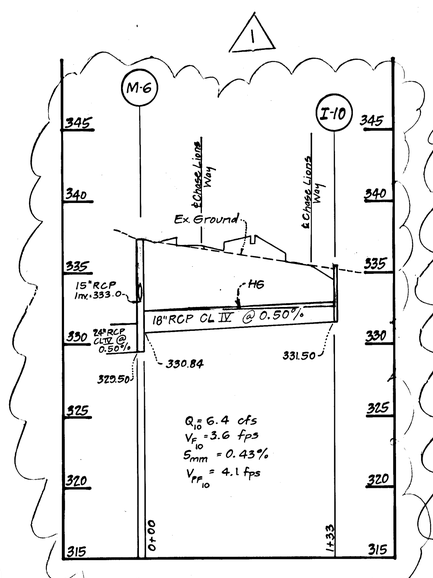


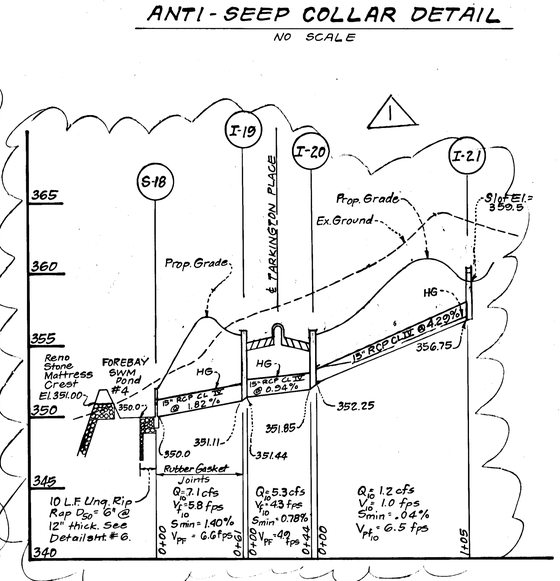
PROFILE - STORM WATER MANAGEMENT POND # 1

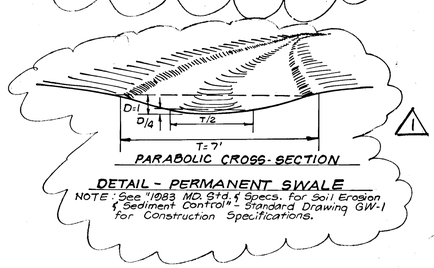
SCALE: HORZ. 1"=50'
VERT 1"=5'

DETAIL - S.W.M. - 17 (POND #1)

SCALE: HORZ. 1"=4'
VERT. 1"=4'



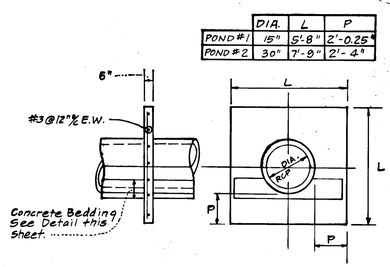




PARABOLIC CROSS-SECTION

DETAIL - PERMANENT SWALE

NOTE: See "1983 MD. Std.'s & Specs. for Soil Erosion & Sediment Control" - Standard Drawing GW-1 for Construction Specifications.



	DIA.	D_o	W	A	B
POND #1	15"	19.5"	10"	5"	4"
POND #2	30"	37"	18"	9"	4"

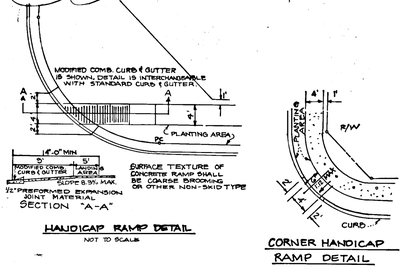
CONCRETE BEDDING DETAIL

NO SCALE

	DIA.	L	P
POND #1	15"	5'-8"	2'-0.25"
POND #2	30"	7'-9"	2'-4"

ANTI-SEEP COLLAR DETAIL

NO SCALE



HANDICAP RAMP DETAIL

NOT TO SCALE

CORNER HANDICAP RAMP DETAIL

NOT TO SCALE

NOTES:
1. Hood shall be fabricated from 12 gage steel then hot dipped galvanized.
2. Hood shall be securely bolted to inlet structure using 3/8"x4" galvanized lag bolts according to pattern shown.

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirement: for small pond construction, soil erosion and sediment control.

U.S. Soil Conservation Service — Date 10/15/90

These plans for small pond construction, soil erosion and sediment control meet the requirements of the Howard Soil Conservation District.

Approved Howard S.W.C.D. — Date 10/15/90

Plan Number

Developers Certification:

"We certify that all development and/or construction will be done according to these plans, and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I will provide the Howard Soil Conservation District with an "as built" plan of the pond within 30 days of completion. I also authorize periodic on-site inspections by the Howard Soil Conservation District."

Signature of Developer — Date 8/15/90

ENGINEER'S CERTIFICATE

"I certify that this plan for pond construction, erosion, and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions. This plan was prepared in accordance with the requirements of the Howard Soil Conservation District. I have notified the developer that he must provide the Howard Soil Conservation District with a red-lined "as built" of the pond within 30 days of completion."

Signature of Engineer — Date 8-16-90

STATE OF MARYLAND G. NELSON CLARK No. 7130 REGISTERED PROFESSIONAL ENGINEER — 8-16-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, LAND DEVELOPMENT DIVISION — DATE 11/1/90

CHIEF, BUREAU OF HIGHWAYS — DATE 10/23/90

CHIEF, BUREAU OF ENGINEERING — DATE 11-8-90

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.

CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT — DATE 11/5/90

No.	REVISION	Date
1.	Revise Storm Drain Profiles S-18 thru I-21, added swale detail, pond bottom & WSEL's.	11-20-91

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 – BALTO. • (301) 621-8100 – WASH.

DESIGNED	D.G.T.
DRAWN	V.L.M.
CHECKED	D.G.T.
DATE	8-10-90

ROAD CONSTRUCTION PLANS
STORM WATER MANAGEMENT AND STORM DRAIN PROFILES AND DETAILS
COLUMBIA
VILLAGE OF DORSEY'S SEARCH
SECTION 3, AREA 1
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

FOR: HOWARD RESEARCH & DEVELOPMENT CORPORATION
10275 Little Patuxent Parkway
Columbia, Maryland 21044

SCALE	As Shown
DRAWING	5 OF 8
JOB NO.	90-120
FILE NO.	90-120.D

59

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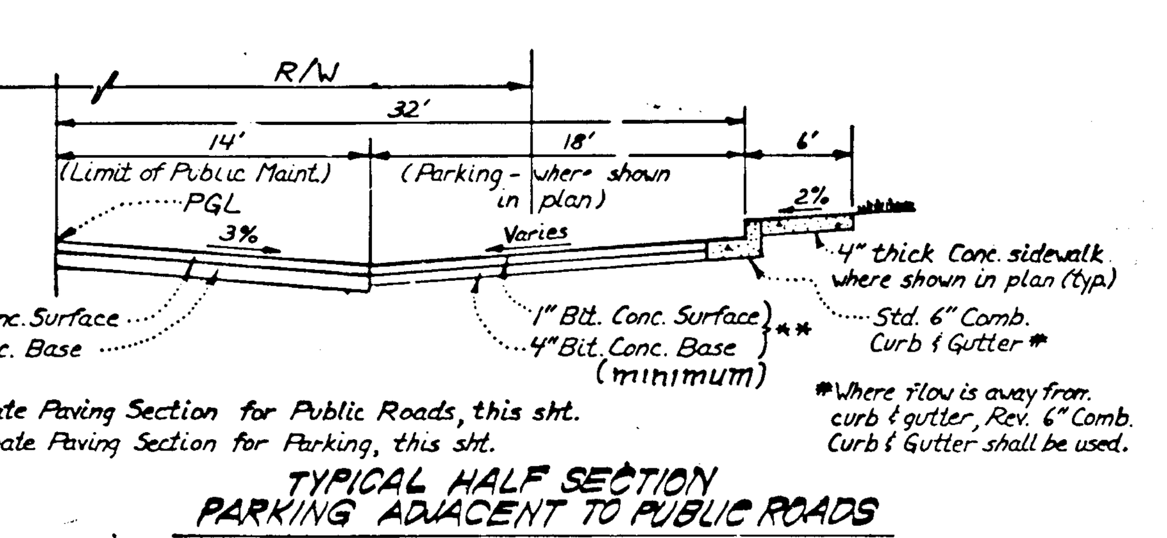
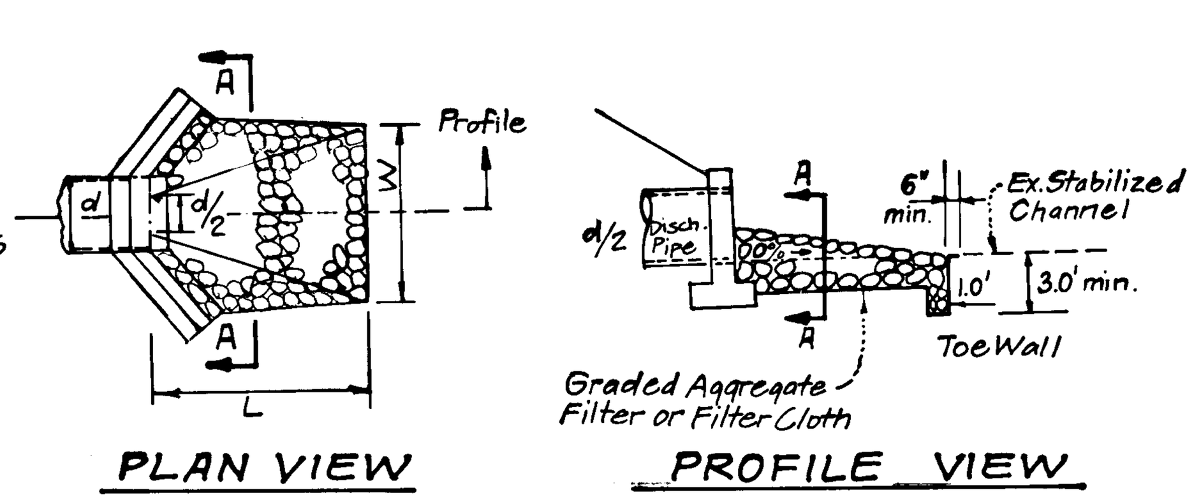


TYPICAL HALF SECTION
PARKING ADJACENT TO PUBLIC ROADS
NO SCALE

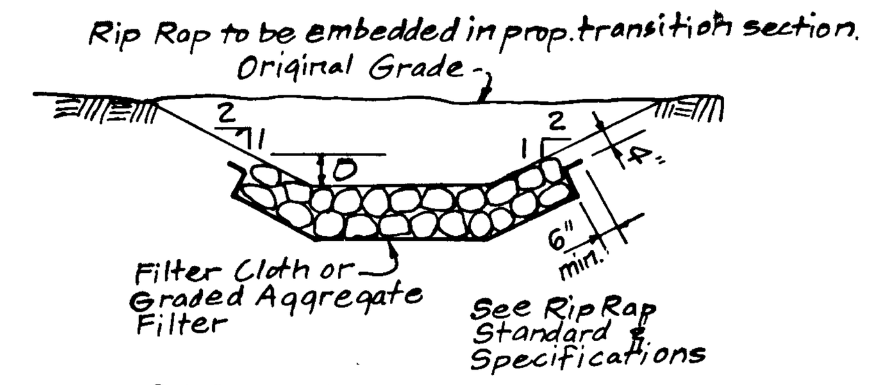
Str.#	L	W	*D	d
S-1	25	17	27"	30"
S-18	10	10	15"	15"

* At pipe opening for S-15
At End Wall for S-1



PLAN VIEW

PROFILE VIEW

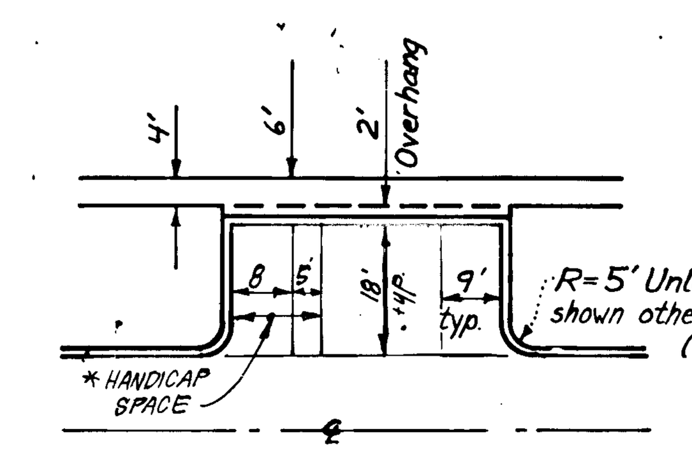


CROSS SECTION A-A

DETAIL - UNGROUTED RIP-RAP
OUTFALL STR. # S-1, S-15
NO SCALE Note S-1 w/ Type "A" Headwall
S-15 w/ Type "C" Endwall

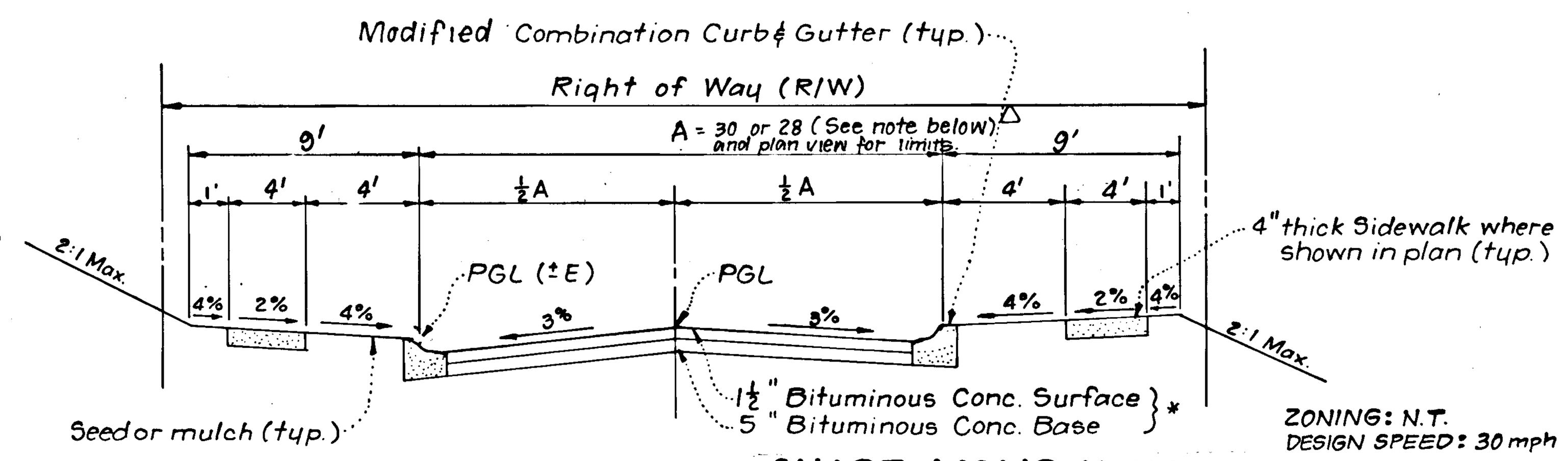
PIPE SCHEDULE

SIZE	TYPE	LENGTH
15"	RCP CL IV	587'
15"	RCP CL. IV w/ Rubber Gasket Joints	61'
—	—	—
21"	RCP CL IV w/ Rubber Gasket Joints	170'
24"	RCP CL. IV	174'
24"	RCP CL. IV. w/ Rubber Gasket Joints	238'
30"	RCP (ASTM C-361) w/ Rubber Gasket Joints	35'
15"	RCP (ASTM C-361) w/ Rubber Gasket Joints	42'



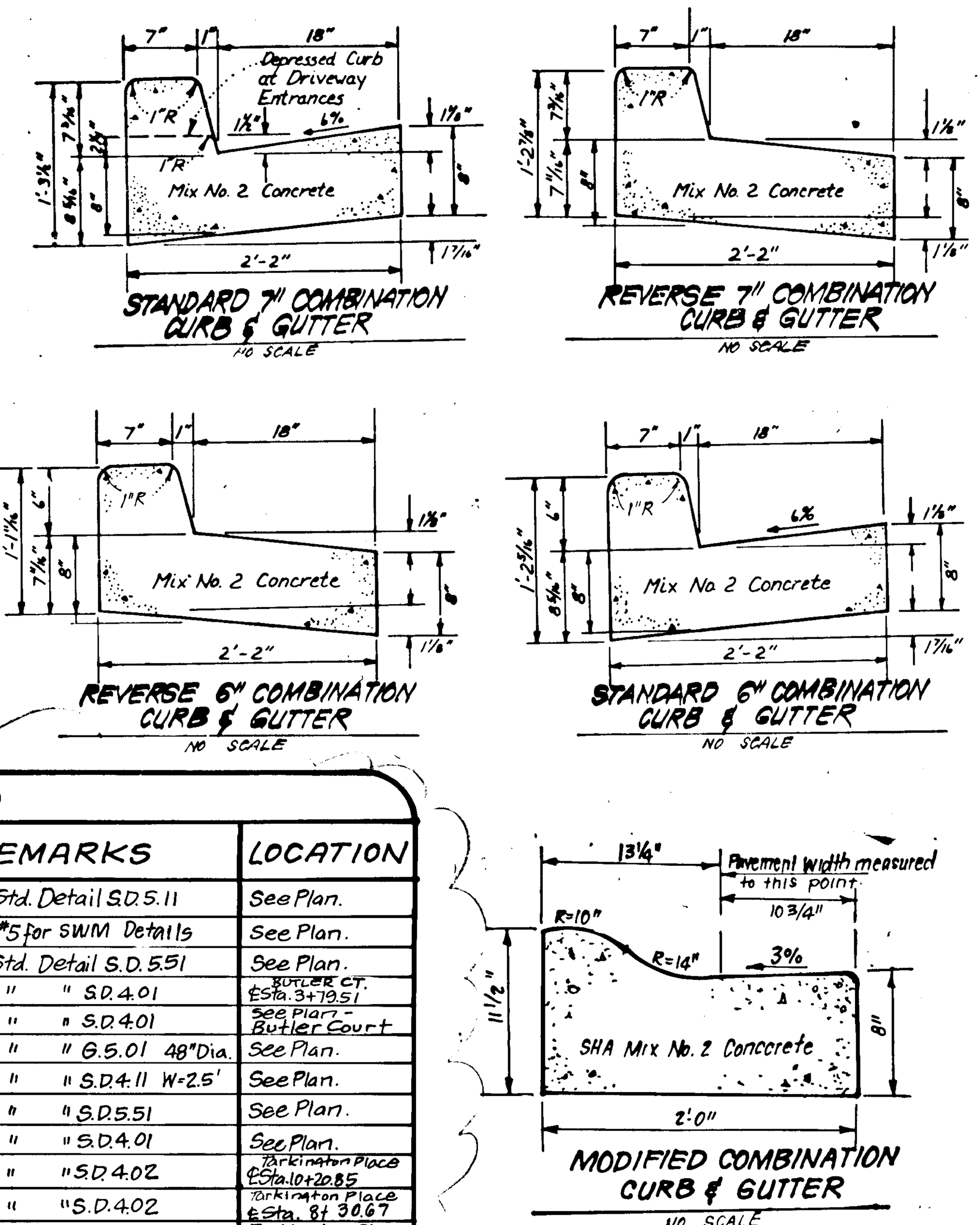
TYPICAL PARKING
NO SCALE

* Two Handicap Spaces may share one 5' Aisle



CHASE LIONS WAY
TYPICAL PAVING SECTION - TARKINGTON PLACE & BUTLER CT.
NO SCALE

*For Alternate Paving Section - See detail this sht.
△ For A = 30' E = .13 Tarkington Place Station 2+60.14 to 6+64.81
For A = 28' E = .10 Tarkington Place Station 7+42.81 to 12+48.87
Butler Court Station 0+40 to 5+44.63
Chase Lions Way Station 0+40 to 5+99.55



STANDARD 7" COMBINATION CURB & GUTTER
NO SCALE

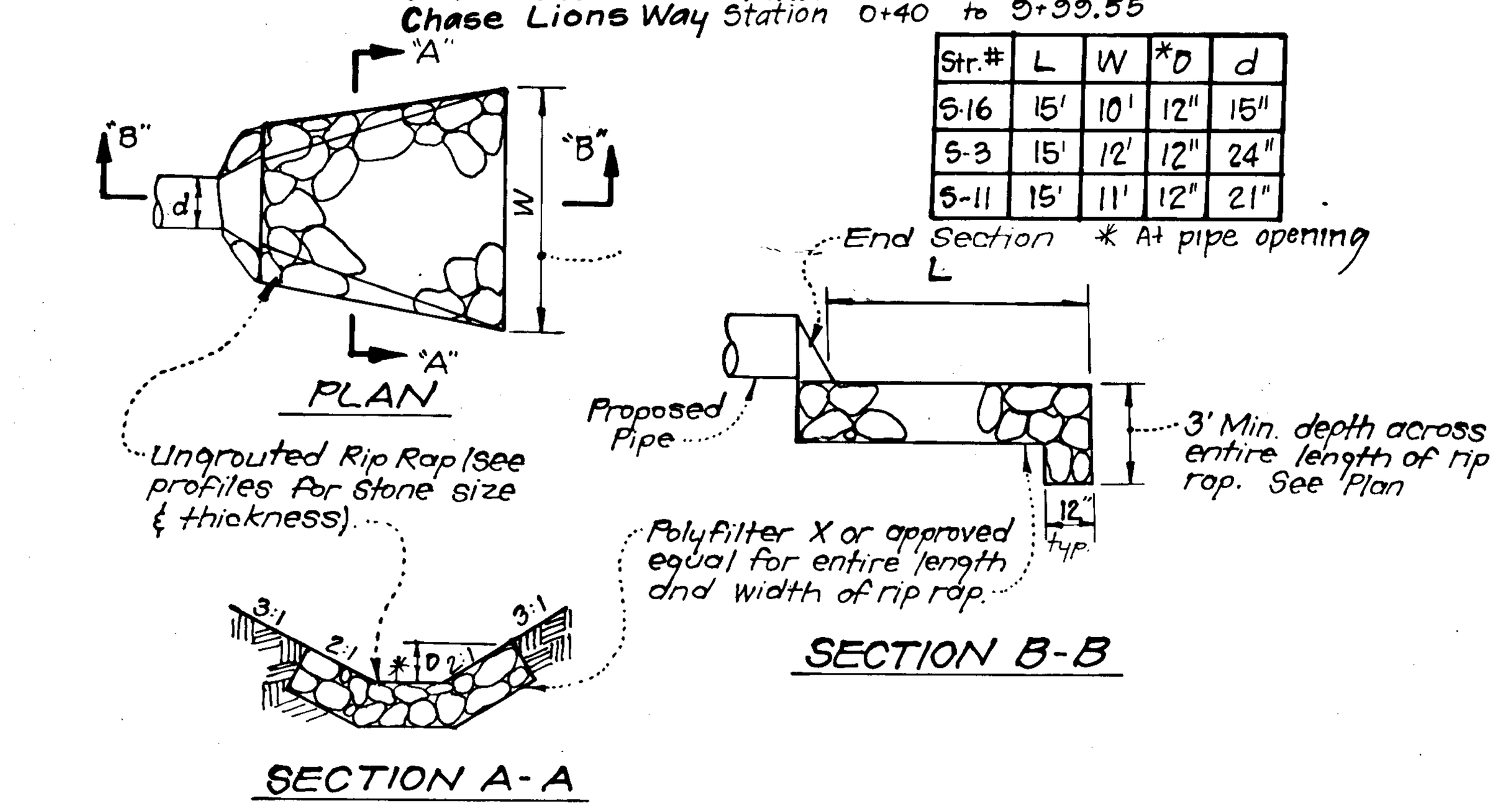
REVERSE 7" COMBINATION CURB & GUTTER
NO SCALE

REVERSE 6" COMBINATION CURB & GUTTER
NO SCALE

STANDARD 6" COMBINATION CURB & GUTTER
NO SCALE

MODIFIED COMBINATION CURB & GUTTER
NO SCALE

Str.#	L	W	*D	d
S-16	15'	10'	12"	15"
S-3	15'	12'	12"	24"
S-11	15'	11'	12"	21"

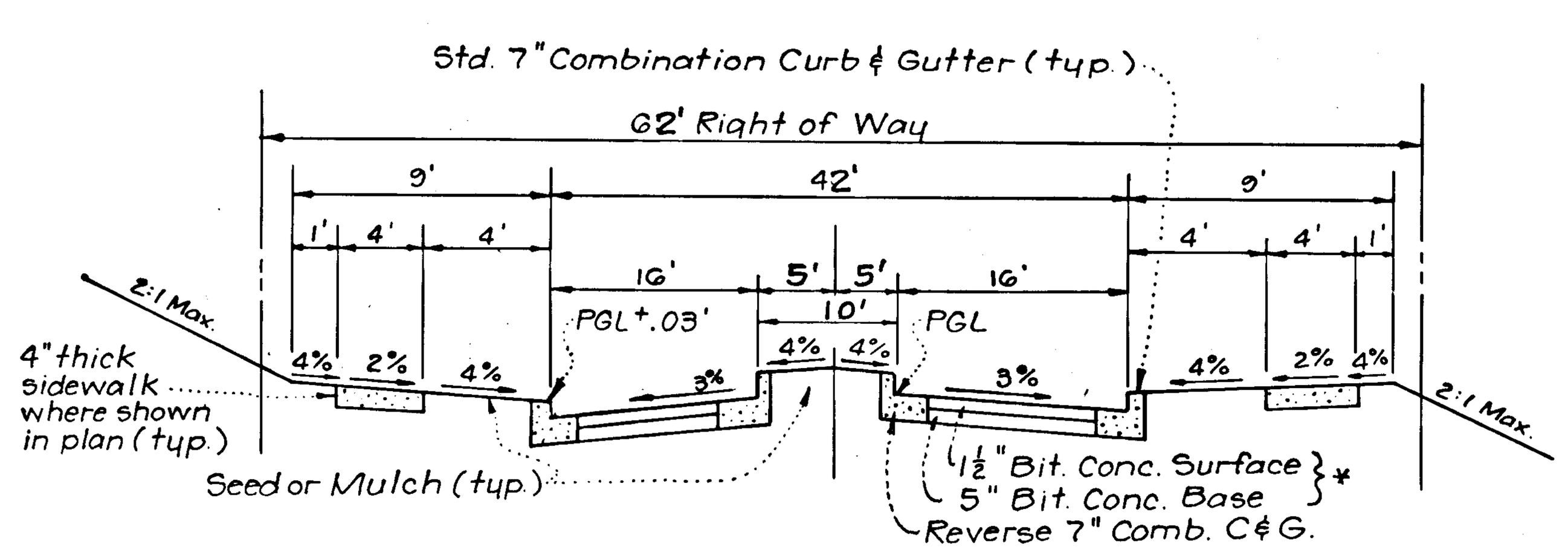


PLAN

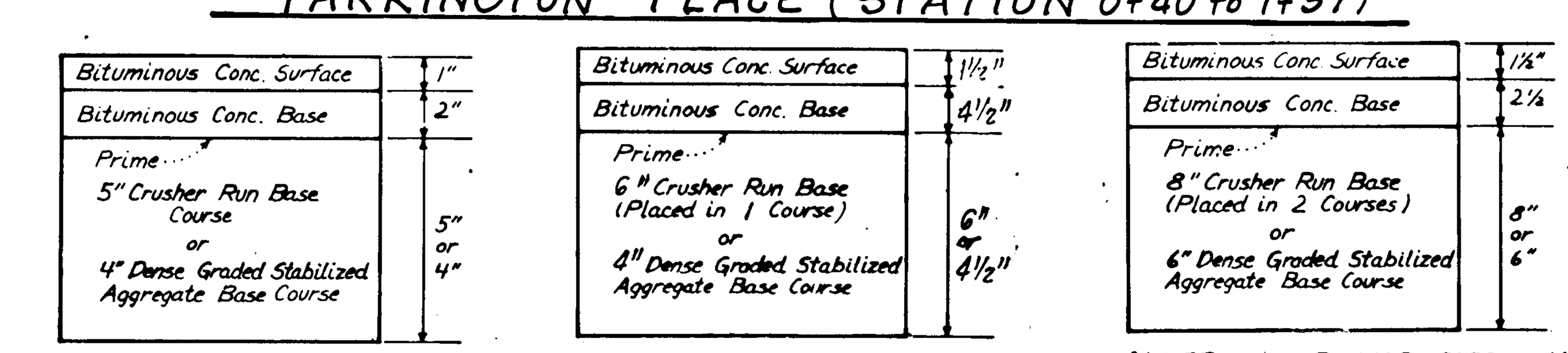
SECTION A-A

SECTION B-B

DETAIL - UNGROUTED RIP-RAP OUTFALL STR # S-3, S-8
No Scale



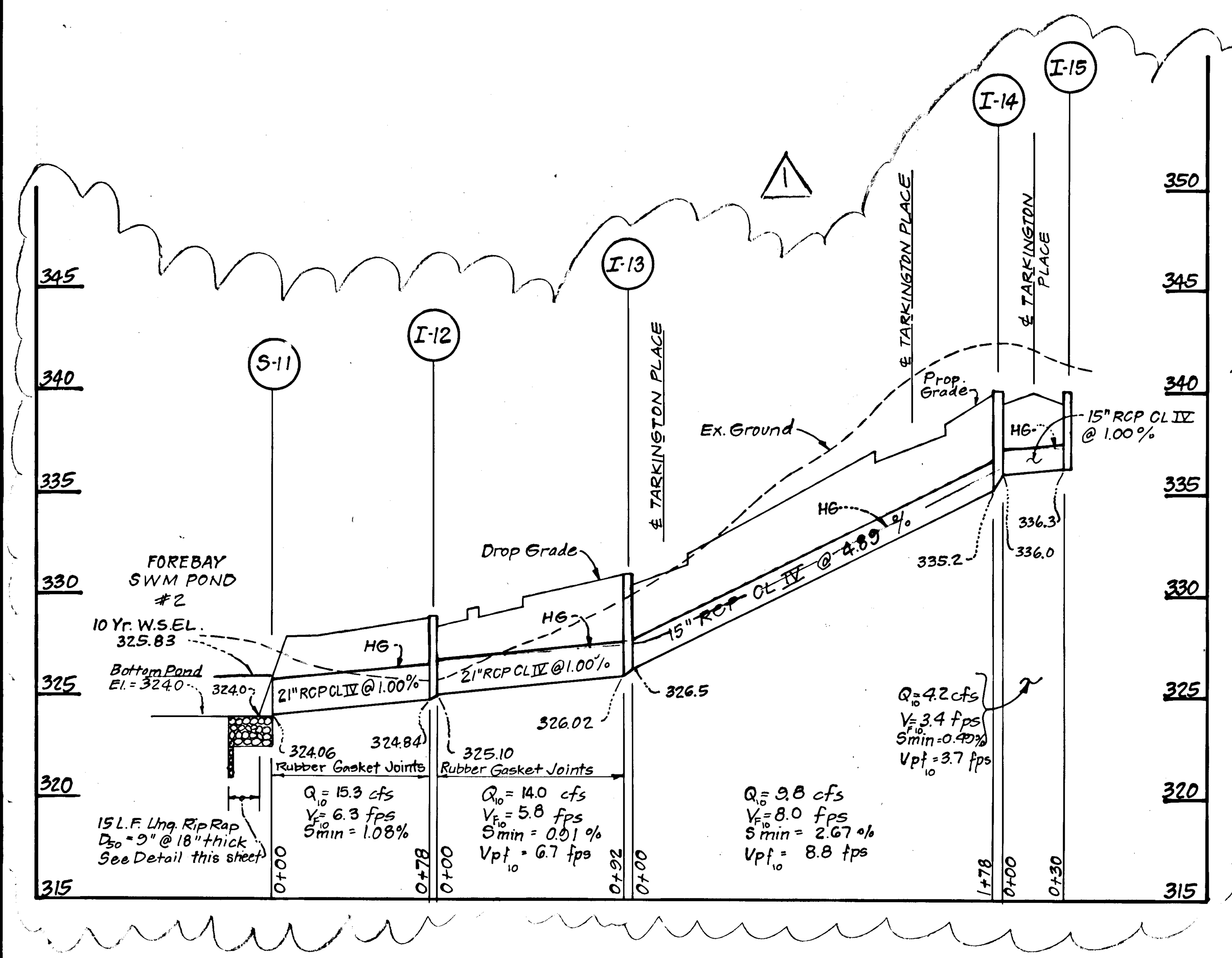
TYPICAL PAVING SECTION - ENTRANCE
TARKINGTON PLACE (STATION 0+40 to 1+37)



ALTERNATE PAVING SECTION FOR PARKING AREAS
NO SCALE
(SECTION P-1)

ALTERNATE PAVING SECTION FOR MAJOR & MINOR COLLECTOR
NO SCALE
(SECTION P-3)

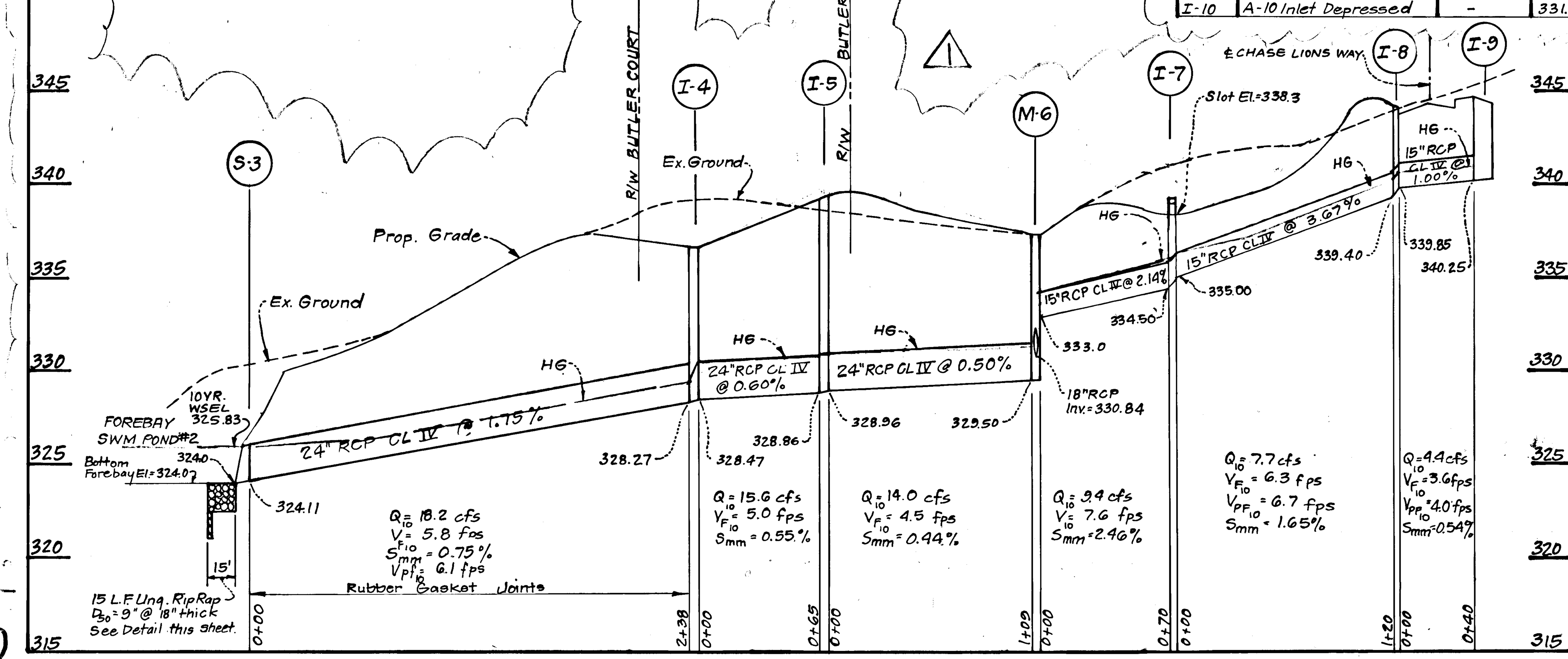
ALTERNATE PAVING SECTION FOR PUBLIC ROADS
NO SCALE
(SECTION P-2)



STRUCTURE SCHEDULE ○

	Nº	TYPE	INV. IN	INV. OUT	TOP ELEVATION UPPER	TOP ELEVATION LOWER	REMARKS	LOCATION
	S-1	Type "A" Headwall	320.00	320.00	324.00		Ho. Co. Std. Detail S.D.5.11	See Plan.
	SWM-2	Special Structure	-	321.00	327.33 (Top Slab)		See Sht. #5 for SWM Details	See Plan.
	S-3	Concrete End Section 24" Dia.	324.11	324.00	-		Ho. Co. Std. Detail S.D.5.51	See Plan.
	I-4	A-5 Inlet Depressed	328.47	328.27	336.50		" " " " S.D.4.01	Butler Ct. ℄ Sta. 3+79.51
△	I-5	A-5 Inlet w/ Defl.	328.96	328.86	339.44	339.13	" " " " S.D.4.01	See Plan - Butler Court
	M-6	Brick Manhole	333.00	329.50/330.84	337.40		" " " " G.5.01 48" Dia.	See Plan.
*	I-7	D-Inlet	335.00	334.50	339.10		" " " " S.D.4.11 W=2.5'	See Plan.
	S-11	Concrete End Section 21" Dia.	324.06	324.00	-		" " " " S.D.5.51	See Plan.
	I-12	A-5 Inlet Depressed	325.10	324.84	329.00		" " " " S.D.4.01	See Plan.
△	I-13	A-10 Inlet	327.10	326.02	331.10		" " " " S.D.4.02	Tarkington Place ℄ Sta. 10+20.85
△	I-14	A-10 Inlet	336.00	335.75	340.50	339.86	" " " " S.D.4.02	Tarkington Place ℄ Sta. 8+30.67
△	I-15	A-10 Inlet w/ Defl.	-	336.30	340.88	340.23	" " " " S.D.4.02	Tarkington Place ℄ Sta. 8+37.31
	S-16	Concrete End Section 15" Dia.	344.13	344.00	-		" " " " S.D.5.51	See Plan.
	SWM-17	Special Structure	-	345.00	350.33		See Sht. #5 for S.W.M. Details	See Plan.
	S-18	Type "C" Endwall 15" Dia.	350.00	350.00	352.00		" " " " S.D.5.21	See Plan.
	I-19	A-10 Inlet	351.44	351.11	355.85	355.65	" " " " S.D.4.02	Tarkington Place ℄ Sta. 0+55.67
	I-20	A-10 Inlet	352.25	351.85	355.85	355.65	" " " " S.D.4.02	Tarkington Place ℄ Sta. 0+55.67
*	I-21	D-Inlet	-	356.75	360.33		" " " " S.D.4.11 W=2.5'	See Plan.
△	I-8	A-10 Inlet	339.40	339.85	344.47	343.91	" " " " S.D.4.02	Chase Lions Way ℄ Sta. 5+78
	I-9	A-10 Inlet	-	340.25	344.64	344.30	" " " " S.D.4.02	Chase Lions Way See Plan
	I-10	A-10 Inlet Depressed	-	331.50	335.33		" " " " S.D.4.02	See Plan.

△ See Ho. Co. Std. Detail S.D. 4.83 for Inlet Deflectors
* Slots on all sides.
○ All inverts to be fully developed.



STORM DRAIN PROFILES
SCALE:
HORZ. 1" = 50'
VERT. 1" = 5'

Reviewed for HOWARD S.C.D.
Name
and meets Technical Requirements
Signature 10/15/90 Date
U.S. Soil Conservation Service

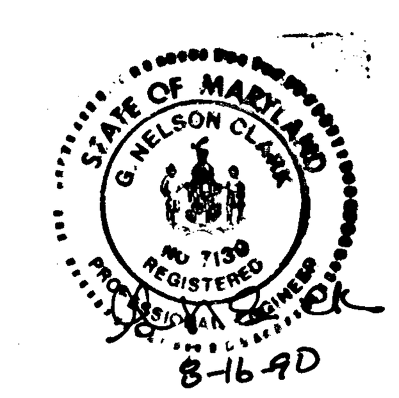
THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Approved 10/15/90 Date

DEVELOPER'S/BUILDERS CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of the Environment. Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary."

Signature of Developer 8/15/90 Date



8-16-90

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

G. Nelson Clark 8-16-90 Date

No.	REVISION	DATE
1.	Revise Storm Drainage Profiles Str. #M-6 thru #I-8, revised structure schedule.	11-20-91

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, LAND DEVELOPMENT DIVISION — TCA — 11/7/90 DATE

CHIEF, BUREAU OF HIGHWAYS — 10/23/90 DATE

CHIEF, BUREAU OF ENGINEERING — 11-8-90 DATE

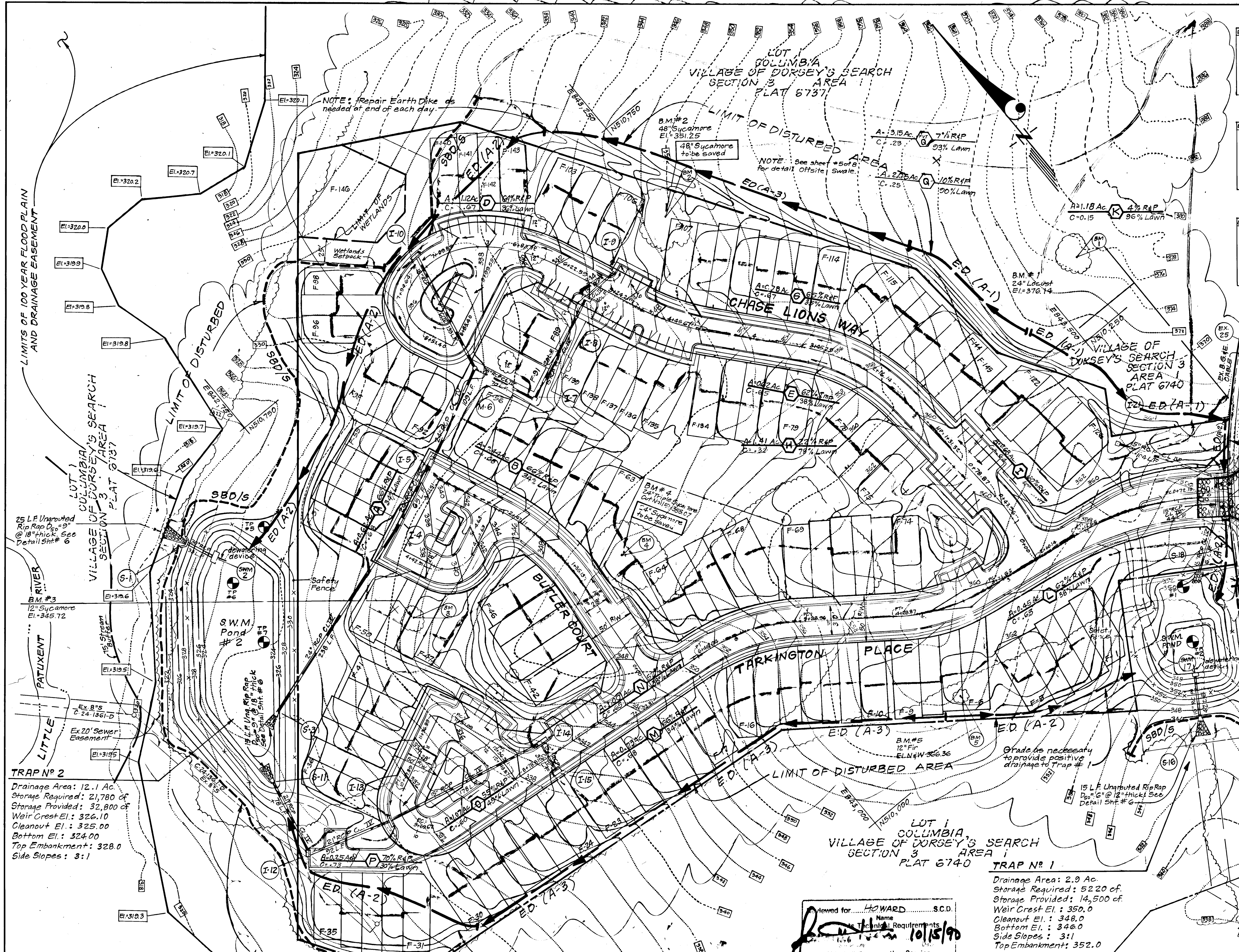
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT — 11/9/90 DATE

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 – BALTO. • (301) 621-8100 – WASH.

DESIGNED	ROAD CONSTRUCTION PLANS	SCALE
D.G.T.	STORM DRAIN PROFILES & DETAILS	As Shown
DRAWN	COLUMBIA	DRAWING
V.L.M.	VILLAGE OF DORSEY'S SEARCH SECTION 3, AREA 1	6 OF 8
CHECKED	5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO.
D.G.T.		90-120
DATE	FOR: HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 Little Patuxent Parkway Columbia, Maryland 21044	FILE NO.
8-10-90		90-120-D

F9135



LOT 1
COLUMBIA
VILLAGE OF DORSEY'S SEARCH
SECTION 3 AREA 1
PLAT 6737
LIMIT OF DISTURBED AREA
NOTE: Repair Earth Dike as needed at end of each day.
B.M.#2
48" Sycamore
El.=351.25
48" Sycamore to be saved
NOTE: See sheet 5 of 8 for detail Offsite Swale.
B.M.#1
24" Locust
El.=376.14
VILLAGE OF DORSEY'S SEARCH
SECTION 3
AREA 1
PLAT 6740
EX. STREET LIGHT
CHASE LIONS WAY
BUTLER COURT
TARKINGTON PLACE
COLUMBIA ROAD
LIMIT OF DISTURBED AREA
LIMITS OF 100 YEAR FLOOD PLAIN AND DRAINAGE EASEMENT
LOT 1
COLUMBIA
VILLAGE OF DORSEY'S SEARCH
SECTION 3
AREA 1
PLAT 6737
LITTLE PATUXENT RIVER
B.M.#3
12" Sycamore
El.=345.72
S.W.M. Pond #2
Safety Fence
25 L.F. Ungrouted Rip Rap D_{50}=9" @ 18" thick. See Detail Sht.# 6
B.M.#4
24" Triple Sycamore
Cut Nail 355.07
24" Sycamore to be saved
B.M.#5
12" Fir
El. N.W. 366.36
Grade as necessary to provide positive drainage to Trap # 1
Grade as necessary to provide positive drainage to Trap # 2
15 L.F. Ungrouted Rip Rap D_{50}=6" @ 12" thick. See Detail Sht.# 6
10 L.F. Ungrouted Rip Rap D_{50}=6" @ 12" thick. See Detail Sheet # 6
Ex. Yard Drain 4 Slots El.=335.6
Ex. 20' Sewer Easement
LOT 1
COLUMBIA
VILLAGE OF DORSEY'S SEARCH
SECTION 3 AREA 1
PLAT 6740
TRAP Nº 2
Drainage Area: 12.1 Ac.
Storage Required: 21,780 cf.
Storage Provided: 32,800 cf.
Weir Crest El.: 326.10
Cleanout El.: 325.00
Bottom El.: 324.00
Top Embankment: 328.0
Side Slopes: 3:1
TRAP Nº 1
Drainage Area: 2.9 Ac.
Storage Required: 5220 cf.
Storage Provided: 14,500 cf.
Weir Crest El.: 350.0
Cleanout El.: 348.0
Bottom El.: 346.0
Side Slopes: 3:1
Top Embankment: 352.0

BORING B-1

ELEV.	SOIL DESCRIPTION	DEPTH	BLOWS 6"	Nº	TYPE	REC.	REMARKS
	Brown sandy clayey silt		5-4-5	1	DS		5" Topsoil
	Light brown sand/gray clayey silt, trace mica		3-4-4	2	DS		
	Brown micaceous sandy silt	5	9-12-15	3	DS		
		10	3-4-6	4	DS		
	Bottom of Boring at 10.0 feet						

BORING B-6

ELEV.	SOIL DESCRIPTION	DEPTH	BLOWS 6"	Nº	TYPE	REC.	REMARKS
	Brown clayey silt, tr. sand		2-2-2	1	DS		
	Brown micaceous sandy silt, tr. rock fragments		7-7-8	2	DS		
	Dark brown micaceous silt with sand	5	5-5-5	3	DS		
	Tan micaceous silty sand	10	4-5-7	4	DS		
	Bottom of Boring at 10.0 feet						

BORING B-2

ELEV.	SOIL DESCRIPTION	DEPTH	BLOWS 6"	Nº	TYPE	REC.	REMARKS
	Brown sandy clayey silt		3-3-3	1	DS		5" Topsoil
	Light brown sandy silt, trace of mica		5-7-6	2	DS		
		5	8-5-6	3	DS		
	Brown micaceous sandy silt	10	3-4-7	4	DS		
	Bottom of Boring at 10.0 feet						

BORING B-7

ELEV.	SOIL DESCRIPTION	DEPTH	BLOWS 6"	Nº	TYPE	REC.	REMARKS
	Brown clayey silt, tr. sand		3-3-4	1	DS		
	Brown micaceous sandy clayey silt, tr. rock frag.		4-4-3	2	DS		
	Brown micaceous sandy silt	5	4-5-8	3	DS		
	Dark brown micaceous silty sand	10	4-3-4	4	DS		
	Bottom of Boring at 10.0 feet						

BORING B-5

ELEV.	SOIL DESCRIPTION	DEPTH	BLOWS 6"	Nº	TYPE	REC.	REMARKS
	Brown sandy clayey silt		1-1-2	1	DS		
	Brown micaceous sandy silt		4-7-8	2	DS		
	Brown micaceous silty sand	5	4-5-7	3	DS		
	Gray silty sand, trace of mica	10	3-5-6	4	DS		
	Bottom of Boring at 10.0 feet						

LEGEND

1. Contour Interval 2 Ft.
2. Existing Contour - - - 350 - - -
3. Proposed Contour —— 350 ——
4. Drainage Flow
5. Storm Drain pipe
6. Existing Trees
7. Ex. Trees to be Saved
8. Straw Bale Dike or Silt Fence SBD/S
9. Earth Dike E.D. (A-2)
10. Stabilized Construction Entrance with mountable berm — S.C.E. w/ mount. berm
11. Borings TP #1

Approximate location of Ex. B.G.&E. Switch Gear and High Voltage Cable. Test Pit area for location of all electrical conduits; well before start of construction. Contact Miss Utility and B.G.&E. Relocate if necessary.

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary."

[signature] 8/15/90
Signature of Developer — Date

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

[signature] 8-16-90
G. Nelson Clark — Date

STATE OF MARYLAND — G. NELSON CLARK — No 7130 — REGISTERED PROFESSIONAL ENGINEER — 8-16-90

Reviewed for HOWARD S.C.D.
Name
Meets Technical Requirements
[signature] 10/15/90
Signature — Date
U.S. Soil Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

[signature] 10/15/90
Approved — Date

Nº	REVISION	Date
1.	Revised grading, lot lines per resub plat & drainage divide.	11-20-91

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 11/7/90
Chief, Land Development Division — Date

[signature] 10/23/90
Chief, Bureau of Highways — Date

[signature] 11-8-90
Chief, Bureau of Engineering — Date

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

[signature] 11/5/9.
Chief, Division of Community Planning & Land Devel. — Date

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 — BALTO. • (301) 621-8100 — WASH.

DESIGNED D.G.T.	ROAD CONSTRUCTION PLANS, GRADING AND SEDIMENT AND EROSION CONTROL PLAN AND DRAINAGE AREA MAP	SCALE 1" = 50'
DRAWN R.M.Q. V.L.M.	**COLUMBIA**	DRAWING 7 OF 8
CHECKED D.G.T.	VILLAGE OF DORSEY'S SEARCH SECTION 3, AREA 1 5TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND	JOB NO. 90-120
DATE 8-10-90	FOR: HOWARD RESEARCH & DEVELOPMENT COMPANY 10275 Little Patuxent Parkway Columbia, Maryland 21044	FILE NO. 90-120-D

F9135

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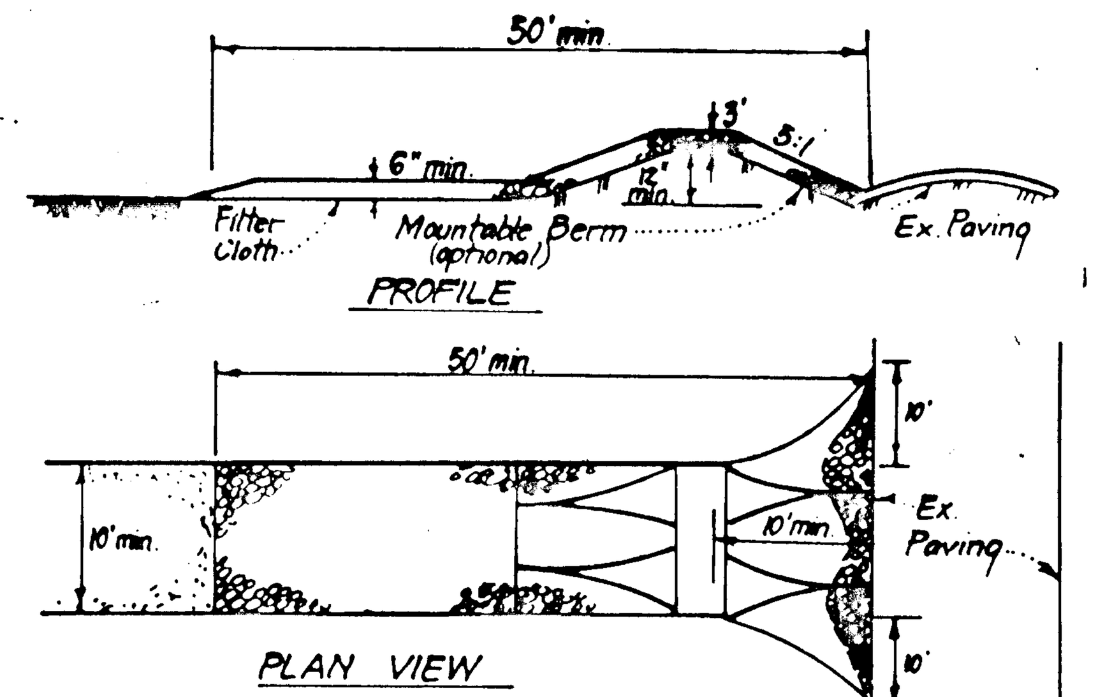
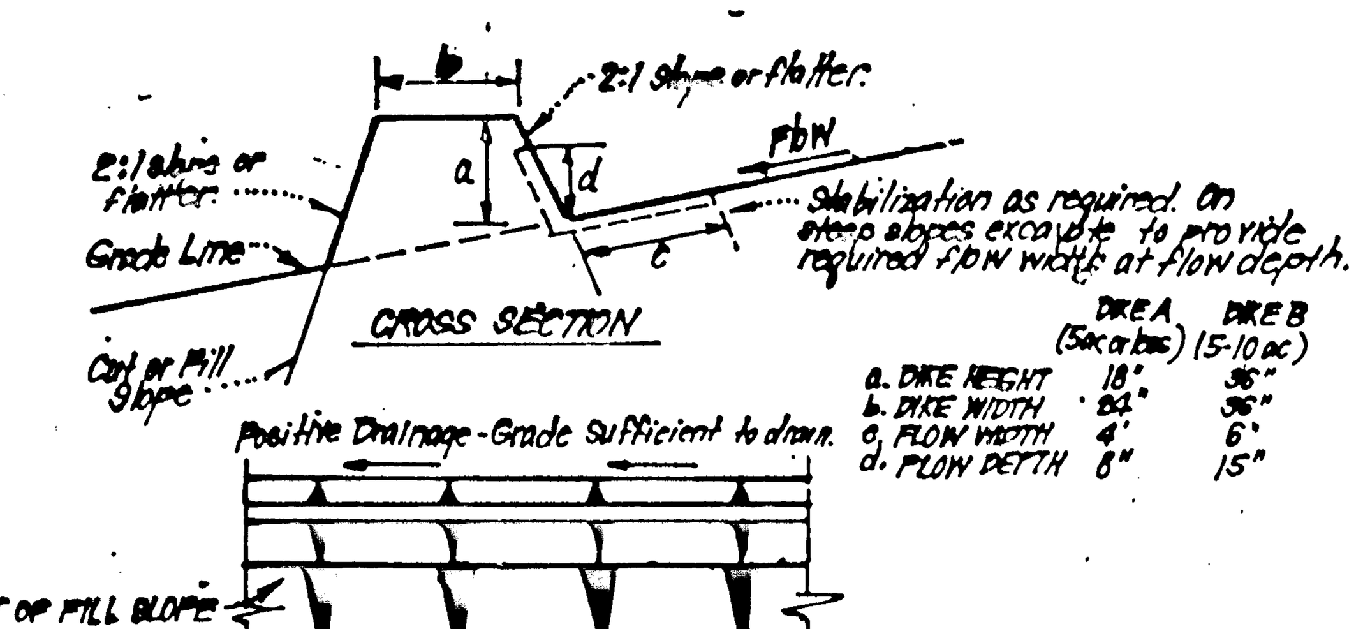


CONSTRUCTION SPECIFICATIONS:

1. Stone size - Use 2" stone, or reclaimed or recycled concrete equivalent.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply.
3. Thickness - Not less than six (6) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Filter Cloth - Will be placed over the entire area prior to placing of stone. Filter will not be required on a single family residence lot.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device
9. Periodic inspection and needed maintenance shall be provided after each rain

STABILIZED CONSTRUCTION ENTRANCE (SCE)

NO SCALE



CONSTRUCTION SPECIFICATIONS:

1. All dikes shall be compacted by earth-moving equipment.
2. All dikes shall have positive drainage to an outlet.
3. Top width may be wider and side slopes may be flatter if desired, to facilitate crossing by construction traffic.
4. Field location should be adjusted as needed to utilize a stabilized safe outlet.
5. Earth dikes shall have an outlet that functions with a minimum of erosion. Runoff shall be conveyed to a sediment trapping device such as a sediment trap or sediment basin where either the dike channel or the drainage area above the dike are not adequately stabilized.
6. Stabilization shall be: (A) In accordance with standard specifications for seed and straw mulch or straw mulch if not in seeding season, (B) flow channel as per chart below.

FLOW CHANNEL STABILIZATION

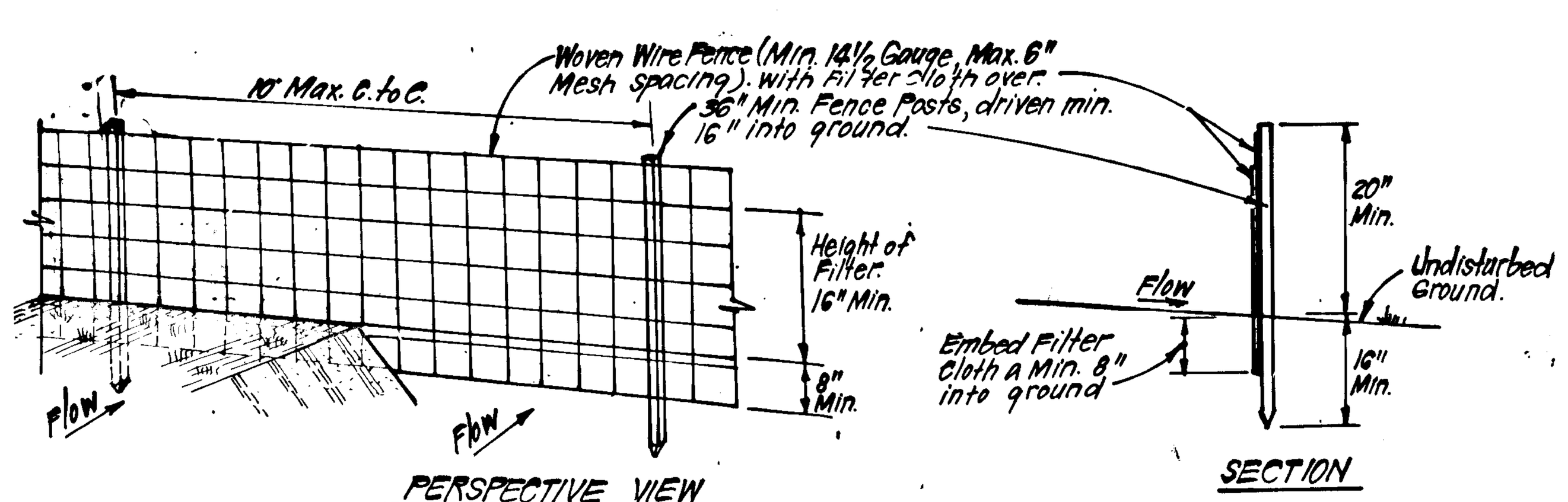
TYPE OF TREATMENT	CHANNEL GRADE	DIKE A	DIKE B
1.	0.5 - 3.0%	Seed & Straw Mulch	Seed or Straw Mulch
2.	3.1 - 5.0%	Seed & Straw Mulch	Seed w/Jute, or Excelsior; Sod; 2" Stone
3	5.1 - 8.0%	Seed w/Jute, or Sod; 2" Stone.	Lined Rip Rap 4"-8" Stone
4	8.1 - 20.0%	Lined Rip Rap 4-8" Stone	Engineering Design

A. Stone to be 2" Stone, or recycled concrete equivalent, in a layer at least 3" thick and be pressed into soil with construction equipment.
B. Rip Rap to be 4"-8" in a layer at least 8" thick, pressed into soil.
C. Approved equivalents can be substituted for any of the above materials.

7. Periodic Inspection and Required Maintenance must be provided after each rain.

EARTH DIKE DETAIL (E.D.)

NO SCALE



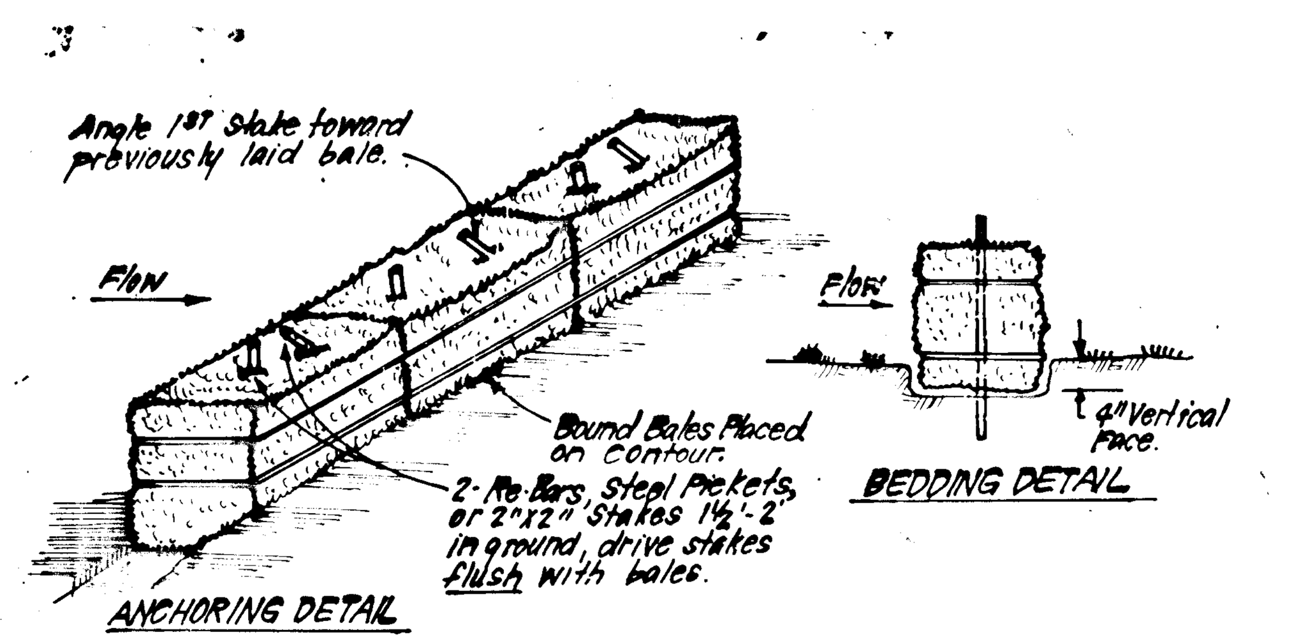
CONSTRUCTION SPECIFICATIONS:

1. Woven wire fence to be fastened securely to fence posts with wire ties or staples.
2. Filter Cloth to be fastened securely to woven wire fence with ties spaced every 24" at top and mid section.
3. When 2 sections of filter cloth adjoin each other they shall be overlapped by 6" and folded.
4. Maintenance shall be performed as needed and material removed when "Bulges" develop in Silt Fence.

POSTS: Steel either T or U Type or 2" Hardwood.
FENCE: Woven Wire, 14½ Gage 6" Max. Mesh Opening.
FILTER CLOTH: Filter X, Mirafi 100X, Stablinka, T140N or Approv. equal.
PREFABRICATED UNIT: Geofab, Envirofence, or Approv. equal.

SILT FENCE DETAIL (S)

NO SCALE

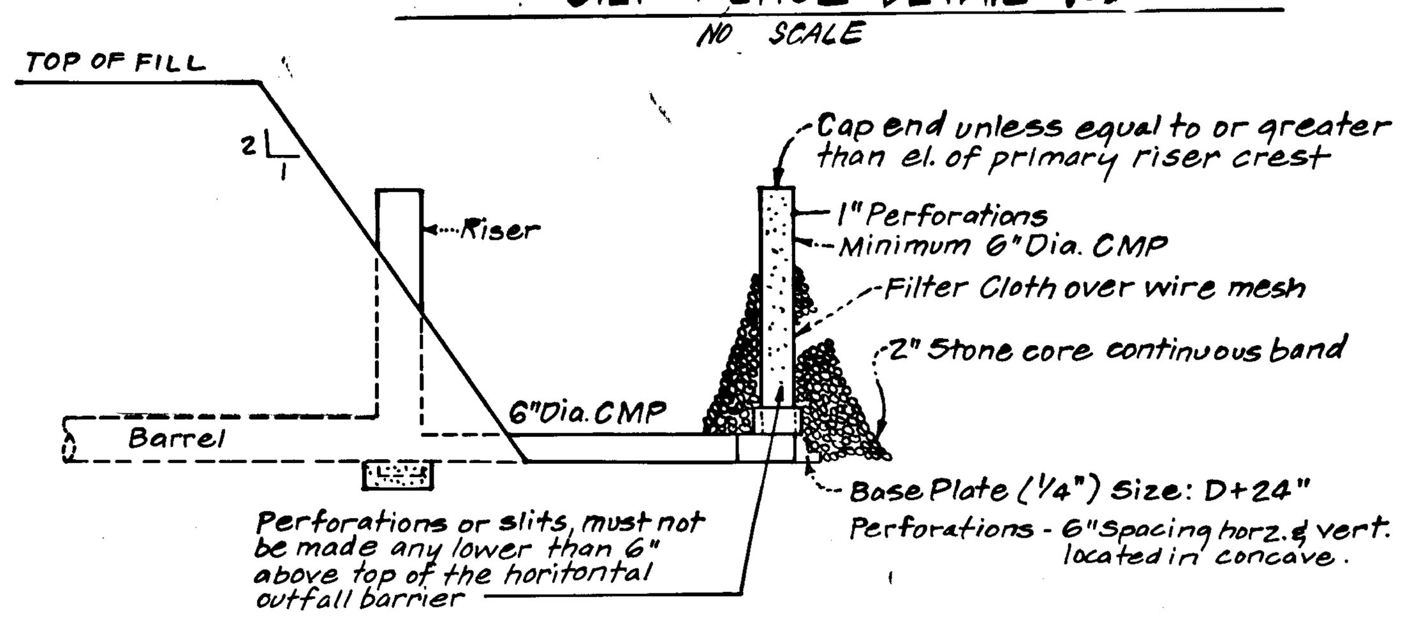


CONSTRUCTION SPECIFICATIONS:

1. Bales shall be placed at the Top of a Slope or on the contour and in a row with ends tightly abutting the adjacent bales.
2. Each bale shall be embedded in the soil a min. of 4" and placed so the bindings are horizontal.
3. Bales shall be securely anchored in place by either 2 stakes or re-bars driven thru the bale. The 1st stake in each bale shall be driven toward the previously laid bale at an angle to force the bales together. Stakes shall be driven flush with the bale.
4. Inspection shall be frequent and repair replacement shall be made promptly as needed.
5. Bales shall be removed when they have served their usefulness so as not to block or impede storm flow or drainage.

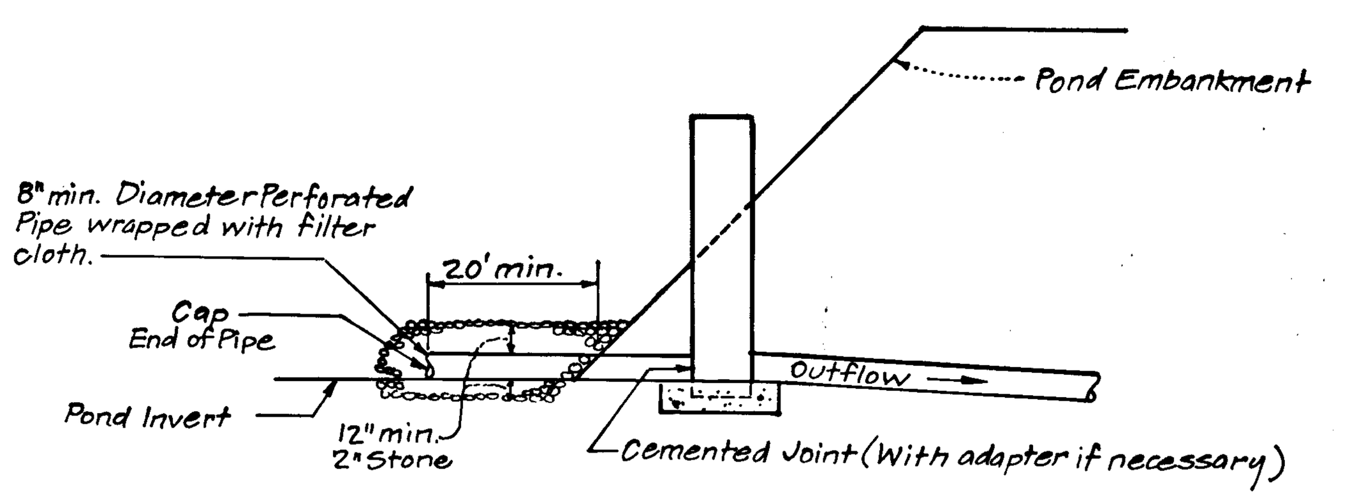
STRAW BALE DIKE DETAIL (SBD)

NO SCALE



OPTIONAL SEDIMENT BASIN DEWATERING DEVICE I WITH 6" PERFORATED RISER

NO SCALE



OPTIONAL SEDIMENT BASIN DEWATERING DEVICE II

NO SCALE

Approved for HOWARD S.C.D.
Name
Meets Technical Requirements
Signature Date 10/15/90
U.S. Soil Conservation Service

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Approved 10/15/90

DEVELOPER'S/BUILDER'S CERTIFICATE

"I/We certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project will have a Certificate of Attendance at a Dept. of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary."

Signature of Developer 8/15/90 Date

ENGINEER'S CERTIFICATE

I hereby certify that this plan for Erosion and Sediment Control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

G. Nelson Clark 8-16-90 Date

STATE OF MARYLAND G. NELSON CLARK No. 7138 REGISTERED 8-16-90

No.	REVISION	DATE
1	Revised Earthwork	11-20-91

PERMANENT SEEDING NOTES

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments: In lieu of soil test recommendations, use one of the following schedules

1) Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 square ft) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sq ft).
2) Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sq ft) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq ft) before seeding. Harrow or disc into upper three inches of soil.

Seeding - For the periods March 1 thru April 30, and August 1 thru October 15, seed with 60 lbs per acre (1.4 lbs/1000 sq ft) of Kentucky 31 Tall Fescue. For the period May 1 thre July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (.05 lbs/1000 sq ft) of weeping lovegrass. During the period of October 16 thru February 28, protect site by: Option (1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option (2) Use sod. Option (3) Seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching - Apply 1½ to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq ft) for anchoring.

Maintenance - Inspect all seeded areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

Seedbed Preparation: Loosen upper three inches of soil by raking, discing or other acceptable means before seeding, if not previously loosened.

Soil Amendments: Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq ft)

Seeding: For periods March 1 thru April 30 and from August 15 thru November 15, seed with 2½ bushel per acre of annual rye (3.2 lbs/1000 sq ft). For the period May 1 thru August 14, seed with 3 lbs per acre of weeping lovegrass (.07 lbs/1000 sq ft). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1½ to 2 tons per acre (70 to 90 lbs/1000 sq ft) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal per acre (5 gal/1000 sq ft) of emulsified asphalt on flat areas. On slopes, 8 ft or higher, use 348 gal per acre (8 gal/1000 sq ft) for anchoring.

Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for rate and methods not covered.

SEDIMENT CONTROL NOTES

1) A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
2) All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
3) Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
4) All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chaper 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5) All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52.) Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6) All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector
7) Site Analysis:
   - Total Area of Site 13.11 Acres
   - Area Disturbed 14.7 Acres
   - Area to be roofed or paved 5.5 Acres
   - Area to be vegetatively stabilized 9.2 Acres
   - Total Cut 28,000 Cu. yds
   - Total Fill 26,000 Cu. yds
   - Offsite waste/borrow area location N/A
8) Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
9) Additional sediment control must be provided, if deemed necessary by the Howard County DPW sediment control inspector.
10) On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11) If houses are to be constructed on an "As-Sold" basis, at random, Single Lot Sediment Control as shown below shall be implemented.
12) All pipes to be blocked at the end of each day (see detail below).
13) The total amount of straw bale dikes/silt fence equals 1550 L.F.

CONSTRUCTION SEQUENCE:

	# OF DAYS
1. Obtain grading permit.	7
2. Install S&E Controls including Sediment Traps 1 & 2, peripheral earth dikes and silt fence and stabilized construction entrance. Construct SWM Pond 1 & 2 risers and outfalls for use on Traps 1 & 2. Mortar shut 15" slot in Structure # SWM-1 to weir crest El. 326.10 and 20" Slot in Structure # SWM-14 to weir crest El. 350.00. Leave Top off SWM-14. Install dewatering device to Structure # SWM-1 and SWM-14 through 7" and 6" orifices respectively	10
3. Clear and grub where needed. Save 24" and 48" Sycamores as shown on plans.	7
4. Grade site. Temporarily Stabilize according to standards and specifications.	30
5. Install storm drainage & utilities.	24
6. Construct roadways and sidewalks.	80
7. Permanently stabilize all remaining disturbed areas	14
8. Once complete stabilization of their respective drainage areas and upon approval of the sediment control inspector, convert Traps 1 & 2 to S.W.M. Ponds # 1 & 2 as per approved plan and to the following: (a) pump out impounded water (b) Remove inlet blocking dewatering device and accumulated sediment & place sediment as directed by S&E Inspector. (c) Grade Basin to final dimensions and grades as per plan. (d) Permanently stabilize	14
9. Remove all other S&E Controls	7

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

CHIEF, LAND DEVELOPMENT DIVISION — DATE 11/7/90

CHIEF, BUREAU OF HIGHWAYS — DATE 10/23/90

CHIEF, BUREAU OF ENGINEERING — DATE 11.8.90

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.

CHIEF, DIVISION OF COMMUNITY PLANNING & LAND DEVELOPMENT — DATE 11/9/90

CLARK • FINEFROCK & SACKETT, INC.
ENGINEERS • PLANNERS • SURVEYORS
7135 MINSTREL WAY • COLUMBIA, MD. 21045 • (301) 381-7500 – BALTO. • (301) 621-8100 – WASH.

DESIGNED	ROAD CONSTRUCTION PLAN SEDIMENT & EROSION CONTROL NOTES COLUMBIA VILLAGE OF DORSEY'S SEARCH SECTION 3, AREA 1 5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	SCALE
D.G.T.		As Shown
DRAWN P.E.R. V.L.M.		DRAWING 8 OF 8
CHECKED D.G.T.		JOB NO. 90-120
DATE 8-10-90	FOR: HOWARD RESEARCH & DEVELOPMENT CORPORATION 10275 Little Patuxent Parkway Columbia, Maryland 21044	FILE NO. 90-120-D

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