ASHLAND COUNTY

ENGINEERING CODE

FOR

SUBDIVISION DEVELOPMENT

REVISED 9/95

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ARTICLE I

GENERAL CONSIDERATION

100 - PURPOSE

The purpose of these regulations, as adopted by the Ashland County Board of Commissioners, hereinafter referred to as the "County Commissioners"; is to provide standard specifications for subdivision development in Ashland County, Ohio, which will define the minimum requirements for surveying, engineering, and construction.

There shall be no variance from these regulation without the written consent of the County Commissioners, based on the recommendations of the Ashland County Engineer, hereinafter referred to as the "County Engineer."

101 - TITLE

These regulations shall be known, and may be cited and referred to as the Ashland County Engineering Code for Subdivision Development, and shall hereinafter be referred to as "these regulations."

102 - AUTHORITY

The County Commissioners, by virtue of "Chapter 711" of the Ohio Revised Code, are authorized to adopt regulations, governing the construction of improvements within their jurisdiction.

103 - JURISDICTION

These regulations are applicable to all subdivisions of land hereinafter, which are located within the unincorporated areas of Ashland County. They shall not be applicable to subdivisions of land, which are within three (3) miles of a city's corporation limits if the city has exercised extraterritorial jurisdiction under Section 711.09 of the Ohio Revised Code.

104 - INTERPRETATION OF TEXT

These regulation shall be interpreted and applied as minimum requirements. They are not intended to interfere with, or annul any easements, covenants, or other agreements between parties, unless they violate these regulations. When two provisions of these regulations conflict, or a provision of these regulations conflicts with any other lawfully adopted regulation, ordinance, or resolution, the most restrictive, or that imposing the higher standard will apply.

105 - ADMINISTRATION

These regulations will be administered by the Ashland County Engineer for the County Commissioners.

106 - ADOPTION

These regulations will become effective after the necessary public hearings, adoption by the County Commissioners, and certification to the Ashland County Recorder in accordance with "Chapter 711" of the Ohio Revised Code.

107 - AMENDMENTS

These regulations may be amended in accordance with the same procedure as stated in Section 106.

108 - SEPARABILITY

The invalidation of any clause, sentence, paragraph, or section of these regulations by a court of competent jurisdiction shall not affect the validity of the remainder of these regulations in whole or in part.

109 - INTERPRETATION OF TERMS

For the purpose of these regulations, certain terms or words used herein shall be interpreted as follows:

1) The word "person" includes a firm, association, partnership, trust, company, or corporation, as well as an individual.

2) The present tense includes the future tense, the singular number includes the plural, and the masculine includes the feminine.

3) The word "shall" is a mandatory requirement, the word "may" is a permissive requirement, and the word "should" is a preferred requirement.

110 - DEFINITIONS

ASSHTO: American Association of State Highway and Transportation Officials.

ADT: Average Daily Traffic

ASTM: American Society for Testing and Materials

Bond: Any form of security, including; a cash deposit, surety bond, collateral, property, or instrument of credit in an amount and form satisfactory to the governing body. All bonds shall be approved by the governing body wherever a bond is required by these regulations.

CBR: The California Bearing Ratio is the ratio of the resistance to penetration developed by a subgrade soil to that developed by a specimen of standard crushed rock under standardized conditions. The objective of a CBR factor is to show the relative resistance of the subgrade material, so that proposed structures can be designed knowing the soil bearing capacity.

Covenant: A written promise or pledge.

Developer: Any individual, subdivider, firm, association, trust, or any other legal entity commencing proceedings under these regulations to affect a subdivision of land for himself or for another.

Easement: Authorization granted by a property owner to another for a specific use of a designated portion of property.

Engineer: Any person registered to practice Professional Engineering by the State Board of Registration as specified in Section 4733.14 of the Ohio Revised Code.

Escrow: A deposit of cash from the developer to the local government with an approved bank in an account controlled by the County Commissioners and also payable to them, in lieu of an amount required and still in force on a performance of maintenance bond.

Improvements: Street paving or resurfacing, curbs, gutters, sidewalks, water lines, sewer lines, storm drains, street lights, flood control and drainage facilities, utility lines, landscaping and other related matters normally associated with the development of land into building sites.

Major Subdivision: A subdivision not classified as a minor subdivision, including but not limited to subdivisions of five (5) or more lots or any size subdivision requiring any new street or extension of the local government facilities, or the creation of any public improvements.

Minor Subdivision: A division of a parcel of land that does not require a plat to be approved by a planning authority, according to Section 711.131 of the Ohio Revised Code. Also known as a "lot split."

Monuments: Permanent concrete, iron, or steel markers used to establish definitely all lines of a plat of a subdivision, including all lot corners, boundary line corners, and points of change in street alignment.

ODOT: Ohio Department of Transportation.

ORC: Ohio Revised Code.

Performance Guarantee: An agreement by a developer with the County based on the estimated construction cost, guaranteeing the completion of physical improvements, according to plans and specifications within the time prescribed by the developer's agreement.

Plat: A map of a survey of a tract or parcel of land.

Public Utility: Any person, firm, corporation, governmental agency, or board having a public utility commission permit to furnish to the public, under regulations: electricity, gas, sewer, water, telephone, transportation, steam, or other similar public services.

Street, Private: A right-of-way, which provides vehicular and pedestrian access to adjacent properties.

Street, Public: A right-of-way, dedicated to public use, which provides vehicular and pedestrian access to adjacent properties.

Subdivision: The definition of subdivision, as given in Section 711.001 of the Ohio Revised Code, is as follows:

1) The division of any parcel of land shown as a unit or as contiguous units on the last preceding tax roll, into two (2) or more parcels, sites, or lots any one of which is less than five (5) acres for the purpose, whether immediate or future, of transfer of ownership, provided, however, that the division or partition of land into parcels of

more than five (5) acres not involving any new streets or easements of access, and the sale or exchange of parcels between adjoining lot owners, where such sale or exchange does not create additional building sites, shall be exempted; or

2) The improvement of one or more parcels of land for residential, commercial or industrial structures or groups of structures involving the division or allocation of land for the opening, widening or extension of any street or streets except private streets serving industrial structures; the division or allocation of land as open spaces for common use by owners, occupants, or lease holders, or as easements for the extension and maintenance of public sewer, water, storm drainage, or other public facilities.

Surveyor: Any person registered to practice surveying by the State Board of Registration as specified in Section 4733.14 of the Ohio Revised Code.

USDA CONSERVATION SERVICE: United States Department of Agriculture Natural Resources Conservation Service.

USGS: United States Geological Survey.

Variance: A variance is a modification of the relevant regulations, which may be granted to an applicant; where owing to conditions peculiar to a property, enforcement of the regulations would result in unnecessary and undue hardship. The modification shall not be contrary to public interest or a result of the action of the applicant.

ARPC: Ashland Regional Planning Commission.

111 - REVIEW

To keep up with changes in technology and the development process; it may be necessary to have periodic reviews of this text. Therefore, it is provided herein that twelve (12) months from the date this text becomes effective, there shall be a public hearing and any changes or amendments may be incorporated into this text under the procedure outlined in Section 106. After that time, this text may be reviewed under the same process every three (3) years.

During the interim periods any requests for reviews shall be made through the County Commissioners with the reason for the review being so stated. Any such request will be reviewed by the County Commissioners and if they feel it necessary, they will conduct a public hearing.

ARTICLE II

GENERAL PLAN PROCEDURE

200 - PURPOSE

The necessary procedure, which a developer must follow for approval of plans, is outlined within this article.

201 - MINOR SUBDIVISION PROCEDURE

Normally, the County Engineer will not review plans for minor subdivisions. However, if an engineering problem is encountered during the review of a Type 1 Subdivison, the Planning Coordinator may request the County Engineer's assistance. The County Engineer, Planning Coordinator, and developer should meet to discuss the problem.

202 - MAJOR SUBDIVISON PROCEDURE

For approval of major subdivisons, the developer shall proceed as outlined below. Also see Figure 2-1.

1. Preapplication Discussion: There is hereby created a Concept Review Phase, where the developer meets with the County Engineer, so that both parties can become familiar with existing conditions affecting the proposed improvements. A preapplication sketch and data submitted to the ARPC will be required. At that meeting the design parameters will be generally agreed upon to include the classification of the roads to be developed, the traffic design criteria, the existing topographic conditions and other items that will effect the design.

2. Preliminary Engineering Plans: The developer should prepare these plans in conjunction with the preliminary plan as required for the ARPC. If these plans, as outlined in "Article III," are submitted to the County Engineer at the same time the preliminary plan is filed with the Subdivision Coordinator, many of the possible questions arising at the ARPC review can be answered. The plans should contain sufficient information to enable the County Engineer to determine if the proposed improvements will be satisfactory and serve the public interest. These plans prepared properly, should insure the developer that he will not expend excessive monies without some assurance that his final plans will be approved.

3. Final Construction Plans: The developer shall submit a full set of construction drawings and also, all supporting data, computations, and documents, of the proposed subdivision to the County Engineer for review, as outlined in "Article IV." The County Engineer, then will determine if the proposed improvements fully comply with the current Ashland County design standards.

203 - REVIEW FEES

The County Engineer's Office will be reimbursed by the developer for costs incurred during the review of preliminary and construction plans. The rate charged by the County Engineer will be actual cost plus fifty percent (50%) to cover items such as: employee benefits, office expenses, etc..

The payment for these fees shall be in increments of five-hundred dollars ($500.00), payable to the Ashland County Engineer. The County Engineer will submit an itemized statement of time and costs incurred.

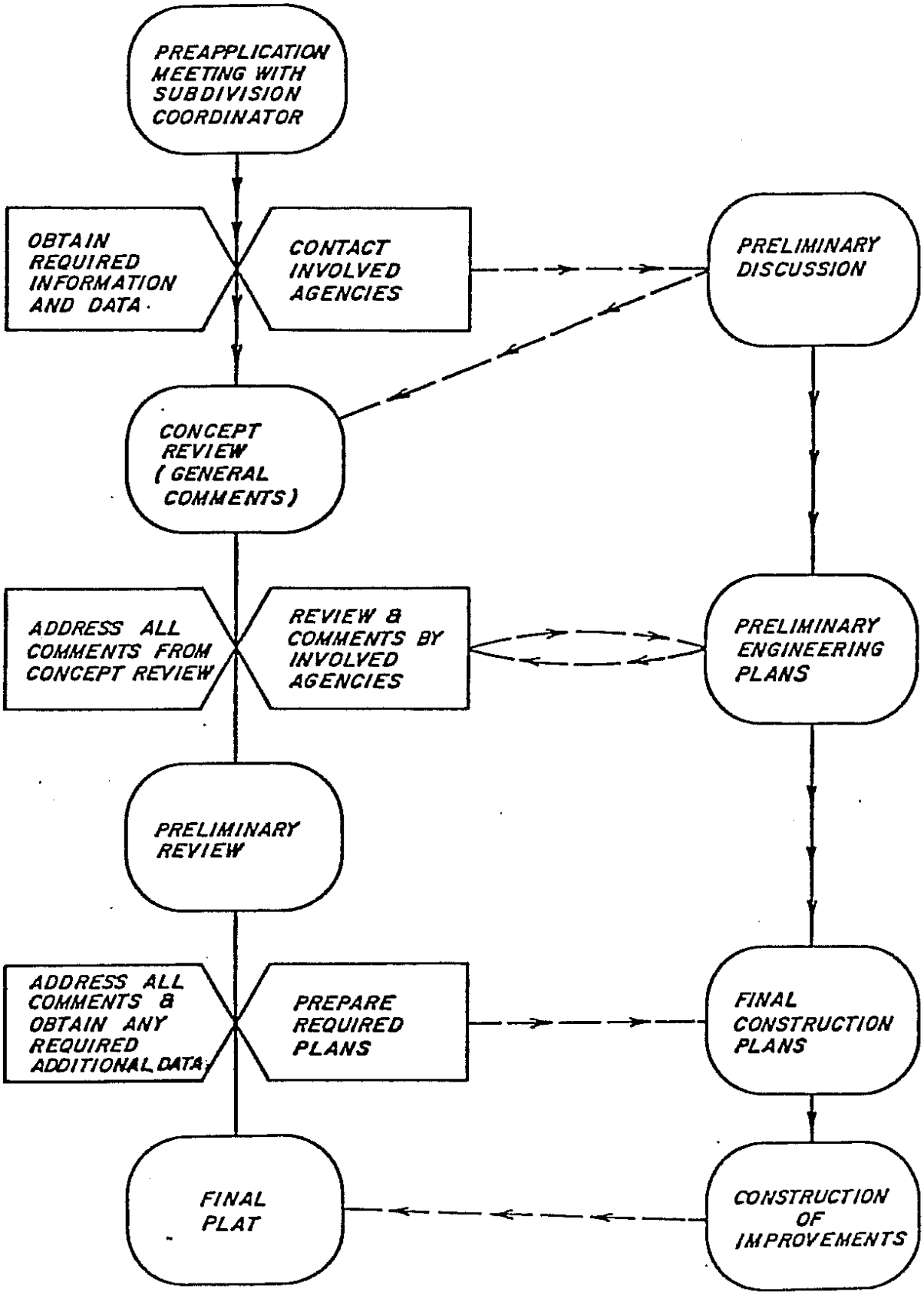


FIGURE 2-1 Procedure Flow Diagram

ARTICLE III

PRELIMINARY ENGINEERING PLANS

300 - PURPOSE

This article outlines the procedure which should be followed and information needed to determine what problems may be encountered in the final design and construction of improvements.

301 - PROCEDURE

To provide for timely approval of the preliminary plans, the following steps should be taken:

Step 1) The developer shall submit two (2) copies of the preliminary plans to the County Engineer at least two weeks prior to the time he submits his preliminary plan to the ARPC.

Step 2) After receipt of the preliminary plans, the County Engineer will set a meeting date to review the plans and comments of all concerned parties. This meeting will be held approximately two (2) weeks after receiving the preliminary plans.

Step 3) The County Engineer will notify the Township Trustees and other agencies such as the USDA Natural Resources Conservation Service, that the plans are available for review at the County Engineer's Office.

Step 4) Any agencies reviewing the plans shall make their review and send comments to the County Engineer within ten (10) days from the date of transmission.

Step 5) After the preliminary plan meeting and before the ARPC's preliminary plan meeting; the County Engineer will approve, approve conditionally, or disapprove the plans. This action will be noted on the plans and transmitted to the developer and Planning Commission Coordinator.

Step 6) Approval of the preliminary plans by the County Engineer is not an acceptance of the plans. It is only an approval of a general concept, which should be used as a guide in the preparation of the construction plans. Approval of the preliminary plans shall be effective for a period of one (1) year following the date of the approval, unless an extension of time is granted. Upon expiration of the preliminary plans approval, no approval of the construction plans will be given until the preliminary plans have been resubmitted and approved.

302 - PLAN REQUIRMENTS

The preliminary drawings should be drawn to the scale used on the preliminary plan for ARPC. The following should be provided, as illustrated in Figure 3-1:

1. Identification:
   - A. Name of subdivision.
   - B. Location by township, range, and section.
   - C. North arrow.
   - D. Bar scale.
   - E. Name, address, and telephone number of the developer and person or firm preparing the plan.
   - F. Location map at a scale of not less than 1" = 5,280' unless approved otherwise by the County Engineer.
   - G. Names of adjacent subdivision, owners of adjoining parcels of unsubdivided land, and location of their boundaries.
2. Existing Data:
   - A. Boundary lines and approximate acreage.
   - B. Location, width, and names of streets, railroads and easements.
   - C. Location of buildings and parks.
   - D. Sewers, water lines, gas lines, culverts, etc..
   - E. Subsurface conditions within the subdivision that are not typical; abandoned mines, wells, etc..
   - F. Location of wooded areas, streams, soil types, and other significant topographic and natural features within and adjacent to the subdivision.
   - G. Existing contours at an interval of not greater than two (2) feet if the slope of the ground is twelve percent (12%) or less; and not agreater than five (5) feet where the slope is more than twelve percent (12%) (USGS approximations accepted).
3. Proposed Data:
   - A. Approximate location and width of streets and easements.
   - B. Approximate location and size of storm and sanitary sewers.
   - C. Approximate location and size of drainage structures.
   - D. Approximate lot layout with temporary numbers.
   - E. Erosion and sedimentation control procedures and structures and storm water management plans.
   - F. Planned improvements by public authorities in area; highways, etc..
   - G. Private improvments; parks, buildings, etc..
   - H. Proposed contours of critical cross sections.
   - I. Design parameters to be used for all improvements.

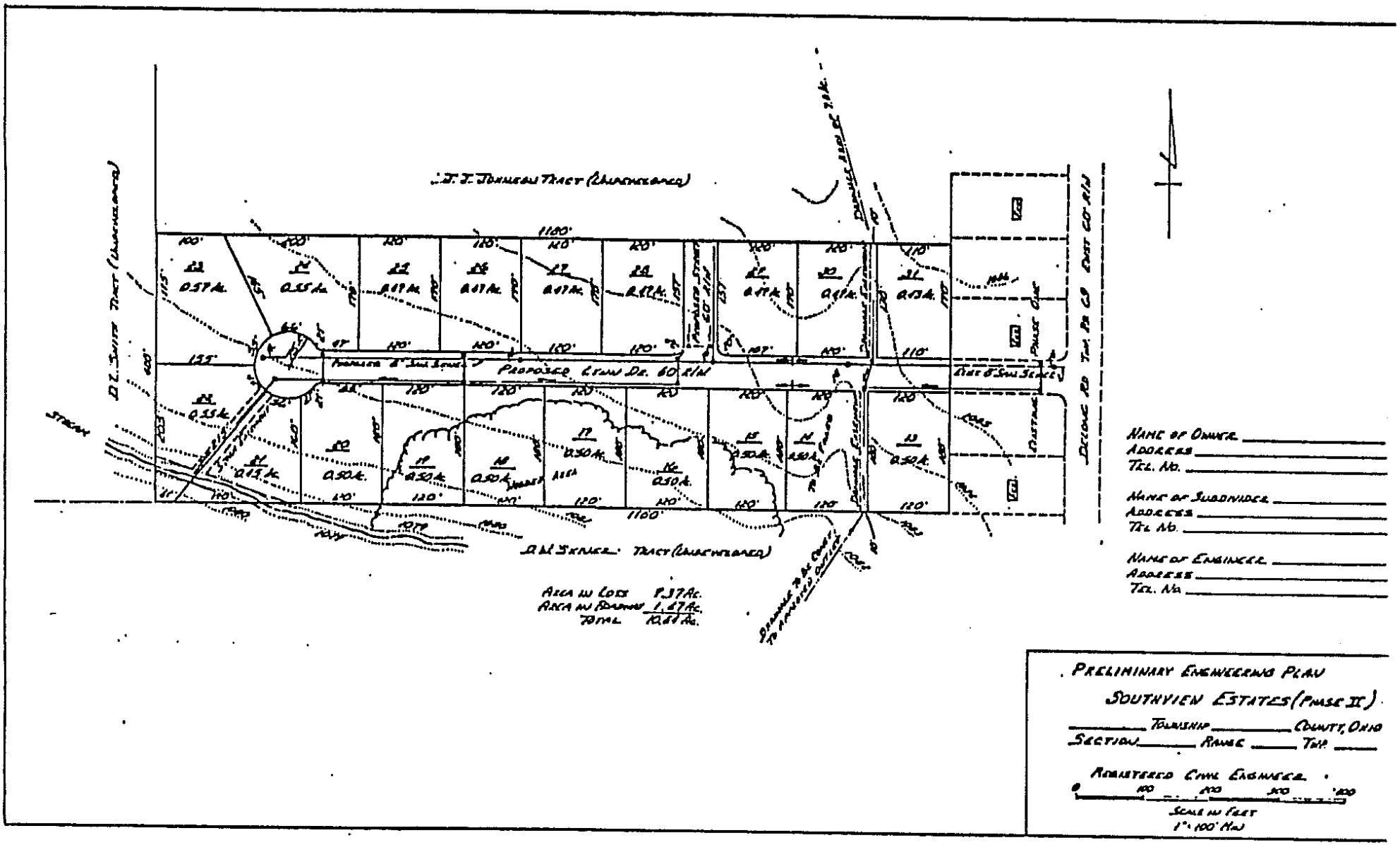


FIGURE 3-1 Example of Preliminary Engineering Plan

ARTICLE IV

CONSTRUCTION DRAWINGS

400 - PURPOSE

A general format is specified for the construction drawings to facilitate their review by all involved parties.

401 - PROCEDURE

The procedural steps, which are necessary for the approval of the construction drawings, are given below:

Step 1) Three (3) complete sets of the construction drawings and one (1) set of all computations shall be submitted to the County Engineer. The computations shall itemize the design parameters for the improvement to include traffic volume, design speed, topographic classification, functional classification, soil type, and pavement type.

Step 2) One (1) complete set of all support data and documents as requested and deemed necessary shall be submitted to the County Engineer.

Step 3) The County Engineer will review the plans within fourteen (14) days after receiving them and arrange a meeting with the developer's engineer to review the plans.

Step 4) In cases where only slight modifications to the drawings are needed, a copy will be marked and made available to the design engineer for making corrections with approval given conditionally.

Step 5) If extensive modifications are required, the drawings will be rejected by written notice of such actions, including reference to the design standards violated. After these corrections are made, the drawings may be resubmitted.

Step 6) After all construction is completed; the developer's engineer shall supply to the County Engineer a set of "as built" drawings or the County Engineer will prepare the drawings at the developer's cost.

402 - GENERAL

All construction drawings shall be prepared in ink on "D" size (nominal 24" x 36") sheets of reproducible drafting film.

403 - TITLE SHEET

A title sheet shall be used when the construction drawings require more than three (3) sheets. A title block shall be placed in the lower right corner and the Professional Engineer responsible for the preparation of the drawings shall affix his registration stamp to the title sheet. Also the title sheet shall contain the following information:

1. Location Map: The location map shall indicate the development location within the County and shall be at a scale of not less than 1"= 5,280' unless approved otherwise by the County Engineer.

2. Typical Section: A typical section should be included to show design elements of roadway construction. Typical sections for county design purposes are shown in Figures 6-1 through 6-3.

3. Approval Block: An area shall be prepared for the signature of both the developer and the County Engineer to indicate the approval of the plans.

4. General Notes: A set of general notes may be shown covering special situations, which are not covered under the general specifications.

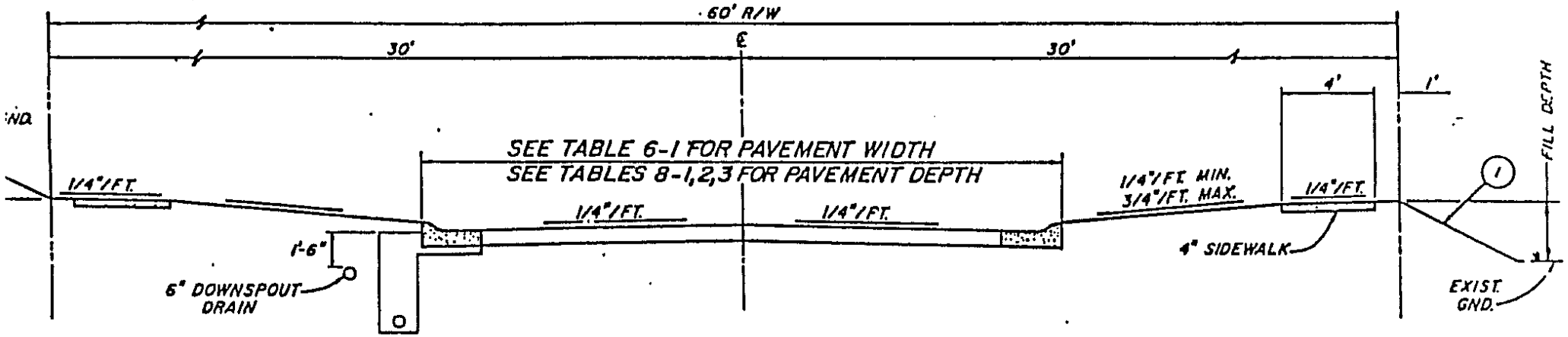
5. General Summary: A table of "Estimated Quantities" may be shown, which shall include a column for "Item No., " "Description," "Quantity," and "Unit" in that order.

6. Index: An index should be provided to facilitate referencing if the construction drawings exceed ten (10) pages.

404 - TOPOGRAPHIC & DRAINAGE SHEET

A topographic map of the subdivision area, to a scale of 1"= 100' for areas over five (5) acres and 1"= 50' for areas less than five (5) acres, shall be provided with the proposed subdivision and drainage system shown. At least two (2) permanent bench marks shall be shown. Topographic and drainage details which should be indicated on this sheet are given below:

1. Topographic Details:
   A. All elevations shall be to mean sea level datum.
   B. Contour intervals shall be two (2) foot if the slope of the ground is twelve percent (12%). Contours may be five (5) foot if the slope of the ground exceeds twelve percent (12%). Contours shall be field established.



(1) & (2)

SLOPE	CUT OR FILL DEPTH
4:1	2' & UNDER
3:1	OVER 2'
2:1	WHEN APPROVED BY THE COUNTY ENGINEER

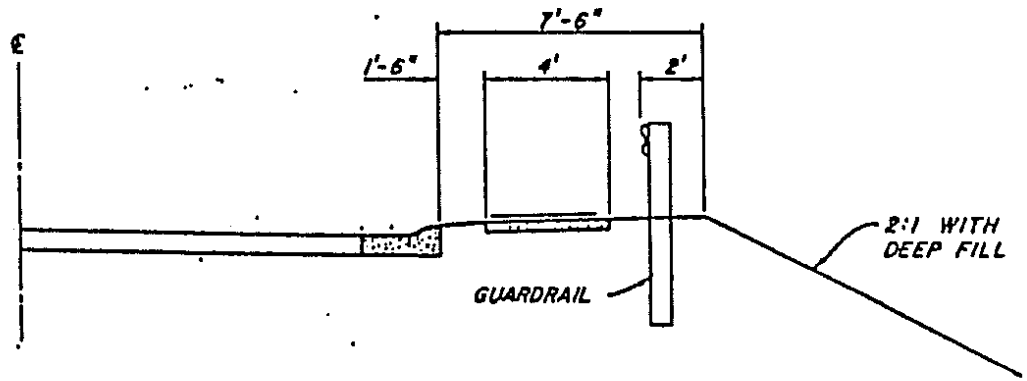
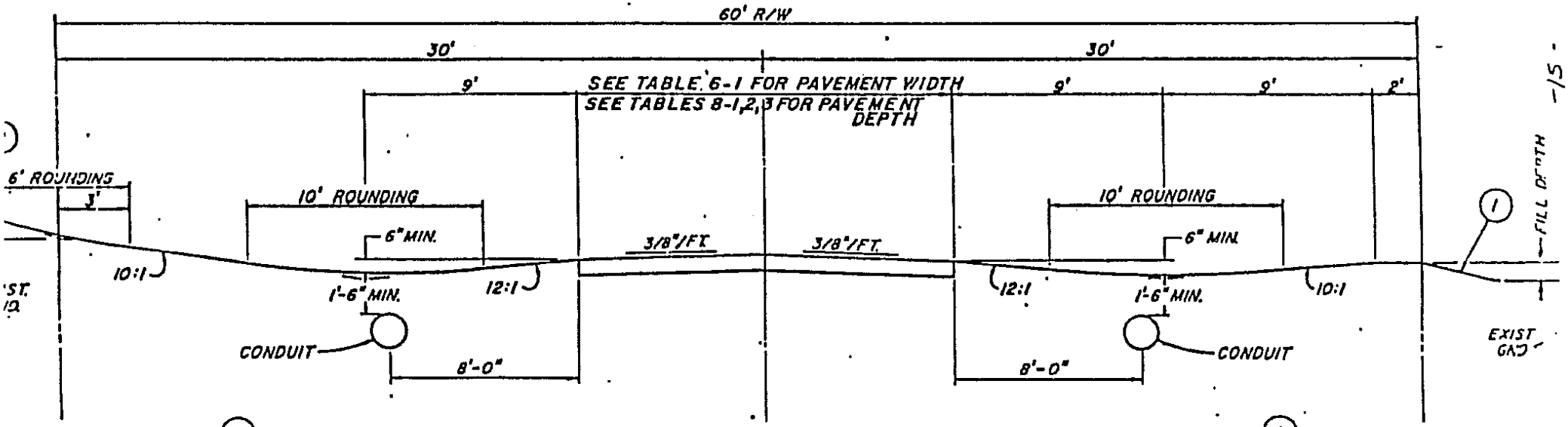


FIGURE 6-1 Urban Typical Section with Curb and Gutter



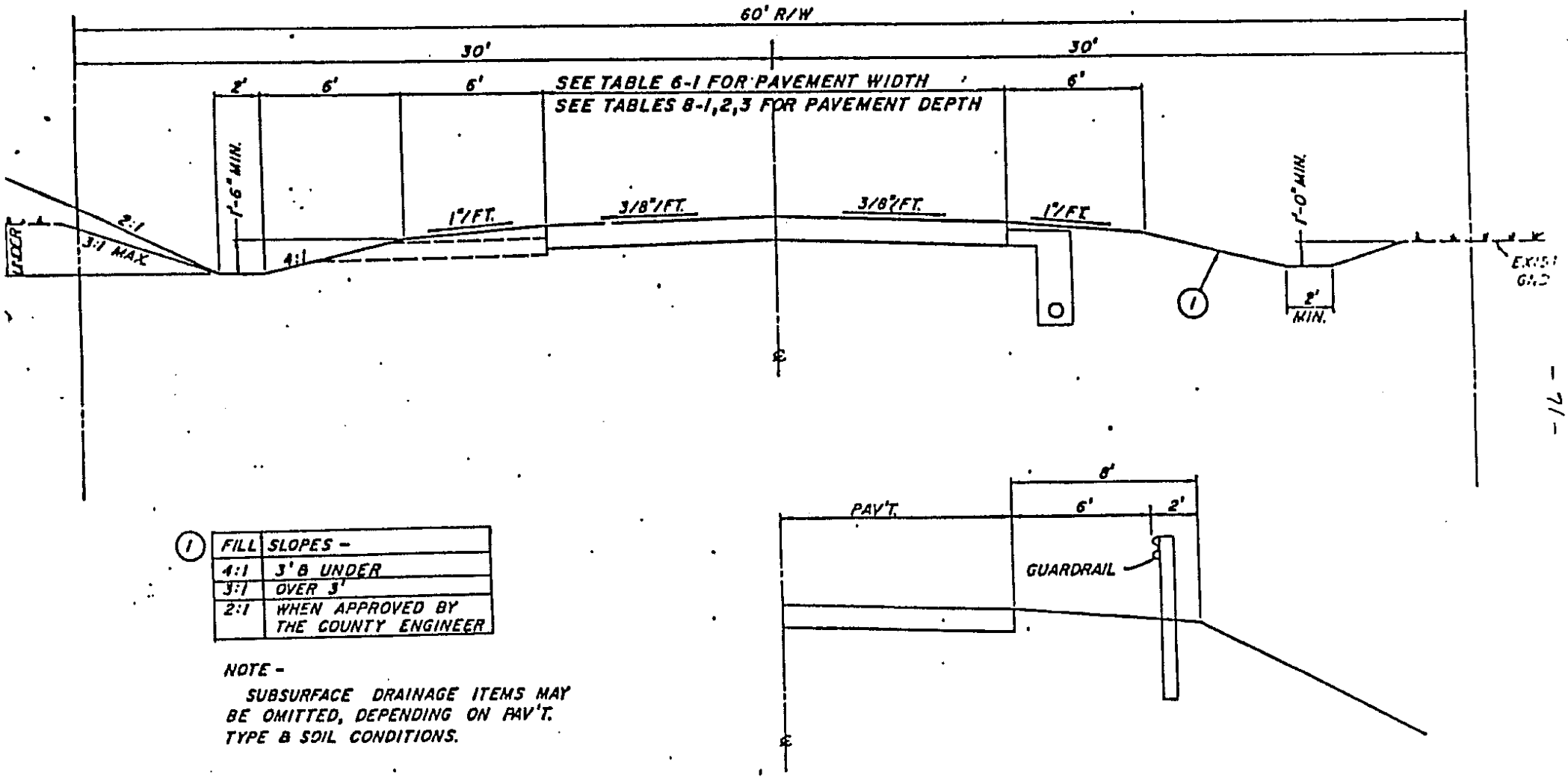
(2)

SLOPE	CUT DEPTH
3:1	5' & UNDER
2:1	OVER 5'

(1)

SLOPE	FILL DEPTH
4:1	3' & UNDER
3:1	OVER 3'
2:1	WHEN APPROVED BY THE COUNTY ENGINEER

FIGURE 6-2 Rural Typical Section with Ditches Enclosed



(1)	FILL	SLOPES -
	4:1	3' & UNDER
	3:1	OVER 3'
	2:1	WHEN APPROVED BY THE COUNTY ENGINEER

NOTE -

SUBSURFACE DRAINAGE ITEMS MAY BE OMITTED, DEPENDING ON PAV'T. TYPE B SOIL CONDITIONS.

FIGURE 6-3 Rural Typical Section with Ditches Open

C. All lot numbers and proposed or existing utilities, such as; storm and sanitary sewers, water lines, gas lines, sewage treatment plants, etc., shall be indicated.

D. Surface features, such as; streams, woods, crops, pasture, buildings, etc., shall be indicated.

2. Drainage Details:

A. The drainage area for each pipe or drainage structure shall be outlined and have the acreage shown. To show the entire drainage area an additional sheet may be required. If this additional sheet is needed, existing aerial mapping or USGS mapping will be sufficient.

B. The County Engineer may require downstream and upstream structures (roadway culverts and bridges) to be shown.

C. Drive pipe sizes should be noted for each lot in table form or shown on each lot.

405 - SPECIAL CONSTRUCTION DRAWINGS

This sheet should contain detail drawings of special construction items not otherwise included in the plans.

406 - PLAN AND PROFILE SHEETS

All roads within the subdivision should be shown on standard plan and profile sheets. Requirements of the plan and profile sheets are as follows:

1. Normal Scale: Use one (1) inch equals twenty (20) feet for the horizontal scale and one (1) inch equals five (5) feet for the vertical scale.

2. Plan Items:

A. Road centerline, stationing, right-of-way line, curve data, road names, sublot lines, easements, and lot numbers.
B. Pavement, curbs, gutters, storm and sanitary sewer structures, bridges, culverts, guardrail and other proposed or existing utilities.
C. Topographic features within the general area and any obstructions within the right-of-way or construction area.
D. Benchmarks with description and elevation.

3. Profile Items:

A. Centerline stationing, original ground profile grade on the centerline, and proposed profile grade.
B. Vertical curve data and sight distance data.
C. Storm and sanitary sewer structures, bridges, culverts, and other proposed or existing utilities.

407 - CROSS SECTION SHEETS

Cross sections shall be provided as follows:

1. Scale: Both horizontal and vertical scales should be one (1) inch equals five (5) feet unless approved otherwise by the County Engineer.

2. Location: A cross section should be shown at each fifty (50) foot station and other needed locations, and shall show the existing ground line dashed, with the proposed section drawn solid.

3. Data: Identify station at centerline and provide proposed finished grade and existing elevations.

4. Drainage Sections: If a detail culvert sheet is not used, then a cross section at any proposed culvert or other structure shall be shown. This detail shall include the elevation at both the inlet and outlet, and also the type and size of the structure.

5. Earthwork Table: At the right side of each cross section sheet there should be a column for end areas in square feet and volumes in cubic yards for both cut and fill. Each sheet should have a summation of volumes at the bottom.

6. Seeding: At the left side of each cross section sheet there should be a column showing the width in feet and seeding area in square yards and a column showing the summation of all areas.

408 - DRAINAGE STRUCTURES

Detailed drawings of all bridges and other drainage structures (other than standard culvert pipe without headwalls) shall be provided in the construction drawings. Said drawings shall include complete hydraulic design data in addition to the construction details.

ARTICLE V

GUARANTEES REQUIRED OF DEVELOPER

500 - PURPOSE

The purpose of this article is to inform the developer of the guarantees and insurances required during construction and the twelve (12) month maintenance period after approval of the improvements. All guarantees and insurances required under this section shall be made with the County Commissioners. Copies of a certificate of insurance shall be filed with the Ashland County Commissioners prior to beginning construction.

501 - LIABILITY INSURANCE

The developer shall carry such insurance as is deemed necessary by the County Commissioners and the County Prosecutor to indemnify and save harmless the County from any and all liability arising from conditions, which may arise or grow out of the construction or installations of any improvements. As a minimum the insurance required must meet the following limits of liability:

1. Comprehensive General Liability

Body injury including personal injury	
Each person	$1,000,000
Each occurrence	$1,000,000
Aggregate	$2,000,000
Property damage	
Each occurrence	$1,000,000
Aggregate	$2,000,000

2. Comprehensive Automotive Liability

Bodily injury - each person	$1,000,000
Each occurrence	$2,000,000
Property damage each accident	$1,000,000

The County of Ashland shall be included and listed as an additional insured on the above insurance.

This insurance shall in no case be allowed to expire earlier than the effective period of the required maintenance of improvement guarantee. A copy of said insurance policy shall remain with the Clerk of the County Commissioners at all times.

502 - CONSTRUCTION PERFORMANCE GUARANTEE (See Ashland County Subdivision Regulations)

All improvements required herein shall be constructed prior to the granting of the final plat approval by the County Commissioners. The developer, in lieu of actual installation or completion of the required improvements, shall furnish the County Commissioners a construction performance guarantee. The Construction Guarantee shall be in accordance with the Ashland County Subdivision Regulations.

503 - MAINTENANCE GUARANTEE AFTER IMPROVEMENT ACCEPTANCE (See Ashland County Subdivision Regulations)

At the time of final acceptance of the improvements within the subdivision, the developer shall furnish the County Commissioners a maintenance guarantee for a period of twelve (12) months.

ARTICLE VI
ROADWAY DESIGN STANDARDS

600 - PURPOSE

This article focuses on the minimum design standards, which shall control the design and arrangement of roads and other improvements within a subdivision. The standards are flexible for the purpose of coordinating design and topography in a feasible and economical manner. However, any variance from these design standards must be requested in writing by the developer and be approved by the County Engineer.

For additional design information, refer to the sources given below:

1. From the American Association of State Highway and Transportation Officials (AASHTO).

    A. A Policy on the Geometric Design of Highways and Streets, current revision.

2. From the Ohio Department of Transportation (ODOT).

    A. Location and Design Manual, (L & D Manual) current revision.

601 - FUNCTIONAL CLASSIFICATION OF ROADS

Classification is the means of identifying all roads in a system according to the type and degree of service they provide to the public. These regulations define three (3) classes of roads as given below. Also see Policy AASHTO Design.

1. Arterial: Arterials are those linking urban areas of greater than 50,000, are those that provide for interstate travel, or serve traffic generators or other major center of activity. Travel service or traffic movement subordinates land access. Arterials are frequently multilane with access control. A functional classification by ODOT determines arterials.

2. Collectors: Collectors link local roads to arterials, and may be major collectors serving intra-county traffic generators such as schools, parks, and shipping points and connecting those facilities with towns or routes of higher classifications. Major collectors may serve as the important intra-county corridors. Minor collectors are spaced at intervals to collect traffic from local roads, provide service to small communities, and link traffic generators with rural areas. Major collectors are defined on the ODOT functional classification map. Most county roads are collectors.

3. Local: The primary purpose of a local road is to provide land access. Local roads serve travel over relatively short distances and connect to higher classification of roads. Local roads can be further subclassified as residential, marginal access, cul-de-sacs, and commercial and industrial. Most township roads are local roads. Most development involves local roads.

602 - TRAFFIC DESIGN CRITERIA

Traffic data is an important factor, as it directly affects the geometric features of design, such as; alignment, grade, shoulder widths, etc..

1. Traffic Expansion Factors: The historical rate of population growth and increase in travel per capita within Ashland County has been 2.9% per year. The traffic count on any road being designed within Ashland County, except permanent dead-end streets, shall be expanded for a twenty (20) year growth period using a factor of 2.5% for rural areas and 3.5% per year within any comprehensive plan area of a city. Comprehensive plan area is considered to be the three (3) mile limit.

2. Vehicle Demand Factor: A newly proposed road can be classified by assuming ten (10) vehicles per residential dwelling unit per day. Additional vehicles from commercial, recreational, and educational facilities shall also be taken into account.

3. Design Speeds: Design features shall be consistent with a design speed selected as appropriate for the conditions and type of road. In general, the design speeds provided in the Location and Design Manual of the Ohio Department of Transportation shall be used, unless approved otherwise by the County Engineer due to unusual situations and environmental features.

603 - HORIZONTAL ALIGNMENT

Horizontal alignment should be to as high a standard as possible with the terrain and design traffic volume. Sudden changes between curves of widely-different radii or long tangents and sharp curves should be avoided. For the maximum curvature for different design speeds, see the above referenced Location and Design Manual.

1. Where possible, a tangent of at least two-hundred fifty (250) feet should be introduced between reverse curves on arterial or collector roads and at least one-hundred (100) feet on local roads.

604 - VERTICAL ALIGNMENT

Profile grades shall be connected by vertical curves to provide adequate stopping sight distance for the required design speed. To determine the minimum length of a vertical curve, refer to Location and Design Manual of the Ohio Department of Transportation.

1. Minimum Grades: The minimum grades shall be in accordance with the Location and Design Manual of the Ohio Department of Transportation.

2. Maximum Grades: The maximum grades shall be in accordance with the Location and Design Manual of the Ohio Department of Transportation.

605 - CROSS SECTION ELEMENTS

Design criteria for various cross section elements are given below:

1. Pavement Width; Shoulders, and Side Slopes: The minimum widths for the pavement and shoulders and the minimum side slopes shall be in accordance with the L & D Manual of the Ohio Department of Transportation.

2. Right-of-Way Width: The right-of-way width for all local roads will normally be in accordance with the Subdivision Regulation of Ashland County. This minimum width may be varied where and to the extent the County Engineer deems it necessary to conform with topographic, construction, and drainage features. The road right-of-way should be cleared of all obstructions for its full width, unless approved otherwise by the County Engineer.

606 - PARKING

On-street parking constitutes a safety hazard and impedes traffic flow. Where conditions of lot size and intensity of development require additional on-street parking, an additional parking lane may be required by the County Engineer or ARPC. The parking lane width may include the gutter pan as part of the required width.

607 - GENERAL INTERSECTION DESIGN

The design of intersections shall be subject to the following criteria:

1. Angle of Intersection: Roads should be laid out to intersect as nearly as possible at right angles. No road shall intersect any other road at an angle of less than seventy degrees (70°).

2. Offset Intersections: Intersections of roads offset less than one-hundred fifty (150) feet should be avoided. However, those offset less than five (5) feet may be approved.

3. Grades: See ODOT Location & Design Manual

4. Sight Distance: Intersections should be designed with adequate sight distance in accordance with the ODOT Location and Design Manual.

5. Radius Returns: At intersections the minimum radius return on the outside edge of pavement or face of curb should be thirty-five (35) feet for local roads and fifty (50) feet for other roads.

608 - PERMANENT TURN-AROUND

Roads terminating in a permanent circular turn-around (cul-de-sac), shall have a minimum right-of-way radius of sixty (60) feet in accordance with the Subdivision Regulations of Ashland County. The outer edge of pavement shall have a minimum diameter of sixty (60) feet for cul-de-sacs. Islands if provided in cul-de-sacs, shall be properly drained with a pipe system to the outside drainage system. Cul-de-sacs with islands also shall have a minimum pavement width of twenty-four (24) feet and in no case shall the outside edge of pavement be located within fifteen (15) of any right-of-way line.

609 - TEMPORARY TURN-AROUNDS

Where temporary cul-de-sacs are permitted, they shall conform to the design requirements for a permanent cul-de-sac. If the temporary turn-around is not to be used for a period in excess of eighteen (18) months and is within four hundred (400) feet of an intersection, a T-type turn-around may be used if approved by the County Engineer.

Where temporary turn-arounds are used they shall be provided with a temporary easement covering the portion of the turn-around which extends beyond the normal right-of-way limits. Such temporary easements shall be automatically vacated to the abutting property owner when the temporary turn-around is no longer needed.

610 - PAVEMENT MARKING

All pavement shall be marked with polyester or water based traffic paint as required by the Ohio Manual of Uniform Traffic Control Devices (MUTCD) and shall be applied and paid for by the developer. Polyester shall be used on plant mix pavements, water based paint shall be used on chip and seal surfaces. Three weeks time shall elapse between the completion of the paving and the application of the pavement marking. Pavement marking logs shall be determined and provided by the Developer.

611 - TRAFFIC SIGNS

All necessary traffic signs are to be erected by the County Engineer, and the cost of the signs and labor shall be paid for by the developer. The signs will be diamond grade reflective sheeting and will conform to standards set forth in the OMUTCD.

612 - LIGHTING

The developer shall contact the Township trustees to see if street lighting is necessary. Required lighting shall follow the guidelines as adopted by the Township Trustees and the power company in the development area.

613 - CURBS AND GUTTERS

The construction of curbs and gutters shall conform to ODOT's Standard Construction Drawings.

614 - GUARDRAIL

Guardrail will be required for all embankments six (6) feet or higher. All guardrail shall be shown on the construction drawings as to location. Installation shall conform to ODOT standards. All guardrail shall be Type 5. End treatments will be Type T unless another type is approved by the County Engineer.

615 - SIDEWALKS

Sidewalks shall be made of concrete four (4) inches thick (six (6) inches thick under driveways). Sidewalk width shall be in accordance with the subdivision regulations of Ashland County.

616 - FENCE

Fence may be required for subdivisions located near commercial and industrial facilities or hazardous natural features. Acceptable types of fence may be found in the ODOT Standard Construction Drawings. No fence will be allowed within the right-of-way limits.

617 - ORNAMENTAL CONSTRUCTION

If the developer elects to install a decorative fence or other ornamental construction he shall show such construction on the plan and profile drawings, or submit separate drawings for approval by the County Engineer. No ornamental construction will be permitted within the right-of-way.

618 - TREES

All existing trees shall be removed from the right-of-way. Trees may be planted on private property only. Special care shall be taken in planting trees to avoid interference with utilities or impairment of visibility at intersections.

619 - UNDERGROUND UTILITIES

Utilities, such as; cable television, telephone, and electric should be considered to be underground.

When electrical power cables are installed underground in a subdivision, electrical street lighting cables may also be installed, whether for present or future use. Unused wires and cables shall be de-energized and protected against physical damage.

Any installation of utility pipe, conduit, cable, wires, and pertinent equipment shall comply with the current regulations of the Public Utilities Commission of Ohio. The location and detailed drawings of the utilities prepared by the developer and/or the utility companies shall be submitted to the County Engineer for approval.

All trenches within two (2) feet of any pavement area shall be backfilled with low density fill. Trenches in areas that will be under driveways, or walks shall be backfilled with granular material compacted by vibratory or mechanical tamping in six (6) inch layers.

620 - BRIDGE AND SPECIAL STRUCTURES

All bridges and special structures shall be designed using ODOT L & D Standards, except where other standards are approved by the County Engineer.

621 - SURVEYING MONUMENTS

Monumentation shall be in accordance with the minimum survey standards of the State of Ohio.

The County Engineer may require other monuments or iron pins to be set in the subdivision. All monuments shall be approved by the County Engineer. Monuments and iron pins that may be disturbed by grading, may be set after the grading has been completed. All monuments and iron pins shall be identified on the final plat, and shall be in place at the time the roads and other improvements are inspected for acceptance by the County Engineer. For further information on monumentation, see Article XIII.

622 - UTILITY EASEMENTS

The easements required for utility lines shall be coordinated with the utility and the County Engineer. In no case shall an easement for a buried utility be less than thirty (30) feet. Location of the utility within the easement shall be at the approval of the County Engineer. For the purpose of this document, utilities are electric, gas, telephone, water, sanitary sewer, storm sewer, and cable television. See Section 903 for drainage easements.

ARTICLE VII
DRIVEWAYS, YARD ENCLOSURES, AND BORINGS

700 - PURPOSE

This article has been provided to set standards for all new driveway construction in order to reduce hazardous conditions at driveways. Also included, are the requirements for approval of yard enclosures and road borings.

701 - GENERAL

Efficiency and safety of a road largely depends on the amount and character of roadside interference with the movement of traffic. Vehicles entering, leaving, or standing nearby, cause roadside interference. The major interference originates in vehicle movement to and from businesses, residences, and other development along the road. Accordingly, regulations and overall control of driveway connections are necessary to provide efficient and safe operations of the road system.

702 - DRIVEWAY DESIGN STANDARDS

To provide for safe driveway connections, the following design standards shall be adhered to:

1. Profile Grades: Driveways along roads with open ditches and yard enclosures shall be graded as shown in Figures 7-1 and 7-2, respectively. Driveways along roads with curbs shall be graded as shown in Figure 7-3.

2. Vertical Curves: To help prevent center or overhang drag, with some allowance for land and bounce, a vertical curve of at least eight (8) feet should be provided. Crest vertical curves should not exceed a three and one-quarter (3-3/4) inch hump in a ten (10) foot length and sag vertical curves should not exceed a two (2) inch depression in a ten (10) foot length.

3. Width: The driveway's width shall be measured perpendicular to the driveway's centerline. The width may vary according to the classification of the road, which the driveway intersects. See Figure 7-4 or Figure 7-5 for the appropriate width. If a variance is requested, the County Engineer will review the variance to ensure that traffic flow will not be adversely affected.

4. Intersection Angle: The intersection angle is the interior angle between the centerline of the driveway and road. This is shown in Figures 7-4 and 7-5. The allowable intersection angle shall be within a range of seventy degrees (70o) to ninety degrees (90o).

5. Approaches: The approaches shall be constructed as shown in Figures 7-4 and 7-5.

703 - SIGHT DISTANCE

Driveways should be located and designed to enable vehicles traveling at or near legal highway speeds to see a driveway in time to safety reduce speed and enter the driveway. Conversely, the driveway should be placed in areas to allow vehicles, while within the drive entrance area, to observe the through highway traffic for a distance sufficient to make a safe entry onto the highway. Current 55 mph speed limits require 750 feet of minimum intersection sight distance. The sight distance required will be based on the design speed and the minimum intersection sight distance according to ODOT Location and Design Manual.

704 - DRIVE PIPES

A county drive pipe policy has been adopted to achieve uniformity in drive pipe installations.

1. Existing Road Frontage: All drive pipes installed along existing road frontage shall conform to either the County's or an individual township's adopted pipe policy. The developer and/or owner shall be responsible for seeing that the appropriate permit is obtained before the installation of the drive pipe. See Drive Pipe Information Sheet DP-1, Construction Details Sheet DP-2, and application for permit Form DP-3.

2. New Allotment Roads: In a major allotment, where new roads are to be constructed, all drive pipe sizes shall be submitted with the construction drawings for the County Engineer's approval. The supporting documentation will be required.

New home construction may be possible in the allotment before the road improvement is accepted by the County. The developer shall be responsible for obtaining the appropriate permit before any drive pipes are installed. Also, the developer shall be responsible, for drive pipes throughout the maintenance period. Any defective pipes shall be replaced according to the County's or Township's adopted pipe policy, before the road improvement receives final acceptance.

705 - YARD ENCLOSURES

Developers and/or property owners requesting the enclosure of ditches in front of their properties must obtain a permit from the County Engineer for an enclosure on a County Road or the Township Trustees for an enclosure on a Township Road.

DRIVE PIPE INFORMATION DATA SHEET

1. In accordance with Ohio Revised Code Section 5543.16. property owners are required to construct driveways and to keep driveways and approaches in repair and in working condition along public roads.

2. Driveways crossing roadside ditches represent a potential restriction to the proper flow of water in the ditch.

3. A right-of-way work permit issued by the Engineer's office is required to install a drive entrance along a county road.

4. Requests for driveways shall be made on right-of-way work permit forms (D.P.3) and shall be fully completed.

5. Driveway locations shall be marked in the field by the owner or agent. The house number shall be posted if applicable.

6. OUPS-Ohio Utilities Protection Service shall be called prior to excavating for any drive installation. (800-362-2764)

7. No construction shall begin until the right-of-way work permit is issued.

8. Driveways and drive pipes shall be installed in accordance with the requirements of the Ashland County Engineer and with the approved right-of-way work permit.

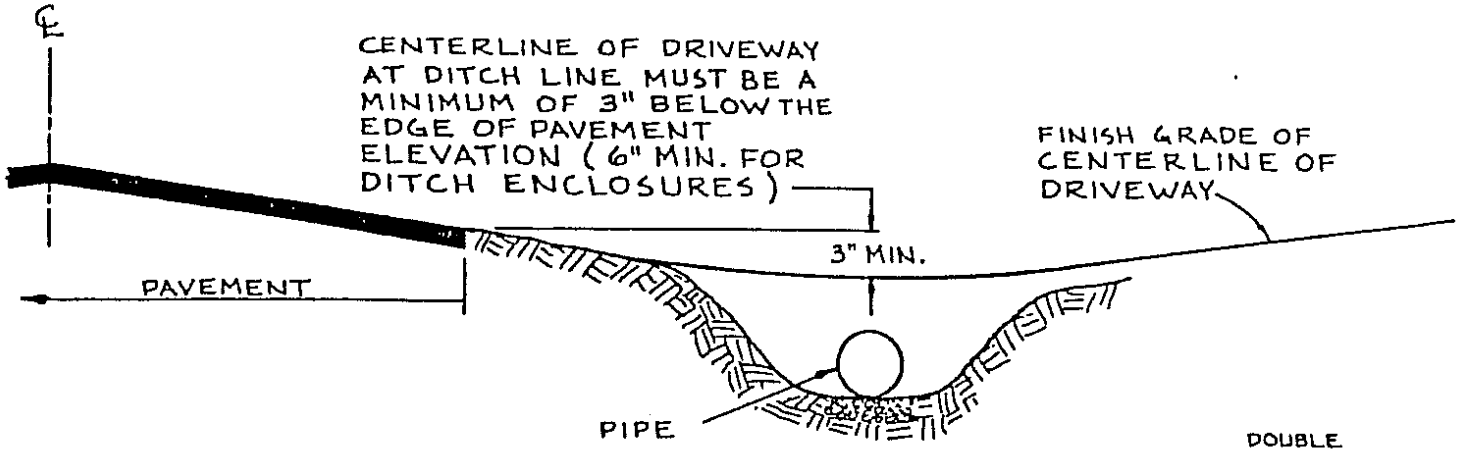
9. If a property owner does not properly install or keep driveways and approaches in repair and in working condition. following written notification, the repair may be undertaken by county forces. The cost so incurred by the county may be assessed to the property owner.

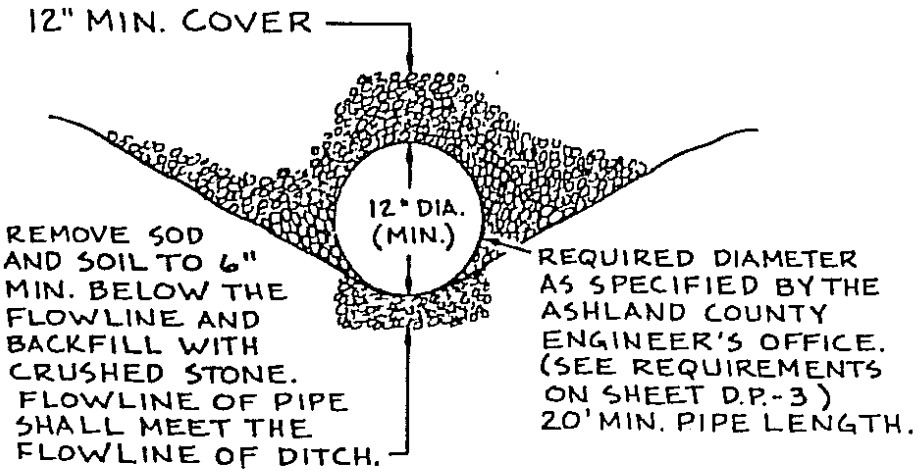
10. State highway drive entrances are the responsibility of Ohio Department of Transportation. Township road drive entrances are the responsibility of the township.

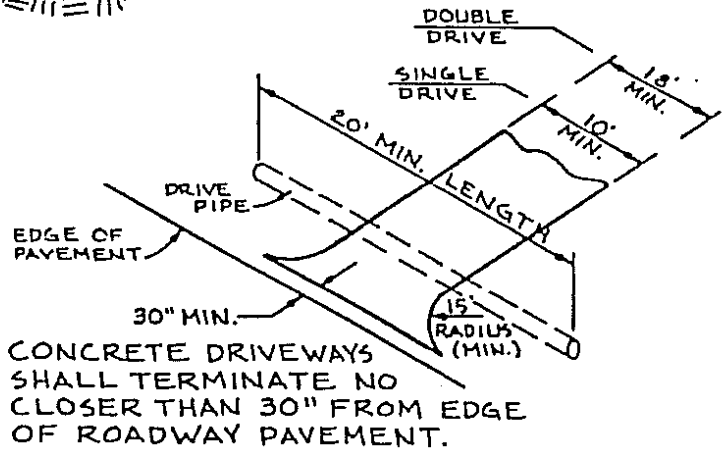
11. Construction requirements are as shown on Sheet D.P.-2.

12. Current 55 mph speed limits require 750' of site distance for a safe drive entrance. If 750' of site distance is not available. a permit may not be approved.

Ashland County Engineer, Lawrence E. Chamberlain, PE/PS
1511 Cleveland Avenue, Ashland, Oh. 44805 (419) 289-0000







NOTES:
1. MAXIMUM LONGITUDINAL GRADE ON A DRIVEWAY SHALL BE 10% (10' IN 100'). DRIVEWAYS SHALL BE CROWNED.
2. DRIVEWAY PIPE, IF REQUIRED, SHALL BE INSTALLED IN ACCORDANCE WITH THESE SPECIFICATIONS.
3. OWNER, BUILDER, OR DEVELOPER IS RESPONSIBLE FOR THE COST AND INSTALLATION OF THE DRIVEWAY AND DRIVEWAY PIPE IN ACCORDANCE WITH THESE SPECIFICATIONS.
4. DITCH ENCLOSURES REQUIRE INLETS, WHICH ARE TO BE INSTALLED NO FURTHER APART THAN 100'.
5. THE PROPERTY OWNER IS RESPONSIBLE FOR KEEPING THE DRIVEWAY ENTRANCE AND PIPE IN GOOD REPAIR.

ACCEPTABLE PIPE:
(SUBJECT TO REQUIREMENTS-SHEET D.P.-3)
1. RIVETED OR WELDED CORRUGATED METAL
2. REINFORCED CONCRETE PIPE
3. PLASTIC PIPE (ADS N-12 OR HANCOR HI-Q RECOMMENDED)

ASHLAND COUNTY ENGINEER ASHLAND, OHIO 44805	
DRIVEWAY ENTRANCE CONSTRUCTION DETAILS	
EFFECTIVE DATE 1/1/93	SHEET D.P.-2

APPLICATION FOR PERMIT FOR WORK WITHIN ROAD RIGHT-OF-WAY IN ASHLAND COUNTY, OHIO - DRIVEWAYS or YARD SECTIONS

Please type or print

APPLICATION is hereby made by:

Property Owner's name/address: _____

_____

_____

Phone: _____

Contractor/Agent name/address: _____

_____

_____

Phone: _____

AT THE FOLLOWING DESCRIBED LOCATION IN _____TOWNSHIP. ALONG COUNTY ROAD _____ . Provide exact location of work. side of road. distance to nearest road intersection, etc.)

_____

_____

NOTE: Proposed location must be clearly marked on ditch backslope by a stake with a flag.

Work will begin on or about _____.

BY SIGNING THIS APPLICATION BELOW THE APPLICANT agrees to construct or cause to be constructed and maintain the DRIVEWAY or YARD SECTION described above in accordance with this application and in accordance with the policies, procedures and requirements of the Ashland County Engineer.

SIGNED (Name) _____ Date:

(FOR COUNTY USE ONLY BELOW THIS LINE)

____Approved ____Not Approved

By issuing of this permit Ashland County is in no way approving drive entrance location as being non-hazardous or safe to either traveling motorists or individuals using the drive.

Lawrence E. Chamberlain, PE/PS, Ashland County Engineer
1511 Cleveland Avenue, Ashland, Oh. 44805 (419) 289-0000

By: _____(signed) Title: _____

Requirements: _____

_____

_____

D.P.-3
Effective 1/1/93

PERMIT NO. _____

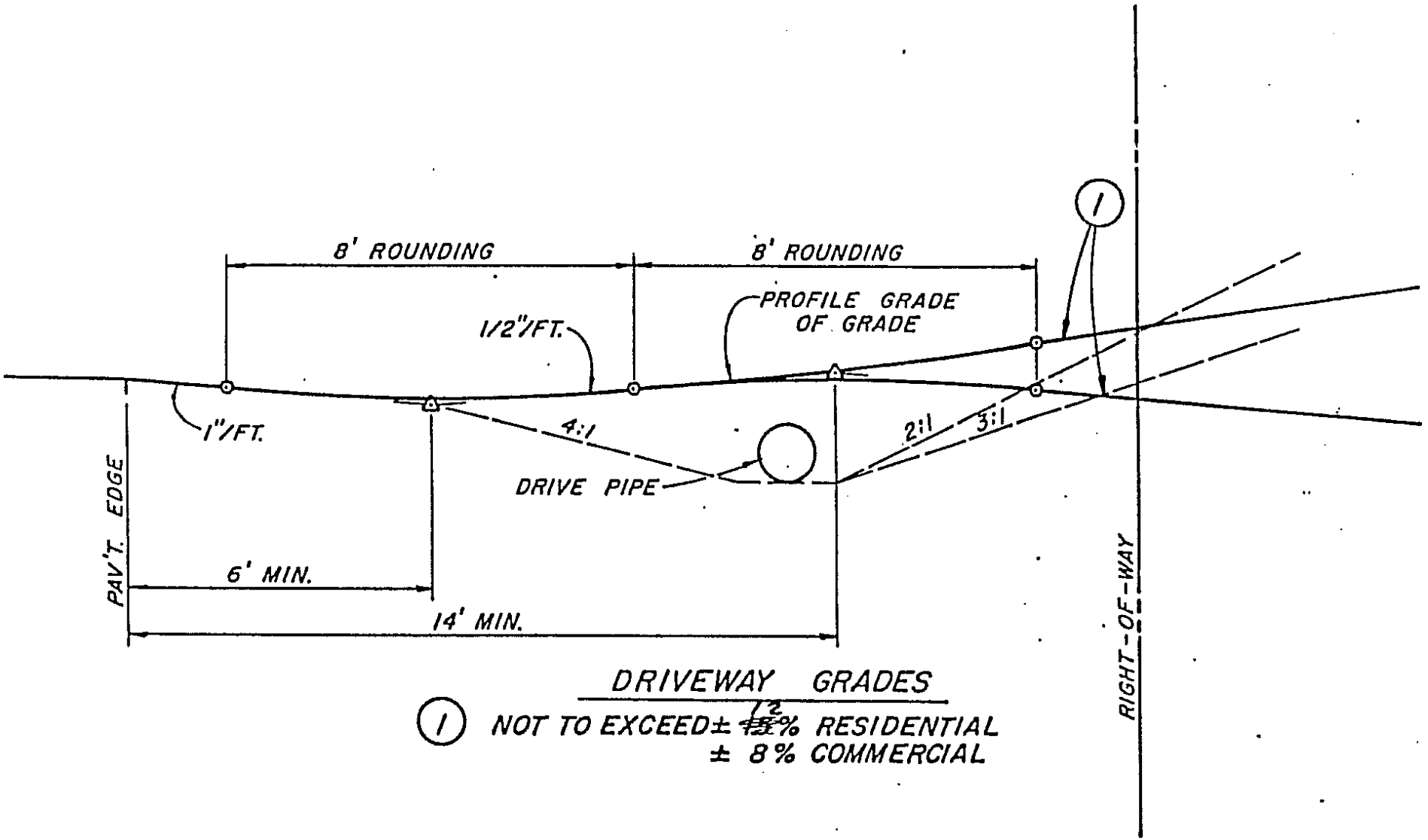


FIGURE 7-1 Driveway Profile with Ditches Open

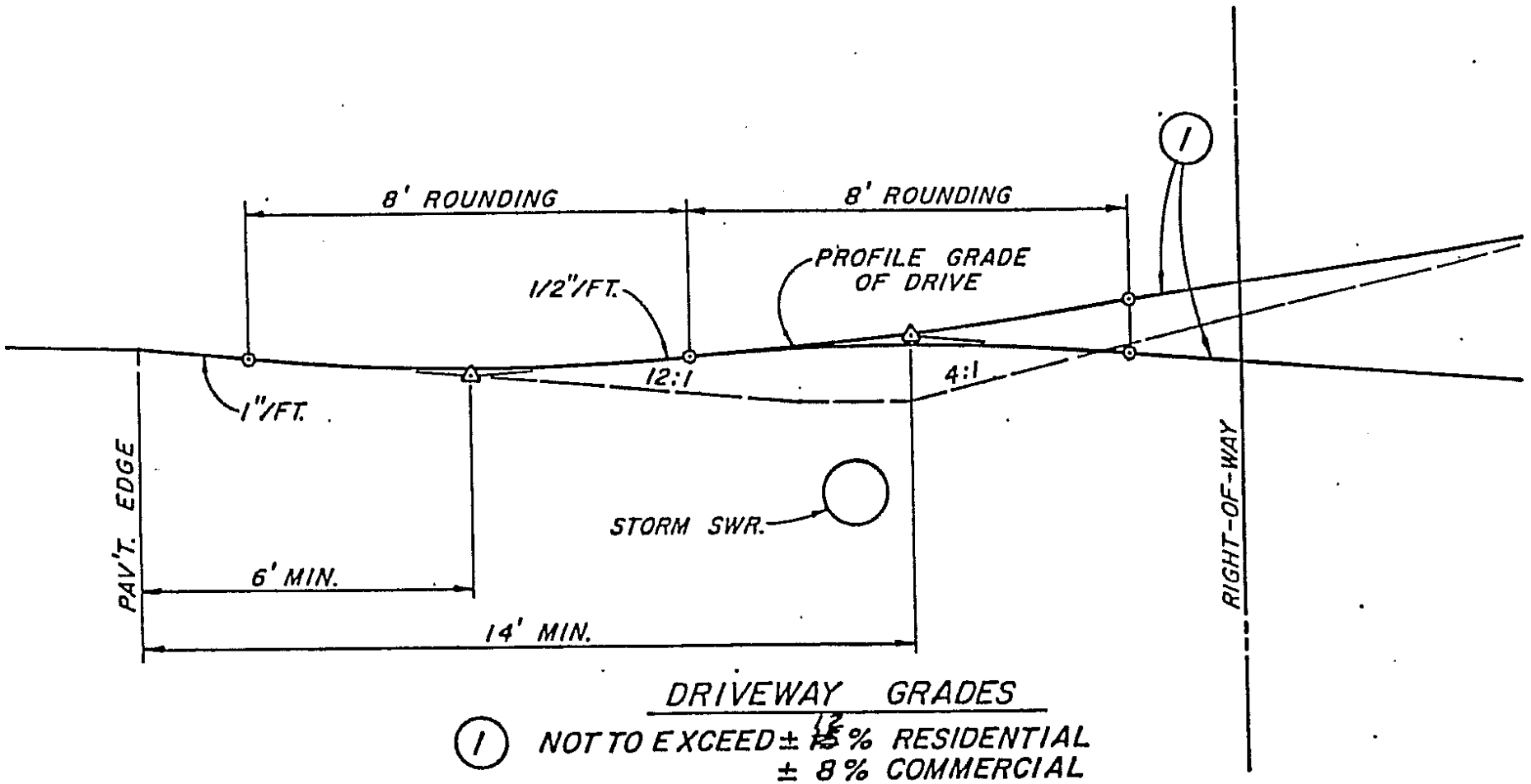


FIGURE 7-2 Driveway Profile with Ditches Enclosed

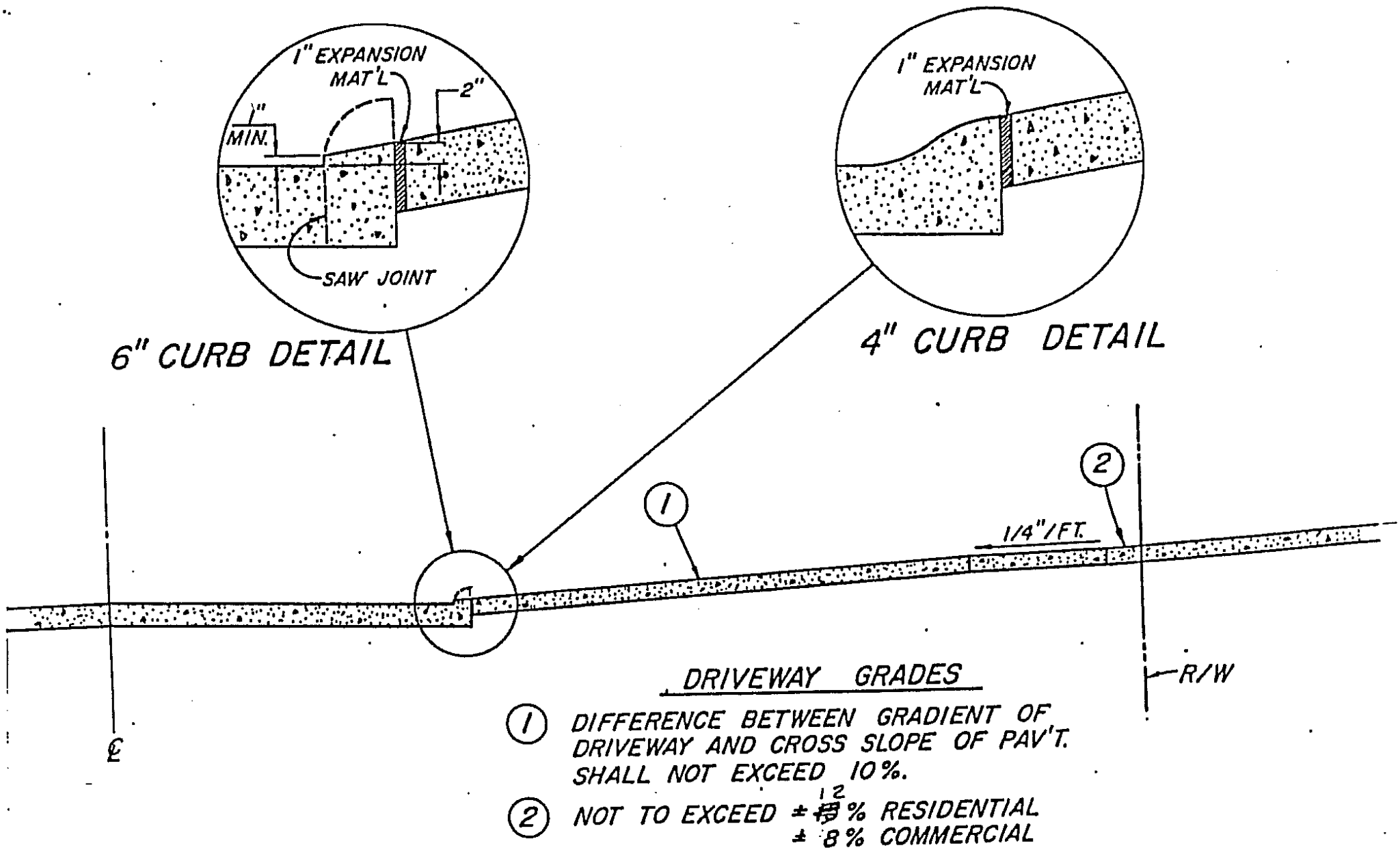
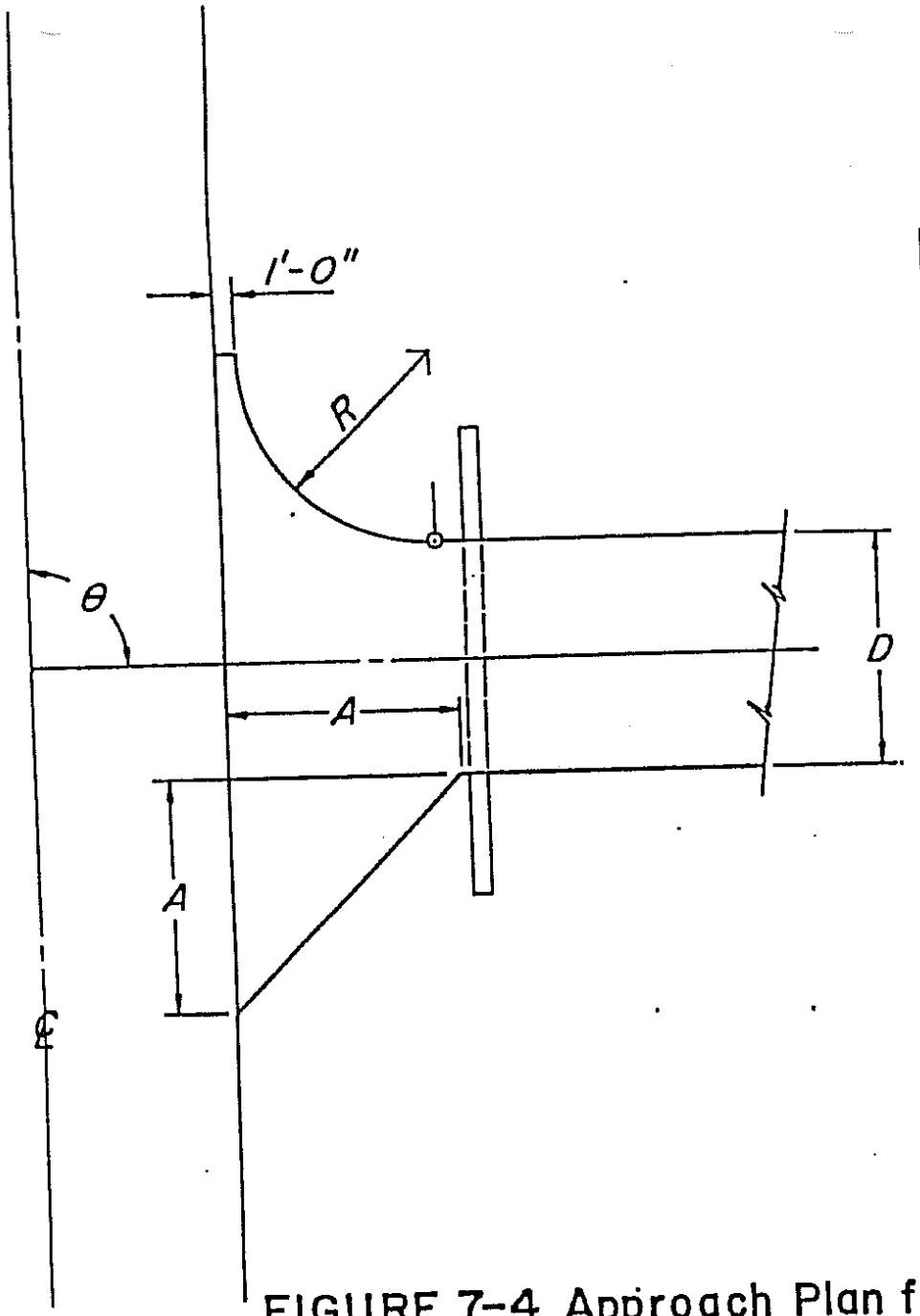


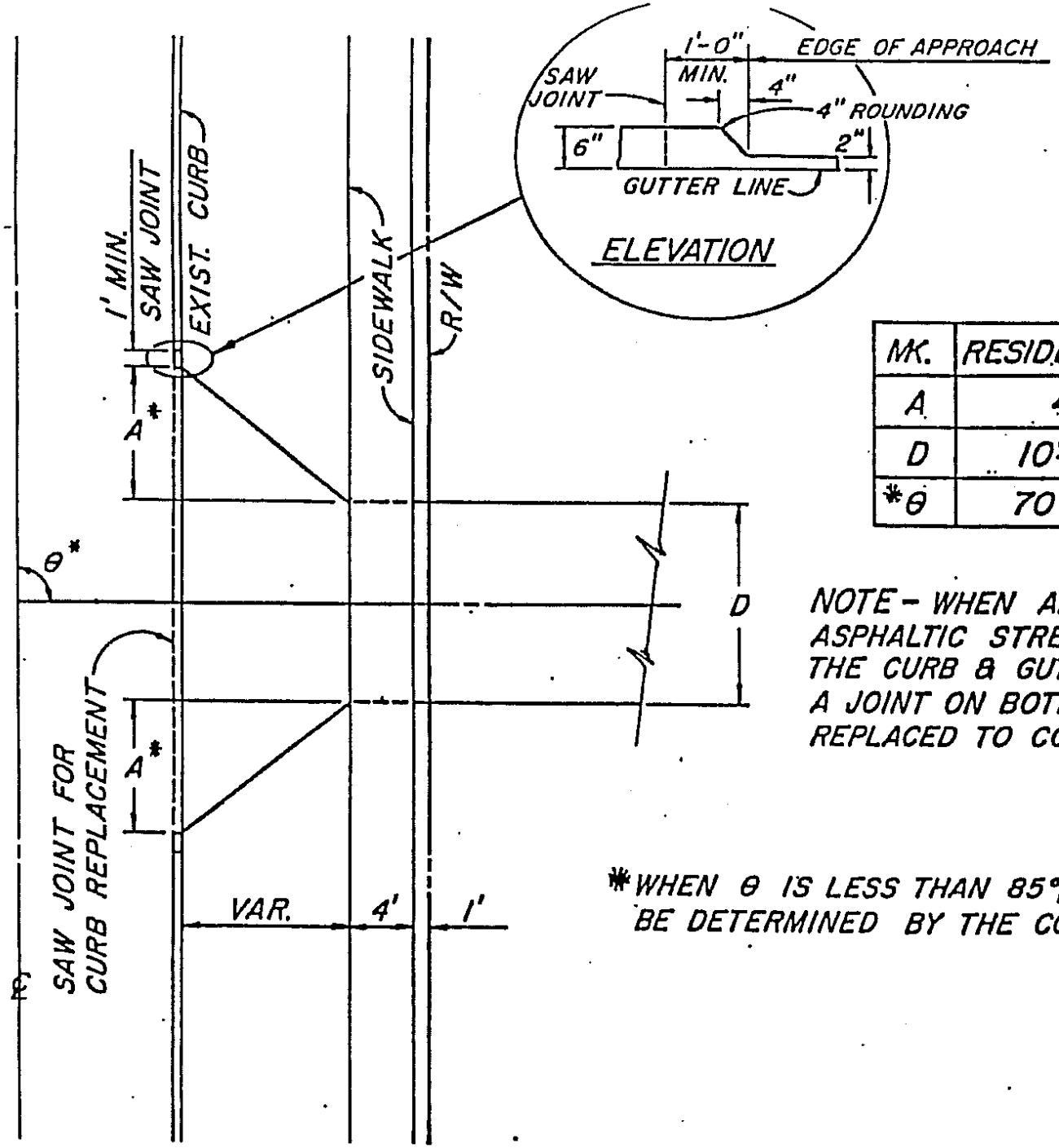
FIGURE 7-3 Driveway Profile with Curb and Gutter



MK.	RESIDENTIAL	COMMERCIAL
A	12'	15'
D	10'-20'	25'-35'
R	10'	25'
*θ	70°-90°	70°-90°

*WHEN ANGLE OF INTERSECTION IS LESS THAN 85°, DESIGN STANDARDS TO BE DETERMINED BY THE COUNTY ENGINEER.

FIGURE 7-4 Approach Plan for Driveway with Ditches Open/Enclosed



MK.	RESIDENTIAL	COMMERCIAL
A	4'	8'
D	10'-20'	25'-35'
*θ	70°-90°	70°-90°

NOTE - WHEN APPROACH IS INSTALLED ON ASPHALTIC STREET W/CONC. CURB & GUTTER, THE CURB & GUTTER SHALL BE REMOVED TO A JOINT ON BOTH SIDES OF THE DRIVE AND REPLACED TO CONFORM WITH THE CURB DETAIL.

*WHEN θ IS LESS THAN 85°, DESIGN STANDARDS TO BE DETERMINED BY THE COUNTY ENGINEER.

FIGURE 7-5 Approach Plan for Driveway with Curb and Gutter

The person requesting the enclosure must submit an application for a yard enclosure permit. When this permit is granted by the County Engineer, the property owner may then enclose the ditch. The property owner is required to pay the entire cost of this enclosure, including materials and labor to complete the work. Following completion of this work it will be inspected for approval by the County Engineer. The Township Trustees may have a similar procedure for township roads. All design standards for this enclosure shall be in accordance with the standards for drainage structures. The application and permit form for a yard pipe installation is shown in on Forms DP-2 and DD-3..

706 - ROAD BORINGS

An individual or firm has no authority to bore under or occupy county or township highways without approval of the Ashland County Commissioners. The County Commissioners have delegated this authority to the Ashland County Engineer.

Any owner requiring a boring across a roadway must first obtain written approval from the County Engineer's Office. Work shall not begin until permission is granted by the County Engineer's Department. In order to secure this approval, the owner or his agent must request in writing in duplicate the permission to bore the roadway. This request must state the name, address and phone number of the owner and the contractor or agent. It must state the purpose of the bore and the methods and materials to be used for the construction. The request shall include a sketch of the proposed bore and information as to the exact location along the road of said bore, as measured from a known location. The date that the work is expected to be performed shall be given, as well as a statement holding the county harmless for damage caused as a result of the boring and to said installation when the county is performing road maintenance. The County Engineer will review said request and will respond in writing within five (5) working days. The response will be to issue the permit to bore as requested, to issue the permit as may be modified by the engineer, or to deny the permit. The reasons for a denial will be given by the engineer. The issuance of the permit is the authority to construct the bore. OUPS must be notified by the owner or his agent.

Should a road bore require the occupation of any part of the travelled way, construction signs in accordance with the OMUTCD will be required.

ARTICLE VIII
PAVEMENT DESIGN

800 - PURPOSE

This article sets forth the pavement design specifications in a practical and orderly manner. The specifications were developed to provide for design in accordance with the Location and Design Manual of the Ohio Department of Transportation.

801 - PAVEMENT THICKNESS AND COMPOSITION

Factors that effect the pavement thickness include the road's classification, the traffic type and volumes, and the soil types. The developer's engineer should meet with the Ashland County Engineer for agreement on these and other basic design factors.

Once these basic design factors have been determined, the pavement can be designed. All pavement surfaces will be of bituminous plant mix materials unless a chip & seal is required by the County Engineer for improving skid numbers.

802 - INSPECTION

Approval of the subgrade and road construction material must be obtained from the County Engineer or his authorized representative. Each course of material will be inspected and accepted prior to placement of the succeeding course. All materials and work shall be in accordance with ODOT, Construction and Materials Specifications.

ARTICLE IX

DRAINAGE

900 - PURPOSE

The development of all new and modified drainage systems will be governed by the guidelines set forth in this article, in coordination with the stormwater runoff control criteria of Article X.

901 - PRELIMINARY DRAINAGE PLAN

A preliminary drainage plan for all major subdivisions shall be submitted to the County Engineer for review and approval. These plans shall include a drawing showing the general runoff pattern of the area which is to be improved, as well as the runoff patterns of adjacent areas which may affect or be affected by the proposed improvement. A copy of the preliminary plat required by the Ashland Regional Planning Commission may serve as the preliminary drainage plan. Sufficient data shall also be supplied to check the feasibility of the drainage system as proposed by the developer.

902 - ADEQUATE DRAINAGE OUTLET

Surface water runoff from a development shall be drained through an adequate outlet. The location of the outlet shall be approved by the County Engineer. The outlet may be a ditch, stream, storm sewer, or approved retention basin, which has sufficient capacity to accommodate the runoff.

903 - DRAINAGE EASEMENT

Easements in accordance with the Subdivision Regulations of Ashland County shall be required for all existing and proposed drainage courses that are not within the road right-of-way. The owner shall be responsible for obtaining and properly recording any easements required outside the subdivision boundaries.

All drainage easements shall be shown and labeled on the plat and construction drawings. Maintenance of these drainage courses is the responsibility of the owners whose lands are benefitted by the drainage system.

The easements shall be a minimum of thirty (30) feet wide or wider as directed by the Engineer. The final location and width of easements shall be approved by the County Engineer.

904 - RIGHT-OF-WAY FOR DRAINAGE STRUCTURES

When a drainage structure extends beyond the limits of the normal road right-of-way, additional right-of-way shall be provided around the structure to allow for adequate maintenance.

905 - FINAL DRAINAGE PLAN

A final drainage plan shall include drawings of the entire drainage system and shall be submitted to the County Engineer for approval. The plan shall conform to the guidelines herein and to any special requirements of the Ashland Regional Planning Commission in approving the preliminary plan. The submittal shall also include the engineering calculations used in determining the design of the drainage courses, drainage structures, and stormwater runoff control structures.

All drainage construction drawings shall be prepared under the direction of and by a Professional Engineer. The drainage drawings must be approved by the County Engineer prior to the construction of any portion of the drainage system.

All drainage design and hydraulic calculations shall be in accordance with the Ohio Department of Transportation Location and Design Manual.

Minimum requirements for drawings and engineering calculations for on site drainage shall be as noted in Article IV and also the following:

1. The acreage of all tributary drainage areas and their sum.

2. Times of concentration, intensity, and runoff coefficients used in the Rational Method to estimate the amount of runoff.

   Overland slopes, curve numbers, hydraulic lengths, etc., used in the SCS Peak Discharge Method.

   For methods other than these two, enough information must be provided to the County Engineer to allow for an accurate review.

3. Discharges in cubic feet per second (cfs), velocities in feet per second (fps), and any additional data needed to establish that the drainage system will convey the flow

4. The plan and profile of all drainage courses.

5. Cross sections along the drainage course at one-hundred (100) foot intervals or as directed by the County Engineer.

6. Sizes and types of all drainage improvements - detailed standard drawings.

906 - COMPUTATION OF STORMWATER RUNOFF

Given the type of drainage structure to be designed, the rate of runoff shall be computed using the storm frequencies given below:

Structure	Storm Frequency (Yrs.)
Storm sewers	5
Open ditches	10
*Culverts (minor)	10
*Culverts (major)	25
Bridges	50
Floodplain structures	100

*A minor culvert is designed to handle the runoff from a tributary drainage area of less than 200 acres. Whereas a major culvert is designed to handle the runoff from a tributary drainage area of greater than 200 acres.

The design storm frequency to be considered for an individual structure may be altered by the County Engineer where the health and safety of residents would be endangered by the hazards of floodwater.

The peak runoff for all culverts, storm sewers, bridges, or drainage channels shall be designed in accordance with the Location and Design Manual of the Ohio Department of Transportation. In accordance with this manual the tributary drainage of smaller drainage areas shall be by the rational method and the peak runoff from larger areas shall be calculated based on USGS Report 86-4197. The acreage to be used for the rational method is less than six acres. All acreages larger than six acres shall use the USGS Report 86-4197 calculations.

Should the owner desire to use other peak runoff formula, he shall obtain written approval of the County Engineer, upon written application by the owner/developer.

907 - BRIDGES AND SPECIAL STRUCTURES

The design and construction of bridges or any other special drainage structure shall be reviewed and approved by the County Engineer.

908 - CULVERTS

Culverts installed to convey water under a roadway embankment shall be designed so as not to impose a hazard to the roadway or surrounding area. All culverts shall be designed in accordance with the ODOT Location and Design Manual and shall be installed in accordance with ODOT's Construction and Material Specifications.

The design of all culverts shall be in accordance with the Location and Design Manual of the Ohio Department of Transportation.

909 - OPEN DITCHES

Open ditches shall be designed in accordance with the Location and Design Manual of the Ohio Department of Transportation.

An open ditch shall have a recommended grade of not less than one percent (1%) but in no case shall the grade be less than 0.48%. Ditches susceptible to erosion may need to be lined to prevent erosion. The ditch's susceptibility to erosion shall be based upon the soil type in the area and the velocity of the estimated peak flow.

A drainage easement shall be provided for open ditches that are outside the road right-of-way in accordance with Section 903. The width of the easement shall be as itemized in the Subdivision Regulations of Ashland County unless additional width is required by the County Engineer due to unusual conditions. This easement shall be shown on the construction drawings and on the final plat and labeled "Channel Easement."

910 - DAMS AND PONDS

Plans shall be submitted to the County Engineer for approval of any proposed dams or ponds. If the dam or pond falls within the bounds of ORC Section 1521.06, the developer shall apply for a permit from the State of Ohio, Department of Natural Resources, Division of Water.

The construction of ponds, which could be used for fire protection and/or stormwater and sediment control, is encouraged.

911 - SUBSURFACE DRAINAGE

Subsurface drainage shall be used as required to control the flow of groundwater and maintain firm, stable subgrades and foundations.

Pipe underdrains shall be used under roadways with bituminous pavement over an aggregate base or where ditches are enclosed.

In the design of a pipe underdrain system, consideration shall be given to the type of pipe, filter material, and surrounding soils that are to be drained to avoid clogging and achieve adequate hydraulic capacity.

912 - STORM SEWERS

The County Engineer may require a storm sewer system if an open ditch creates a hazard to traffic. Erosion may also be a problem with open ditches. The system shall be designed to accommodate the runoff from the tributary drainage area.

A drainage easement, shall be provided for storm sewers outside of the road right-of-way. This easement shall be shown on both the final plat and the construction drawings and labeled "Storm Sewer Easement."

For a storm sewer installed within a roadway with curbing, curb inlets shall be provided. If a storm sewer is installed away from the roadway without curbing; a drainage swale shall be provided over the sewer to drain to inlet basins.

All storm sewers shall be designed in accordance with the Location and Design Manual of the Ohio Department of Transportation. The County Engineer shall be consulted for design criteria for unusual situations such as; limited cover, excessive cover, abnormal pH of water, limited slope, etc..

913 - DRAINAGE PIPE SPECIFICATIONS

All drainage pipes shall be of the size, kind, and class required in accordance with the Location and Design Manual of the Ohio Department of Transportation and shall meet the full satisfaction of the County Engineer. All drainage pipe shall be installed in accordance with the ODOT Construction and Materials Specifications.

914 - APPURTENANCES TO STORM DRAINAGE PIPE

All appurtenances shall conform to the design standards of the ODOT Location and Design Manual and be constructed in accordance with the ODOT Standard Construction Drawings and the ODOT Construction and Materials Specifications.

915 - HEADWALLS, RIPRAP, STONE PROTECTION

The design of headwalls shall conform to ODOT's Standard Construction Drawings and the Location and Design Manual.

916 - STORM SEWER INSTALLATION

All construction of drainage pipe, storm sewers, or appurtenances thereto shall be in accordance with the ODOT Construction and Materials Specifications.

917 - DRAINAGE MATERIALS TESTING

To insure quality in any improvement, testing may be required. All testing will be in accordance with the applicable ASTM Specification as referenced in the ODOT Construction and Material Specifications. The costs of all testing will be borne by the Contractor. The determination of testing to be done will be made by the County Engineer.

The County Engineer reserves the right to waive any and all of specified tests or to accept a Certificate of Conformance in lieu of such tests.

918 - MANUFACTURER'S REPRESENTATIVE

A representative, with knowledge of storm sewer installation, may provide valuable information during initial construction. Guidelines pertaining to this practice are as follows:

1. Secure services of competent manufacturer's installation instructor when laying pipe and fittings.

2. The instructor shall be on the job when pipe laying starts and remain until the County Engineer is satisfied that the contractor is installing the pipe properly.

3. Thereafter, the instructor shall be available for consultation as deemed necessary by the County Engineer.

4. There shall be no cost to Ashland County for the instructor's services with the pipe.

5. The above requirements may be waived, if in the opinion of the County Engineer, such instruction is not necessary.

ARTICLE X

STORMWATER RUNOFF CONTROL CRITERIA

1000 - PURPOSE

This article shall serve as the minimum requirements for control of stormwater runoff leaving developments. These guidelines were developed to prevent accelerated runoff, flooding, and stream channel erosion that occurs in conjunction with developing areas. These regulations require controlling the discharge rate of runoff prior to its release to offsite land. The purpose of controlling the release rate is as follows:

1. To Permit development without increasing the flooding of other lands.

2. To Minimize damage to receiving streams caused by accelerated runoff.

3. To Provide a basis for design of storm drainage systems on land above or below undeveloped areas, which will preserve the rights and options of both contributing and receiving property owners, and assure the long term adequacy of such systems.

1001 - DESIGN FREQUENCY

To prevent the damages caused by accelerated stormwater runoff from developing areas, the increased peak rates and volumes of runoff shall be controlled such that:

1. The peak rate of runoff from the critical storm and all more frequent storms occurring on the development area does not exceed the peak rate of runoff from a one (1) year frequency storm (of 24 hours duration) occurring over the same area under pre-development conditions.

2. Storms of less frequent occurrence (longer return periods) than the critical storm, up to the one-hundred (100) year storm, have peak runoff rates no greater than the peak runoff rates from equivalent size storms under pre-development conditions. Consideration of the one, two, five, ten, twenty-five, fifty, and one hundred year storms will be considered adequate in designing to meet this standard.

The critical storm for a specific development area is determined as follows:

1. Determine by appropriate hydrologic methods the total volume of runoff from a one (1) year frequency, 24-hour storm occurring over the development area before and after development.

2. From the volumes determined in (1), determine the percentage increase in volume of runoff due to development, and using this percentage, select the 24-hour critical storm from the following table:

If the Percentage Increase in Volume of Runoff is:

Equal to or Greater Than	And Less Than	The critical storm for peak rate control will be:
0	10	1 year
10	20	2 year
20	50	5 year
50	100	10 year
100	250	25 year
250	500	50 year
500	--	100 year

Storage volume does not have to be provided for runoff from offsite upstream areas. Upstream runoff should be conveyed through the site in accordance with the current runoff conditions.

Methods for controlling increases in stormwater runoff peaks and volumes may include but are not limited to:

a. Retarding flow velocities by increasing friction; for example, grassed road ditches rather than paved street gutters where practical (low density development areas, access roads, etc.), discharging roof water to vegetated areas, on grass and rock lined drainage channels;

b. Grading and construction of terraces and diversions to slow runoff and the use of grade control structures to provide a level of control in flow paths and stream gradients;

c. Induced infiltration of increased stormwater runoff into the soil where practical; for example, constructing special infiltration areas where soils are suitable; retaining topsoil for all areas to be revegetated; or providing good infiltration areas with proper emergency overflow facilities; and;

d. Provisions for detention and retention; for example, permanent ponds and lakes with stormwater basins provided with proper drainage, multiple use areas for stormwater detention and recreation, wildlife, transportation, fire protection, aesthetics or subsurface storage areas.

1002 - FINAL STORMWATER RUNOFF CONTROL PLAN

A final Stormwater Runoff Control Plan shall be submitted to the County Engineer for approval. The design engineer should consult the County Engineer prior to the completion of the plan to insure that it can be developed in accordance with currently accepted policies. The final plan shall include all of the engineering data required in Section 1001 as well as the following:

1. The hydrologic data of the tributary area, including; time of concentration, intensity, runoff coefficients, hydraulic length, etc..

2. The hydrographs for the tributary area prior to development.

3. The critical storm hydrograph.

4. The hydrographs of less frequent storms than the critical storm, so peak runoff rates can be checked (i.e., water level).

5. The location and type of the proposed retention/detention facility.

6. The storage volume required for the retention/detention facility.

7. The maximum permissible release rate from the retention/detention facility (i.e., outflow hydrograph).

8. Complete and timely drainage of stored runoff by provision of sufficient basin slope, adequate pumping facilities, and/or alternate release mechanisms without causing secondary problems.

9. The design of a spillway, or other means, for release of stored water and for bypassing excess flows of exceedingly rare flows that cannot be accommodated by the storage facility.

10. Safety precautions.

1003 - MAINTENANCE

The County Commissioners will assume overriding responsibility for permanent maintenance of structures and other facilities designed to manage stormwater runoff. In these situations the Commissioners may establish a fund and assessments may be paid into it by benefiting property owners to finance the costs of these maintenance activities. When a fund is established and assessments levied to cover maintenance costs the requirements of Section 6131 of the Ohio Revised Code shall be followed.

In some cases individual property owners or property owners associations may contract with the Board of County Commissioners to retain ultimate responsibility for the maintenance of stormwater management structures. When this occurs the terms of the agreement shall be acceptable to the Planning Commission.

Where no water management structures are proposed, the detention will generally be in grassed areas on individual lots. In these cases, the property owner shall be responsible for all maintenance activities. This fact shall be shown on the Final Plat of each individual property or lot affected.

1004 - RIGHT-OF-ENTRY

Ownership and/or easements for the purpose of permanent maintenance shall be granted to the Township or County for access to all stormwater control structures and facilities.

ARTICLE XI

EROSION AND SEDIMENTATION CONTROL

1100 - PURPOSE

The purpose of this article is to provide information on minimizing erosion and sedimentation problems encountered during the land development process. This engineering code hereby adopts the Soil Sediment Control Section of the Subdivision Regulations of Ashland County. The USDA, Natural Resources Conservation Service's handbook, Water Management and Sediment Control for Urbanizing Areas, should be consulted for further information. The Ashland Soil & Water Conservation District is the referral and approving agency for erosion and sedimentation control matters.

1101 - EROSION AND SEDIMENT PROBLEMS ASSOCIATED WITH LAND DEVELOPMENT

The development process is such that many people may be adversely affected from small or large areas of land undergoing development. Unplanned water disposal and uncontrolled erosion and sediment from these areas may cause considerable economic damage to individuals and the general public. The following are a few of the typical problems associated with developments:

1. A large increase of area exposed to soil erosion and runoff.

2. Increased volume of runoff, soil movement, sediment and peak flows caused by:

   A. Removal of natural cover.

   B. Increase of impervious surface areas.

   C. Changes in drainage areas caused by grading.

   D. Changes in volume and duration of water concentration caused by changes in grade, distance and surface roughness.

   E. Reduction of water intake of soils from compaction by construction equipment.

   F. Prolonged exposure of unprotected sites to adverse weather.

3. Altering ground water regime that may adversely affect drainage systems, slope stability, vegetation and establishment of new plants.

4. Exposing subsurface materials that are too rocky, too acid, or otherwise unfavorable for establishing vegetation.

5. Encroachment on floodplain and waterways.

6. Poor scheduling of construction activities.

1102 - GENERAL PRINCIPLES FOR EFFECTIVE WATER MANAGEMENT AND EROSION/SEDIMENTATION CONTROL

Proposed methods of erosion and sedimentation control will be considered on individual merits, subjected to the approval of the County Engineer. It is suggested that practical combinations of the following soil and water conservation practices, when skillfully planned and applied will provide effective erosion and sedimentation control.

1. Identification by developer at the preliminary planning phase of onsite and offsite areas vulnerable to erosion and sedimentation.

2. Proposal by developer at preliminary engineering phase for control of erosion and sedimentation. Permanent as well as temporary methods of control should be noted.

3. Development of a construction sequence, which keeps disturbed areas small and exposed for the shortest time possible.

4. Preservation of existing trees, shrubs, grasses, or other plant life is encouraged where possible. The existing vegetation may be useful in slowing runoff.

5. Protection of exposed critical areas with temporary vegetation and/or mulch during construction.

6. Provide fast-growing grasses or sodding until more permanent seeding is established.

7. Permanent vegetation, including the use of sod, and structures should be installed and maintained as soon as possible to help control water and sediment damage.

8. Intercept or divert runoff originating upgrade away from the construction site so as to minimize the amount of flow over the construction site.

9. Sediment basins (debris or desilting basins and silt traps) should be installed and maintained to remove sediment from runoff waters from land undergoing construction.

10. Terraces, diversions, and grassed waterways should be installed and maintained as part of the water disposal system to further control water and sediment damage.

11. Drainage swales shall be constructed and seeded, sodded, or protected with fabric material until vegetation is established.

12. New construction and drainage swales shall be seeded within three weeks after installed.

1103 - GUIDELINES FOR SEDIMENT CONTROL

See Ashland County Subdivision Regulations

1104 - REVIEW PROCEDURE

All developments will be reviewed by the County Engineer to determine if control measures are needed to minimize water, erosion, and sediment problems. Should control measures be required, the plan will be forwarded to the Ashland Soil & Water Conservation District for review, comment, and approval.

An erosion and sediment control plan shall be submitted for all major subdivisions. Subdivisions containing less than five (5) lots, which are a portion or phase of a larger proposed allotment, require the submital of a tentative erosion and sediment control plan for the entire allotment.

The County Engineer upon recommendation from the Ashland Soil and Water Conservation District shall accept or suggest modifications of all erosion and sedimentation control plans.

ARTICLE XII

SOIL PROPERTIES

1200 - PURPOSE

Soils information within this article is intended for overall land use planning - planning site investigations and evaluating land use alternatives prior to design and construction. A complete soil survey has been prepared for Ashland County. Copies of this are available at the Ashland Regional Planning Commission. There is a copy on file in the County Engineer's Office.

It is important that the developer use the soils maps or other soils engineering data for development in Ashland County. The following items should be considered:

1. Soil properties at the elevation of final construction should be used for design of improvements.

2. The depth ot seasonal high water table should be used by the design engineer to determine the need and type of subsurface drainage.

3. The corrosivity is used as a guide for determining the type of culvert pipe.

4. There is often required special soils engineering work to address potential frost action, construction of dams, dikes or high embankments, or shrink-swell potential.

The soil characteristics are only applicable to a depth of five (5) or six (6) feet.

Small areas of different soils may not be shown on a soils map, due to the map's scale. On site investigation by experienced personnel may be required for a specific site.

ARTICLE XIII

SURVEYING STANDARDS

1300 - PURPOSE

The purpose of this article is to define the requirements that shall be followed in land surveying practices within Ashland County. Included are standards and accuracies that are acceptable for land surveys and the preparation of survey and subdivision plats.

1301 - GENERAL SURVEYING REQUIREMENTS

All surveys shall conform to the ORC Chapter 4733, Section 4733-37 - Minimum Standards for Boundary Surveys in the State of Ohio, and Chapter 711 - Plats.

1302 - SURVEY PLAT REQUIREMENTS

The survey plat shall be in accordance with the Subdivision Regulations of Ashland County.

ARTICLE XIV

CONSTRUCTION PROCEDURES AND REQUIREMENTS

1400 - PURPOSE

This article outlines the general requirements of a developer and/or contractor during the construction of an improvement.

1401 - GENERAL SPECIFICATIONS

Where specifications are not specifically stated within this text, those of the Ohio Department of Transportation will be used, unless others are approved by the County Engineer.

Specifications within this text and those of ODOT are not intended to replace those prepared by the developer's engineer, but rather they are to augment them. Specifications of the County and ODOT will establish the minimum guidelines acceptable to the County Engineer and for which the developer will be held responsible to follow.

1402 - CONSTRUCTION SCHEDULE

After approval of the construction plans by the County Engineer and before starting any construction work, the developer shall submit a construction schedule to the County Engineer for his approval. The construction schedule shall show the starting and completion dates for each phase of construction work, including a date for the completion of the entire project.

During the progress of work the County Engineer may accept a revised project completion date if he determines that unusual factors have caused a delay that makes compliance with the original date unreasonable.

1403 - PRECONSTRUCTION CONFERENCE

At least one (1) week before any work is started on the improvements the contractor shall meet with the County Engineer for a preconstruction conference. At this meeting the contractor and the County Engineer can go over the construction schedule, inspection procedures, material requirements, etc..

1404 - CONSTRUCTION INSPECTION

The County Engineer shall be responsible for the inspection of all improvements that fall under his authority. Inspection requirements are a follows:

1. Inspectors employed by the County Engineer shall be authorized to inspect any work done or materials furnished. Such inspection may extend to all parts of the work and to the preparation, fabrication, or manufacture of the materials.

2. The inspector shall not be authorized to revoke, alter or waive any requirements of the specifications or plans. He shall be authorized to call to the attention of the contractor any failure of the work or materials to conform to the specifications and/or plans. He shall also have the authority to reject materials which do not meet specifications or requirements and suspend that portion of the work involved until any question at issue can be referred to and acted upon by the County Engineer.

3. Two (2) working days before the start of each phase of the construction, the developer and/or contractor shall notify the County Engineer so arrangements can be made for inspection. Failure to notify the County Engineer can result in the County requiring the uninspected work to be removed.

4. The County Engineer shall determine the amount of inspection, including laboratory and/or other tests, required to assure that the developer and/or contractor has complied with the specifications and the approved plans.

5. The developer and/or contractor shall have available on the project, at all times, one (1) approved copy of all plans and specifications required and also shall cooperate with the inspector in every way possible.

6. The developer shall pay the actual wage or contract cost of the inspection service plus fifty percent (50%) to cover such items as; employee benefits, engineering services, and transportation and office costs.

7. All inspection fees must be paid before acceptance of the improvements by the County Engineer.

1405 - PROJECT SUPERINTENDENT

The developer and/or contractor shall at all times have a competent superintendent acting as his agent on the project. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall have authority to execute the plans and specifications.

1406 - GRADE STAKES

Pavement and pipe grade stakes shall be set at twenty-five (25) foot intervals on horizontal and vertical curves for all grades less than one percent (1%). Tangent pavement and pipe grades over one percent (1%) may be set at a maximum interval of fifty (50) feet. The inspector may ask for additional grade or alignment stakes if it is deemed necessary.

1407 - TEMPORARY EROSION & SEDIMENTATION CONTROL

This work shall consist of temporary control measures as shown on the plans or ordered by the County Engineer during construction to control erosion and sedimentation.

Temporary control shall include construction work outside the right-of-way when ordered by the County Engineer. The County Engineer shall have the authority to limit the amount of surface area of erodible earth material exposed at any one time.

Any construction which calls for the earth to be uncovered for more than three (3) weeks shall have temporary control measures taken to limit erosion and sedimentation.

If the contractor at any time does not provide required temporary control, the County Engineer shall notify him by letter. If after two (2) weeks from the date of the letter the contractor has not performed the required work, the County Engineer shall do so at the expense of the developer.

1408 - REPAIR OF DAMAGE

Any improvements damaged by construction traffic, local traffic, or by any other means shall be repaired or replaced before starting the next phase of construction.

1409 - FINAL CLEAN UP

Upon completion of the improvements and before acceptance, the developer and/or contractor shall clean all ground occupied or affected by them in connection with the work. The entire area shall be left in a neat and presentable conditions satisfactory to the County Engineer.

1410 - MAINTENANCE OF IMPROVEMENTS

The developer shall be responsible for the maintenance of the improvements during the construction period and during the maintenance period in accordance with the Subdivision Regulations of Ashland County. During this time he shall be responsible for providing the service necessary to guarantee access to all occupied lots. If the developer fails to perform such necessary maintenance or service within the time specified, the County Engineer may cause said maintenance or service and bill the developer for said work.