

ORDINANCE

1991-2

SUBDIVISION AND LAND DEVELOPMENT ORDINANCE

FOR

TOWNSHIP OF MARION

BERKS COUNTY, PENNSYLVANIA

AUGUST 29, 1991

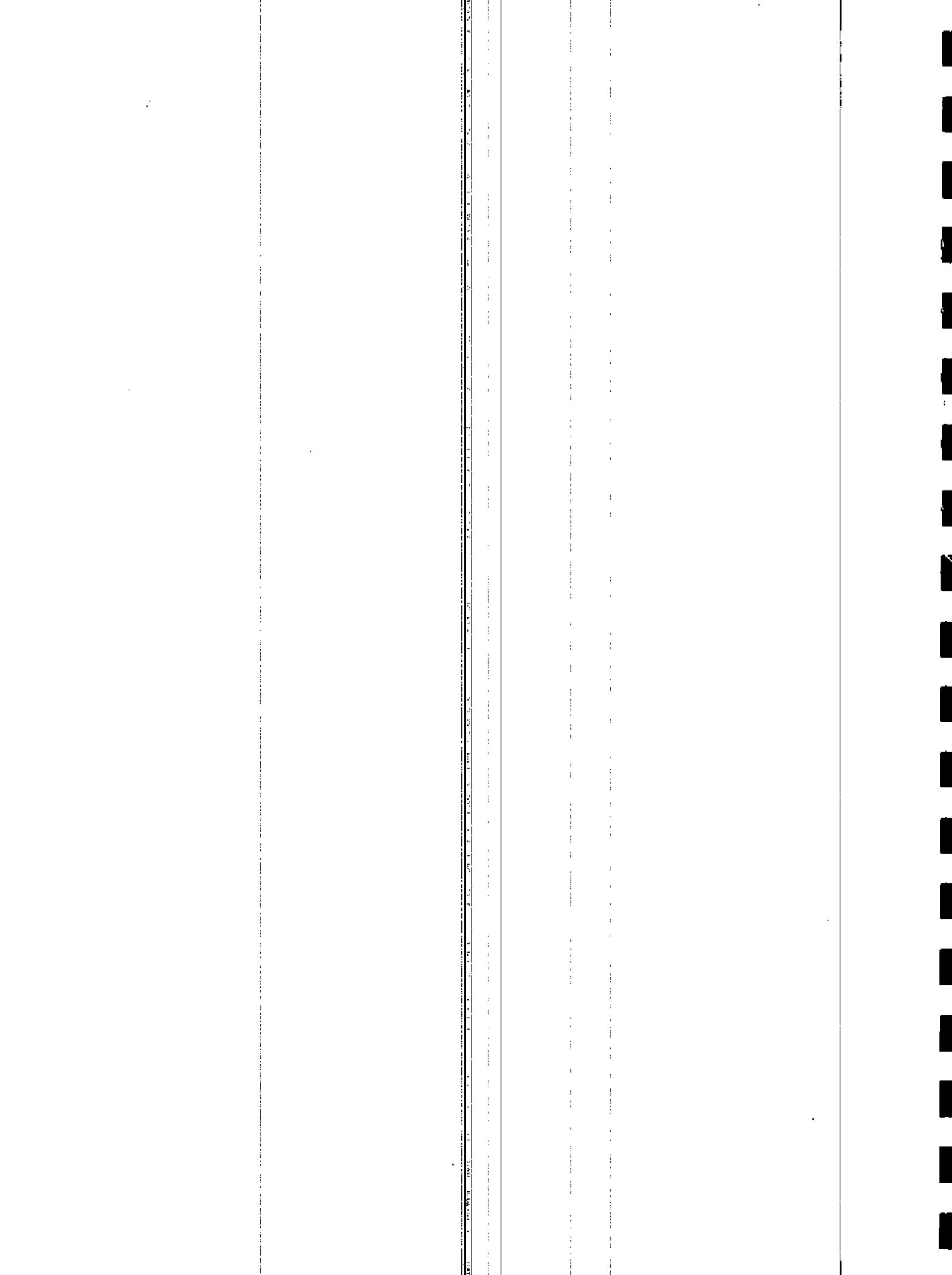


TABLE OF CONTENTS

	<u>Page</u>
ARTICLE I - AUTHORITY, TITLE AND PURPOSE	1
ARTICLE II - JURISDICTION AND APPLICATION	2
ARTICLE III - PROCEDURES	3
<u>Section</u>	
3.00 Submission and Review Requirements	3
3.10 Sketch Plan	4
3.20 Preliminary Plan	7
3.30 Final Plan	13
3.40 Completion and Guarantee of Improvements	18
3.50 Recording of Final Plan or Sketch Plan for Record	23
3.60 Plans Exempted from Standard Procedures	26
3.61 Minor Subdivision	26
3.62 Resubdivision	26
3.63 Auction Sale	27
3.64 Lot Annexations	27
3.65 Abbreviated Subdivision	28
3.66 Exempted Land Developments	28
ARTICLE IV - PLAN REQUIREMENTS	29
<u>Section</u>	
4.10 Sketch Plans	29
4.20 Preliminary Plans	33
4.30 Final Plans	43
4.40 Soil Percolation Test Requirements	56

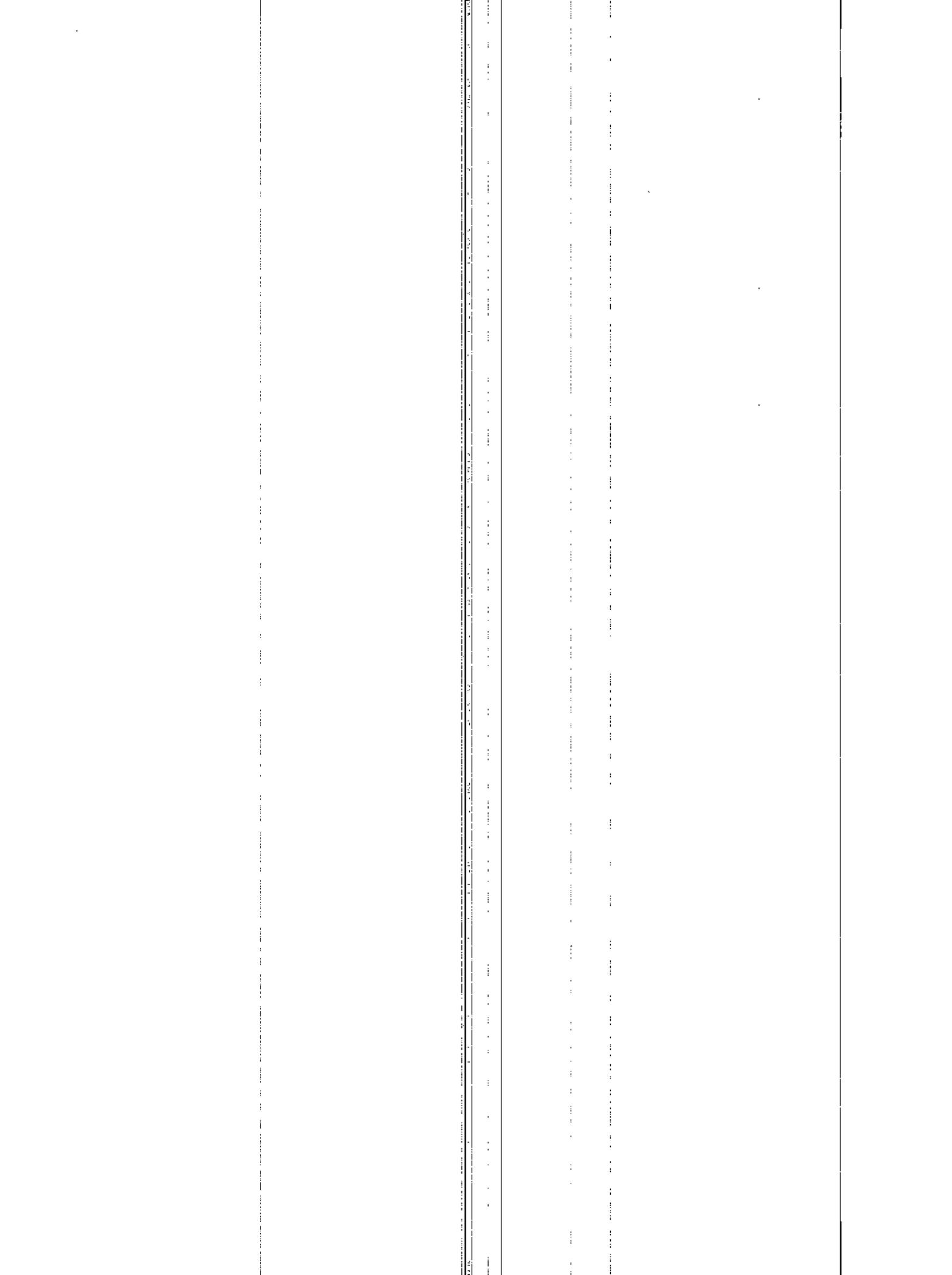


Table of Contents (cont'd)

Page

ARTICLE V - DESIGN STANDARDS

57

Section

5.10	Application and General Standards	57
5.20	Streets	58
5.21	General Standards	58
5.212	Partial and Half Streets	62
5.213	Street Widths	62
5.214	Restriction of Access	64
5.215	Street Grades	64
5.216	Horizontal Curves	65
5.217	Vertical Curves	66
5.218	Intersections	66
5.219	Sight Distances at Intersections	67
5.220	Cul-de-Sac Streets	69
5.221	Street Names	70
5.222	Service Streets (Alleys)	71
5.30	Guide Rail	71
5.40	Blocks	72
5.50	Lots and Parcels	73
5.51	General Standards	73
5.52	Lot Frontage and Access	75
5.53	Lot Size	77
5.54	Off-Street Parking	77
5.55	Driveways	78
5.60	Sanitary Sewage Disposal	81
5.70	Water Supply	83
5.80	Storm Water Management Designs and Standards	84
5.88	Erosion and Sediment Controls and Plan Requirements	96
5.90	Natural Features	102
5.91	Flood Plains	102
5.92	Utilities and Easements	103
5.93	Compliance with Township Zoning Ordinance	104
5.94	Access to the Subdivision or Land Development	104
5.95	Solid Waste Management	105
5.96	Considerations for Solar access	105
5.97	Carbonate Areas	105
5.98	Required Studies to be Submitted by the Developer	110

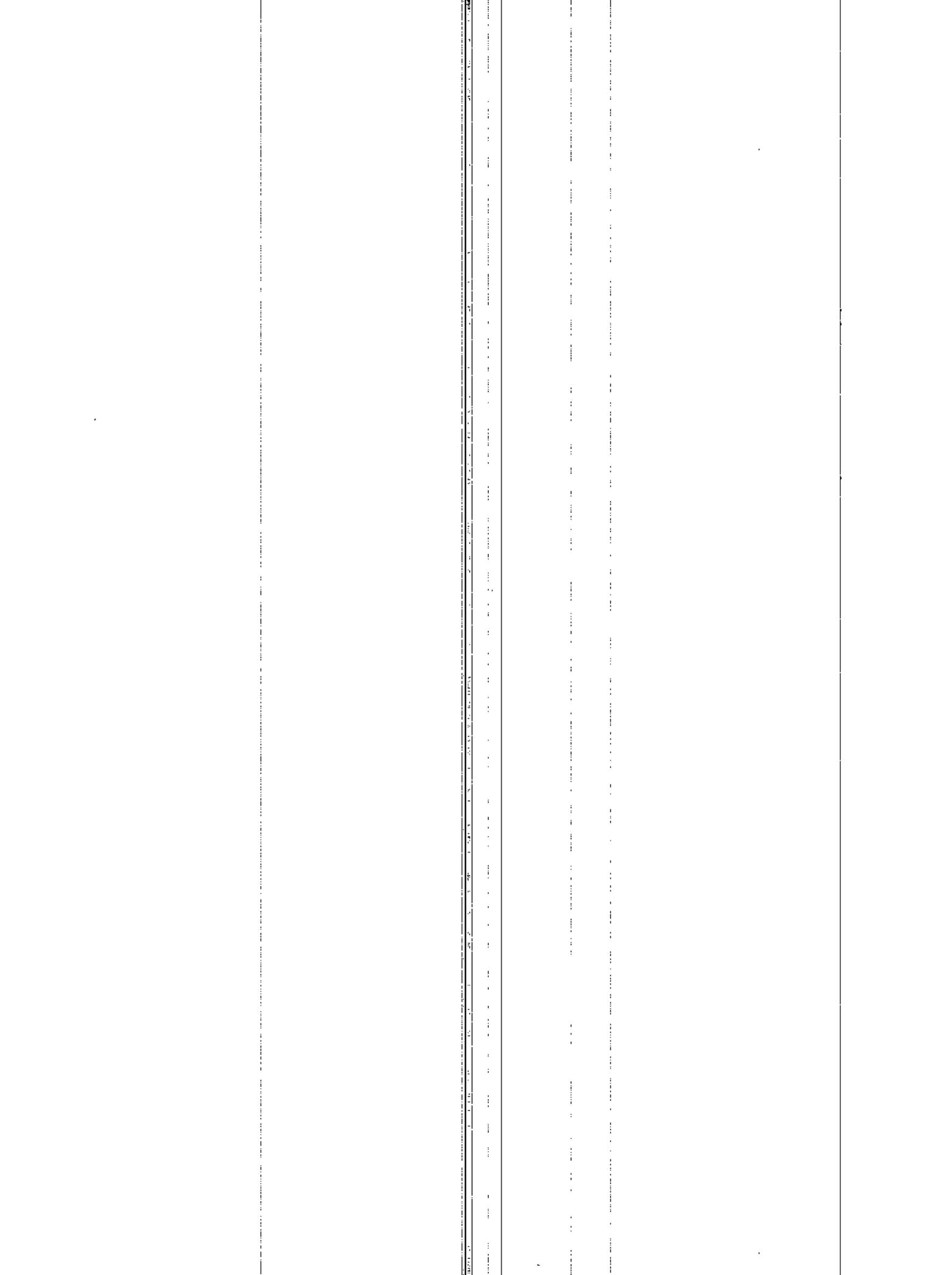
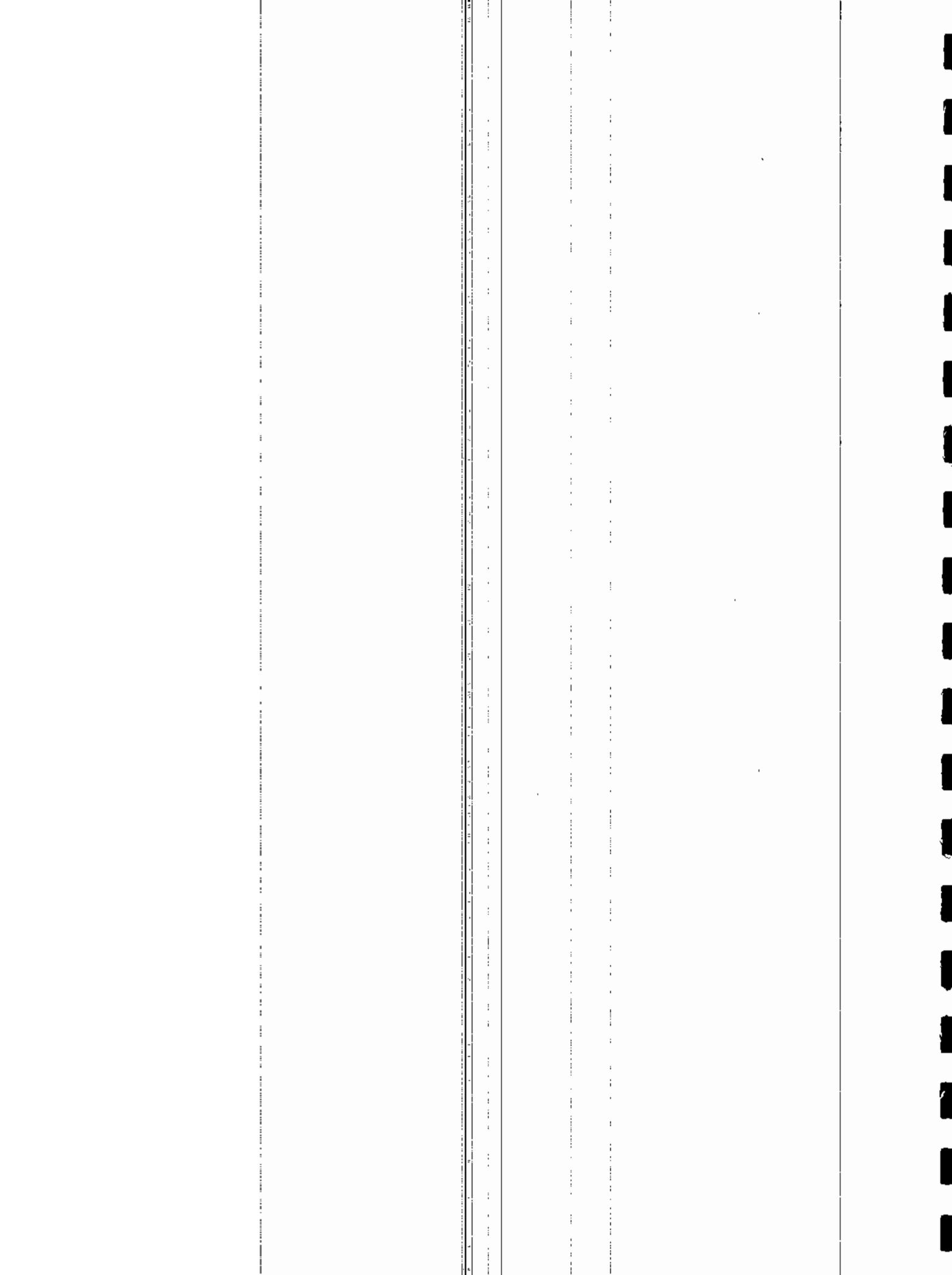


Table of Contents (cont'd)		<u>Page</u>
ARTICLE VI - MOBILE HOME PARKS		120
ARTICLE VII - IMPROVEMENT SPECIFICATIONS		121
7.10	General Requirements	121
7.11	Supervision	121
7.20	Required Improvements	122
ARTICLE VIII - ADMINISTRATION		129
<u>Section</u>		
8.10	Review Fees	129
8.20	Modifications	129
8.30	Appeals	129
8.40	Preventive and Enforcement Remedies	130
8.50	Responsibility	131
8.60	Conflicts	131
8.70	Revision and Amendment	132
8.80	Severability	132
8.90	Savings Clause	132
ARTICLE IX - DEFINITIONS		133
Form 1	Application for Review of Sketch Plan	142
Form 2	Application for Review of Preliminary Plan	144
Form 3	Application for Review of Final Plan	146
Form 4	Form for Submittal of Improvements Costs Estimates	147
Appendix I	Certification of Ownership, Acknowledgement of Plan, and Offer of Dedication	148
Appendix II	Certification of Accuracy	149
Appendix III	Certificate of Municipal Approval	150
Appendix IV	Determination of Flood Plains	151
Appendix V	Design of Storm Drainage Systems	152



ARTICLE 1 - AUTHORITY, TITLE AND PURPOSE

Section 1.00 Authority

An Ordinance providing for the control of the subdivision and development of land and the approval of plats and replats of land within the jurisdiction of the Township Supervisors of the Township of Marion, Berks County, Pennsylvania, ordained by the Township Supervisors of the Township of Marion under the authority of the Pennsylvania Municipalities Planning Code, as amended.

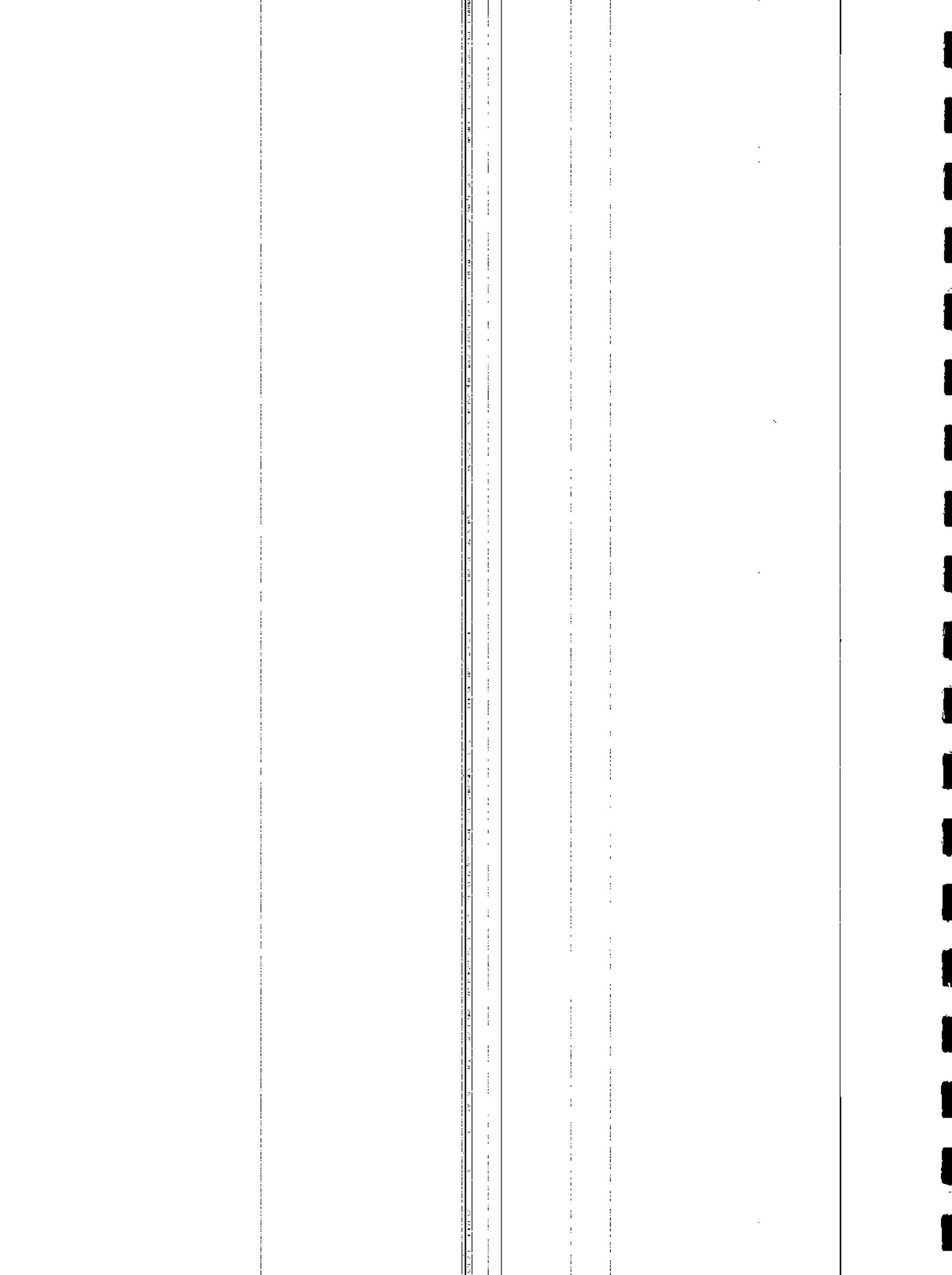
Section 1.01 Title

This Ordinance shall be known and may be cited as "The Subdivision and Land Development Ordinance of the Township of Marion".

Section 1.10 Purpose

The purpose of this Ordinance shall be to provide standards to guide the subdivision, re-subdivision, and development of land of the Township of Marion in order to promote the public health, safety, and convenience and the general welfare of the residents and inhabitants of the Township.

This Ordinance shall be administered to assure orderly growth and development consistent with comprehensive plans and zoning ordinances for the Township; to assure the protection and proper use of land; to assure adequate provision for traffic circulation, drainage, utilities, recreation facilities, erosion and sediment control, and public services; to assure development consistent with the natural features of the Township; to assure properly designed streets and neighborhoods; and to assure coordination of design among adjoining developments.



ARTICLE II - JURISDICTION AND APPLICATION

Section 2.00 New Applications

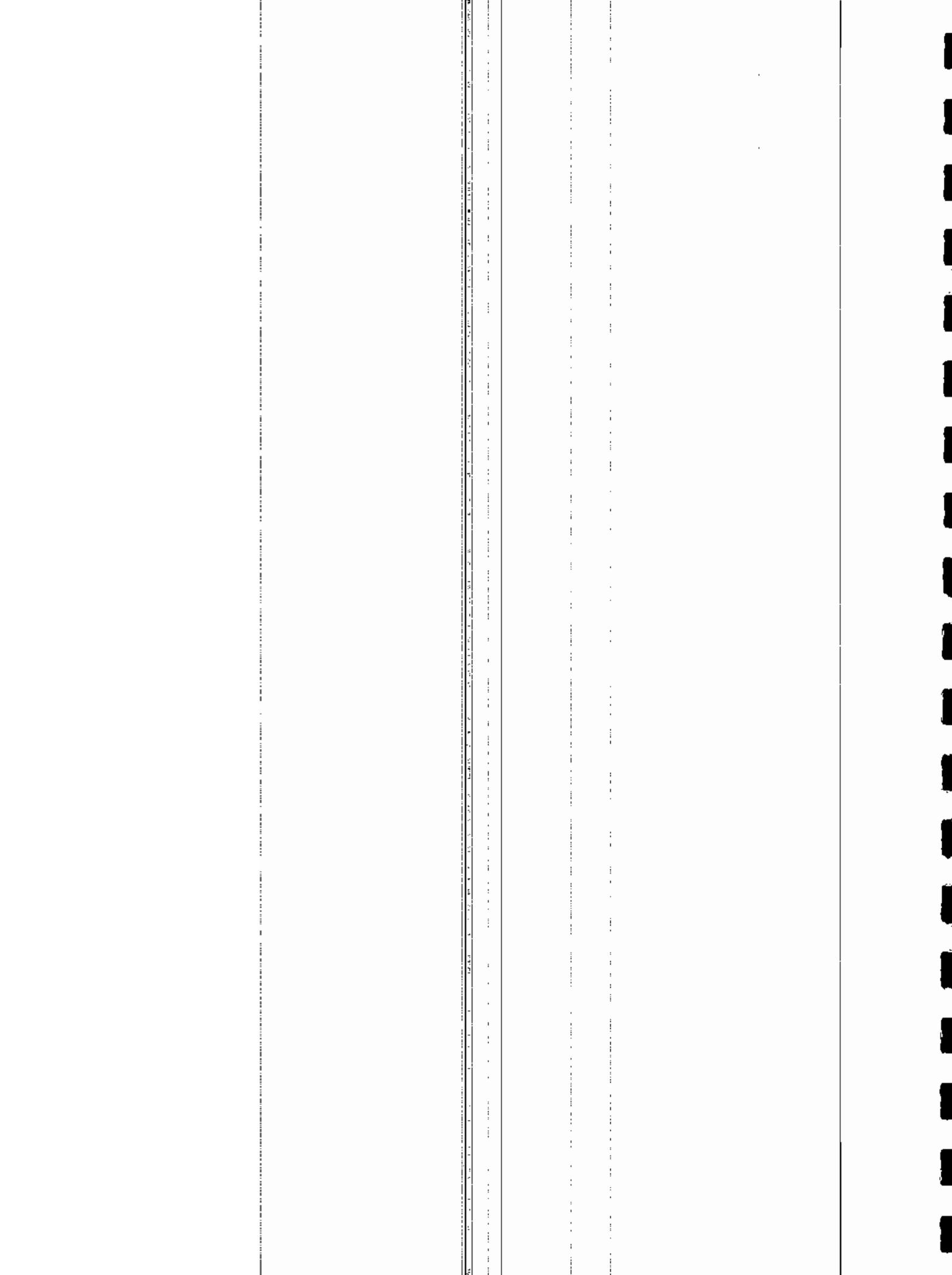
After the effective date of this Ordinance, no subdivision or land development of any lot, tract or parcel of land shall be made, and no street, sanitary sewer, storm sewer, water main, or other improvements in connection therewith shall be laid out, constructed, opened, or dedicated for public use or travel or for the common use of occupants of buildings abutting thereon, except in accordance with the provisions of this Ordinance.

Section 2.01 Prior Approved Plans

In the case of a preliminary or final plan approved without conditions or approved by the applicant's acceptance of conditions prior to the date this Ordinance became effective, this Ordinance shall not be applied to adversely affect the right of the applicant to commence and to complete any aspect of the approved development in accordance with the terms of such approval within the time periods established within the Pennsylvania Municipalities Planning Code, as amended. After the expiration of such time periods, the development shall be subject to this Ordinance.

Section 2.02 Re-subdivision

Any replatting or re-subdivision of land, including a change of a recorded plan, shall comply with the provisions of this Ordinance.



ARTICLE III - PROCEDURES

Section 3.00 Submission and Review Requirements

- 3.01 Hereafter, subdivision and land development plans shall be reviewed by the Township Planning Commission, the County Planning Commission and other Township, State or County officials as necessary, and shall be approved or disapproved by the Township Supervisors in accordance with the procedures specified in this Ordinance.
- 3.02 For all subdivisions and land developments, except those exempted from standard procedures in Section 3.60 of this Ordinance, a Preliminary Plan and a Final Plan shall be submitted.
- 3.03 Procedures described in this ARTICLE III that are not mandated by the provisions of the Pennsylvania Municipalities Planning Code as amended are discretionary as to the Township Supervisors and any failure of the Township Supervisors, its Planning Commission or any other agent or employee to abide by said permissive procedures shall not invalidate any action taken herein. However, said procedures, as to any applicant, are mandatory unless waived by the Township Supervisors in accordance with Section 8.20.
- 3.04 In accordance with the Rules and Regulations of the Pennsylvania Department of Environmental Resources (DER) municipalities shall revise their official plan for sewage disposal whenever a new subdivision is proposed, unless DER determines that the proposal is for the use of individual on-lot sewage systems serving detached single family dwelling units in a subdivision of ten (10) lots or less and certain criteria set forth in the Rules and Regulations of DER are met.

An official plan revision for new land development shall be submitted to DER in the form of a completed sewage facilities planning module provided by DER and including all information required by DER.

The subdivider or developer or his agent shall complete the DER sewage facilities planning module and submit it to the Township for action.

No plan revision for new land development will be considered complete unless it includes all information specified within DER's Rules and Regulations.

The municipality shall not adopt a proposed revision to the official plan, conditionally or otherwise, until it determines that the proposal complies with applicable Township zoning, land use or other Township comprehensive plans. If changes to the proposed revision or the applicable plan, regulation or ordinance are necessary, the changes shall be completed prior to adoption of the revision by the Township.

Upon adoption of a proposed revision to the official plan, or refusal to adopt such a proposed revision, the Township shall forward the proposed revision or statement refusing to adopt to DER. DER may approve or disapprove a proposed plan revision for new land development.

The time limits for actions by Township and county agencies and DER are set forth in the rules and regulations of DER.

Subdividers and developers are advised that no subdivision or land development plan will be finally approved and released for recording by the Township until all necessary approvals of the official plan revision or requests for exceptions to the requirement to revise the official plan have been secured from the Township and DER. This fact and time limits for action should be considered by subdividers and developers when submitting the DER sewage facilities planning module to the Township.

Section 3.10 Sketch Plan

3.11 Status

Except in the case of a Sketch Plan for Record submitted pursuant to Sections 3.61 or 3.64, submission of a Sketch Plan is optional, such submission shall not constitute official submission of a plan to the Township, and the Sketch Plan is submitted only for informal discussion between the Developer and the Township Planning Commission.

3.12 Required Plan Data

When submitted, Sketch Plans should comply with the requirements of Section 4.10. Sketch Plans for Record shall comply with the requirements of Section 4.10

3.13 Submission

At least thirty (30) days prior to a regularly scheduled meeting of the Township Planning Commission, the subdivider shall submit six (6) copies (folded to 8-1/2 x 11) of the Sketch Plan, six (6) copies of any supplementary data, the required filing fee, and five (5) copies of the Application for Review of Sketch Plan (Form 1) to the Township Secretary.

3.14 Distribution

The Township Secretary shall distribute the plans and supplementary data as follows:

- 3.141 One (1) copy to the Secretary of the Township Planning Commission.
- 3.142 Two (2) copies to the County Planning Commission in the case of a Sketch Plan for Record. The plans and supplementary data shall be accompanied by one (1) copy of Form 1, a letter requesting the County's review, and any required filing fee, which shall be paid by the applicant.
- 3.143 One (1) copy to the Township Engineer.
- 3.144 One (1) copy to the Township Zoning Officer.
- 3.145 One (1) copy retained for the permanent files of the Township Supervisors.

3.15 Review by Township Planning Commission

A Sketch Plan for Record shall be reviewed by the Township Planning Commission at one or more regularly scheduled or special meetings. The Commission may request the Township Zoning Officer or the Township Engineer to review the Sketch Plan and submit comments thereon to the Commission.

A Sketch Plan other than a Sketch Plan for Record will be discussed with the developer at the next regularly scheduled meeting of the Planning Commission provided the plan was submitted at least thirty (30) days prior to that meeting.

3.16 Review of Sketch Plan for Record by Township Supervisors

In the case of a Sketch Plan for Record submitted under the Minor Subdivision (Section 3.61) or Lot Annexation (Section 3.64) provisions of this Ordinance, after the Sketch Plan is reviewed by the Township Planning Commission the Sketch Plan shall be reviewed by the Township Supervisors at one or more regularly scheduled or special meetings and either approved or disapproved by the Supervisors.

The Township Supervisors shall render their decision and communicate it to the applicant not later than ninety (90) days following the date of the regular meeting of the Planning Commission next following the date the application is filed, provided that should the said next regular meeting occur more than thirty (30) days following the filing of the application, the said ninety-day (90-day) period shall be measured from the thirtieth (30th) day following the day the application has been filed.

The decision of the Township Supervisors shall be in writing and shall be communicated to the applicant personally or mailed to him at his last known address not later than fifteen (15) days following the decision.

When the application is not approved in terms as filed the decision shall specify the defects found in the application and describe the requirements which have not been met and shall, in each case, cite the provisions of the ordinance relied upon.

In the case of a Sketch Plan for Record submitted to the County Planning Commission for review, no official action shall be taken by the Township Supervisors until the Supervisors have received the written report of the County Planning Commission, provided that the report is received within thirty (30) days from the date the Plan was forwarded to the County Planning Commission for review. If such report is not received within thirty (30) days, the Township Supervisors may proceed to take action on the Plan without consideration of comments from the County Planning Commission.

Section 3.20 Preliminary Plan

3.21 Submission

Preliminary Plans and required supplementary data for all subdivisions and land developments shall be submitted to the Township for review, unless exempted in Section 3.60. Plans shall be submitted by the Developer or his agent to the Township Secretary no less than thirty (30) days prior to a regularly scheduled meeting of the Township Planning Commission.

3.211 Official submission of a Preliminary Plan shall include:

- 3.2111 Submission of five (5) copies of the completed Application for Review of Preliminary Plan (Form 2).
- 3.2112 Submission of eleven (11) (folded to 8-1/2" x 11") black-on-white prints on paper of the Preliminary Plan which shall comply with the requirements of Section 4.20.
- 3.2113 Submission of seven (7) copies of all other information and plans which are required by Sections 4.20 through 4.2616.
- 3.2114 Payment of the filing fee of the Township and the County Planning Commission.
- 3.2115 An affidavit that the applicant is the owner or equitable owner of the land proposed to be developed and has the authority to proceed on behalf of all parties claiming any ownership interest therein.

3.212 If required by the Township, in the case of a subdivision or land development which proposes vehicular access or storm water drainage onto a State Route, the Subdivider shall submit the Preliminary Plan and all supplementary data to the Pennsylvania Department of Transportation with a request for review of his proposed access and drainage and shall submit evidence of such submission to the Township at the time of Preliminary Plan submission.

3.213 In the case of a Preliminary Plan calling for the installation of improvements beyond a five (5)-year period, a schedule shall be filed by the land owner delineating all proposed sections as well as deadlines within which applications for final plan approval of each section are intended to be filed. Such schedule shall be updated annually by the applicant on or before the anniversary of the Preliminary Plan approval, until final plan approval of the final section has been granted and any modification in the aforesaid schedule shall be subject to approval of the Township Supervisors in their discretion.

Each section in any residential subdivision or land development, except for the last section, shall contain a minimum of twenty-five percent (25%) of the total number of dwelling units as depicted on the Preliminary Plan, unless a lesser percentage is approved by the Township Supervisors in their discretion.

3.214 When a Subdivision or Land Development is proposed to connect to a sanitary sewer or water system not operated by the Township or a Township Authority, the developer shall submit evidence to the Township that the Preliminary Plan and all supplementary data have been submitted to the appropriate agencies or companies for review.

3.215 Failure of the Subdivider to submit all items required under Sections 3.211, 3.212, 3.213, and 3.214, or failure of the Preliminary Plan to comply with the requirements of Section 4.20, shall be grounds for the Township Supervisors to refuse to accept the Preliminary Plan for review.

Section 3.22 Distribution

The Township Secretary shall distribute submitted information as follows:

- 3.221 To the Township Planning Commission
 - 3.2211 One (1) copy of the Plan.
 - 3.2212 One (1) copy of Application for Review of Preliminary Plan.
 - 3.2213 One (1) copy of all other required information and plans.

- 3.222 To the County Planning Commission
 - 3.2221 Two (2) copies of the Preliminary Plan.
 - 3.2222 One (1) copy of Application for Review of Preliminary Plan.
 - 3.2223 One (1) copy of all other required information and plans.
 - 3.2224 The required filing fee and a letter requesting review.

- 3.223 To the Township Engineer
 - 3.2231 Two (2) copies of the Plan.
 - 3.2232 One (1) copy of Application for Review of Preliminary Plan.
 - 3.2233 Two (2) copies of all other required information and plans.

- 3.224 To the Township Zoning Officer
 - 3.2241 One (1) copy of the Plan.
 - 3.2242 One (1) copy of Application for Review of Preliminary Plan.

- 3.225 To be retained by the Township Secretary
 - 3.2251 One (1) copy of the Plan.
 - 3.2252 One (1) copy of Application for Review of Preliminary Plan.
 - 3.2253 One (1) copy of all other required information and Plans.

- 3.226 To the Township Authority, if such exists
 - 3.2261 Two (2) copies of the Plan.
 - 3.2262 Two (2) copies of all other required information and Plans.
- 3.227 To the Township Sewage Enforcement Officer
 - 3.2271 Two (2) copies of the plan.
 - 3.2272 Two (2) copies of any material required by the Sewage Enforcement Officer or Pennsylvania Department of Environmental Resources to determine the suitability of the tract for on-site sewage disposal.

Section 3.23

Review by Township Planning Commission

When a Preliminary Plan has been accepted for review, the Township Planning Commission shall review the Plan at one or more regularly scheduled or special meetings.

- 3.231 The Township Engineer, if requested by the Township, shall review the Preliminary Plan to determine whether the Plan meets the requirements of this Ordinance and submit a written report thereon to the Township Planning Commission.

The Township Zoning Officer shall review the Preliminary Plan to determine whether the Plan meets the requirements of the Township Zoning Ordinance and submit a written report thereon to the Township Planning Commission.

The Township Authority, if such exists and has jurisdiction, shall review all proposals concerning sanitary sewers and water supply and distribution and submit a written report thereon to the Township Planning Commission, and/or the Township Sewage Enforcement Officer shall review all proposals for the use of on-site sewage disposal and submit a written report thereon to the Township Planning Commission.

After the final meeting at which the Preliminary Plan is reviewed by the Township Planning Commission, the Commission shall notify the Township Supervisors in writing of its comments regarding the Plan. The Commission may recommend that the Plan be approved, be approved subject to conditions, or be disapproved. If the Commission recommends that the plan be disapproved because the provisions of this Ordinance have not been met, the specific provisions of this Ordinance which have not been met shall be noted.

Section 3.24 Review by Township Supervisors

After a Preliminary Plan has been reviewed by the Township Planning Commission and the comments of the Commission regarding the Plan have been forwarded to the Township Supervisors, the Plan shall be reviewed at one or more regularly scheduled or special meetings by the Township Supervisors.

3.241 No official action shall be taken by the Township Supervisors with respect to a Preliminary Plan until the Township has received the written report of the County Planning Commission, provided the report is received within thirty (30) days from the date the plan was forwarded to the County Planning Commission for review.

If such report is not received within thirty (30) days, the Township Supervisors may proceed to take action on the Plan without consideration of comments from the County Planning Commission.

3.242 Before acting on a Preliminary Plan, the Township Supervisors may hold a public hearing thereon after public notice.

3.243 The decision of the Township Supervisors regarding the Plan shall be in writing and shall be communicated to the applicant personally or mailed to him at his last known address not later than fifteen (15) days following the decision.

- 3.244 The Township Supervisors shall render its decision and communicate it to the applicant not later than ninety (90) days following the date of the regular meeting of the Township Planning Commission next following the date the application is filed, provided that should the said next regular meeting occur more than thirty (30) days following the filing of the application, the said ninety (90) day period shall be measured from the thirtieth (30th) day following the day the application has been filed. The subdivider may grant an extension of time to the Township.
- 3.245 When the application is not approved in terms as filed the decision shall specify the defects found in the application and describe the requirements which have not been met and shall, in each case, cite the provisions of this Ordinance relied upon.
- 3.246 Township Supervisors may approve a Preliminary Plan subject to conditions acceptable to the applicant, provided that the applicant indicates his written acceptance of those conditions to the Township Supervisors within seven (7) days of the date of the written notification from the Township Supervisors. Approval of a plat shall be rescinded automatically upon the applicant's failure to accept or reject such conditions within seven (7) days.
- 3.247 The approval of a Preliminary Plan does not authorize the recording of a Subdivision or Land Development Plan nor the sale, lease or transfer of lots, nor the construction of dwellings or other buildings.

Section 3.30 Final Plan

3.31 Submission

Within twelve months after approval of the Preliminary Plan by the Township Supervisors, the developer or his agent shall submit a Final Plan and all required supplementary data to the Township Secretary unless an extension of time is granted by the Supervisors. If an extension is not granted, failure to submit the Final Plan within twelve months may result in a determination by the Township Supervisors that they will consider any plan submitted after twelve months as a new preliminary plan.

The Final Plan shall be submitted to the Township Secretary no later than thirty (30) days prior to a regularly scheduled meeting of the Township Planning Commission.

3.311 Official submission of a Final Plan shall include:

- 3.3111 Submission of five (5) copies of the completed Application for Review of Final Plan (Form 3).
- 3.3112 Submission of eleven (11) (folded to 8-1/2" x 11") black-on-white prints on paper of the Final Plan which shall comply with the requirements of Section 4.30.
- 3.3113 Submission of seven (7) copies of all other supplementary data and plans as outlined in Sections 4.30 through 4.35809.
- 3.3114 Payment of the filing fee of the Township, and the County Planning Commission if applicable.
- 3.3115 Submission of evidence of review of an Erosion and Sediment Control Plan by the County Conservation District.
- 3.3116 Submission of evidence that the Final Plan has been submitted to the electric, telephone, cable television and gas companies which will serve the subdivision or land development.

- 3.3117 An affidavit that the applicant is the owner or equitable owner of the land proposed to be developed and has the authority to proceed on behalf of all claiming any ownership interest therein.
- 3.312 Failure of the Subdivider to submit all items required under Section 3.311, or failure of the Final Plan to comply with the requirements of Section 4.30, shall be grounds for the Township Supervisors to refuse to accept the Final Plan for review.
- 3.313 The Township Supervisors may permit the Subdivider to submit a Final Plan in Sections in accordance with the schedule provided for in Section 3.213, subject to such requirements or guarantees as to improvements in future sections as it finds essential for the protection of any finally approved Section of the development.
- 3.314 The Final Plan shall conform to the approved Preliminary Plan, except that it shall incorporate all modifications required by the Township Supervisors in their approval of the Preliminary Plan. Failure to comply with past reviews shall constitute grounds for the Township Supervisors to disapprove the Final Plan.

3.32 Distribution

The Township Secretary shall distribute submitted information as follows:

- 3.321 To the Township Planning Commission
- 3.3211 One (1) copy of the Plan.
- 3.3212 One (1) copy of Application for Review of Final Plan.
- 3.3213 One (1) copy of all supplementary data and plans.
- 3.322 To the Township Zoning Officer
- 3.3221 One (1) copy of the Plan.
- 3.3222 One (1) copy of Application for Review of Final Plan.

- 3.323 To the Township Engineer
 - 3.3231 Two (2) copies of the Plan.
 - 3.3232 One (1) copy of Application for Review of Final Plan.
 - 3.3233 Two (2) copies of all supplementary data and plans.
- 3.324 To the Township Authority, if such exists
 - 3.3241 Two (2) copies of the Plan.
 - 3.3242 Two (2) copies of all supplementary data and plans.
- 3.325 To be retained by the Township Secretary
 - 3.3251 One (1) copy of the Plan.
 - 3.3252 One (1) copy of Application for Review of Final Plan.
 - 3.3253 One (1) copy of all supplementary data and plans.
- 3.326 To the County Planning Commission, in the case of a subdivision submitted under Section 3.62 or Section 3.65.
 - 3.3261 Two (2) copies of the Plan.
 - 3.3262 One (1) copy of Application for Review of Final Plan.
 - 3.3263 One (1) copy of all supplementary data and plans.
 - 3.3264 The required filing fee and a letter requesting review.
- 3.327 To the Township Sewage Enforcement Officer
 - 3.3271 Two (2) copies of the plan

3.33 Review by Township Planning Commission

When a Final Plan has been accepted for review, the Township Planning Commission shall review the Plan at one or more regularly scheduled or special meetings.

3.331 The Township Engineer, if requested by the Township, shall review the Final Plan to determine whether the Plan meets the requirements of this Ordinance and submit a written report thereon to the Township Planning Commission.

The Township Zoning Officer shall review the Final Plan to determine whether the Plan meets the requirements of the Township Zoning Ordinance and submit a written report thereon to the Township Planning Commission.

The Township Authority, if such exists and has jurisdiction, shall review all proposals concerning sanitary sewers and water supply and distribution and submit a written report thereon to the Township Planning Commission, and/or the Township Sewage Enforcement Officer shall report to the Township Planning Commission on all proposals for on-site sewage disposal.

3.332 After the final meeting at which the Final Plan is reviewed by the Township Planning Commission, the Commission shall notify the Township Supervisors in writing of its comments regarding the Plan. The Commission may recommend that the plan be approved or disapproved. If the Commission recommends that the plan be disapproved because the provisions of this Ordinance have not been met, the specific provisions of this Ordinance which have not been met shall be noted.

3.34 Review by Township Supervisors

After a Final Plan has been reviewed by the Township Planning Commission and the comments of the Commission regarding the Plan have been forwarded to the Township Supervisors, the Plan shall be reviewed by the Township Supervisors at one or more regularly scheduled or special meetings.

3.341 If the Final Plan has been forwarded to the County Planning Commission for review, no official action shall be taken by the Township Supervisors with respect to the Plan until the Township has received the written report of the

County Planning Commission, provided that the report is received within thirty (30) days from the date the plan was forwarded to the County Planning Commission for review. If such report is not received within thirty (30) days, the Township Supervisors may proceed to take action on the Plan without consideration of comments from the County Planning Commission.

- 3.342 Before acting on a Final Plan, the Township Supervisors may hold a public hearing thereon after public notice.
- 3.343 The Township Supervisors shall render their decision and communicate it to the applicant not later than ninety (90) days following the date of the regular meeting of the Planning Commission next following the date the application is filed, provided that should the said next regular meeting occur more than thirty (30) days following the filing of the application, the said ninety-day (90-day) period shall be measured from the thirtieth (30th) day following the day the application has been filed.
- 3.344 The decision of the Township Supervisors shall be in writing and shall be communicated to the applicant personally or mailed to him at his last known address not later than fifteen (15) days following the decision.
- 3.345 When the application is not approved in terms as filed the decision shall specify the defects found in the application and describe the requirements which have not been met and shall, in each case, cite the provisions of the Ordinance relied upon.
- 3.346 A Final Plan shall not be recorded, nor shall any zoning or building permit be issued, until the requirements of Section 3.40 of this Ordinance have been met.

Section 3.40

Completion and Guarantee of Improvements

3.41 Subdivision Improvements Agreement

3.411 No Final Plan shall be endorsed by the Township Supervisors unless a Subdivision Improvements Agreement in a form acceptable to the Township Supervisors and Township Solicitor is executed. A unit breakdown of all improvements required by this Ordinance pursuant to Form 4 shall be included within the Agreement.

3.42 Completion and Guarantee of Improvements

3.421 No Final Plan shall be endorsed by the Township Supervisors unless all the improvements required by this Ordinance and the Subdivision Improvements Agreement have been installed, inspected and approved, in accordance with this Ordinance and said Agreement.

3.422 In lieu of the completion of any improvements as stated in Section 3.421 above, prior to endorsement of the Plan the Subdivider shall deposit with the Township a financial security in an amount sufficient to cover the cost of all improvements or common amenities required by this Ordinance and the Subdivision Improvements Agreement and the cost of preparing as-built drawings of those improvements. The financial security may be in the form of an irrevocable letter of credit or restrictive or escrow account in a federal or commonwealth chartered lending institution or other type of financial security which the Township approves. The financial security shall guarantee the completion of all required improvements on or before the date fixed in the formal action of approval or accompanying agreement for completion of the improvements.

When requested by the developer, in order to facilitate financing, the Township Supervisors shall furnish the developer with a signed copy of a resolution indicating approval of the final plan contingent upon the developer obtaining a satisfactory financial security. The final plan shall not be signed nor recorded until the financial improvements agreement is executed.

The resolution or letter of contingent approval shall expire and be deemed to be revoked if the financial security agreement is not executed within ninety (90) days unless a written extension is granted by the Township Supervisors; such extension shall not be unreasonably withheld and shall be placed in writing at the request of the developer.

The amount of the financial security to be posted for the completion of the required improvements shall be equal to one hundred ten percent (110%) of the cost of completion estimated as of ninety (90) days following the date scheduled for completion by the developer. Annually the Township may adjust the amount of the financial security by comparing the actual cost of the improvements which have been completed and the estimated cost for the completion of the remaining improvements as of the expiration of the ninetieth (90th) day after either the original date scheduled for completion or a rescheduled date of completion. Subsequent to said adjustment, the Township may require the developer to post additional security in order to assure that the financial security equals said one hundred ten percent (110%). Any additional security shall be posted by the developer in accordance with this subsection.

The amount of financial security required shall be based upon an estimate of the cost of completion of the required improvements, submitted by an applicant or developer and prepared by a professional engineer licensed as such in the Commonwealth of Pennsylvania and certified by such engineer to be a fair and reasonable estimate of such cost. Such estimate shall be submitted to the Township no less than fourteen (14) days prior to a meeting of the Township Supervisors. The Township, upon the recommendation of the Township engineer, may refuse to accept such estimate for good cause shown. If the applicant or developer and the Township are unable to agree upon an estimate, then the estimate shall be recalculated and recertified by another professional engineer licensed as such in the Commonwealth of

Pennsylvania and chosen mutually by the Township and the applicant or developer. The estimate certified by the third engineer shall be presumed fair and reasonable, and shall be the final estimate. In the event that a third engineer is so chosen, fees for the services of said engineer shall be paid equally by the Township and the applicant or developer.

If the party posting the financial security requires more than one year from the date of posting of the financial security to complete the required improvements, the amount of financial security may be increased by an additional ten percent (10%) for each one year period beyond the first anniversary date of posting of financial security or to an amount not exceeding one hundred ten percent (110%) of the cost of completing the required improvements as re-established on or about the expiration of the initial one year period.

The party posting the financial security may request the Township Supervisors to release or authorize release, from time to time, such portions of the financial security necessary for payment to the contractors performing the work. Any such requests shall be in writing addressed to the Township Supervisors, and the Supervisors shall have forty-five (45) days from receipt of such requests within which to allow the Township Engineer to certify, in writing, to the Township Supervisors that such portion of the work upon the improvements has been completed in accordance with the approved subdivision or land development plan. Upon such certification the Township Supervisors shall authorize release by the bonding company or lending institution of an amount as estimated by the Township Engineer fairly representing the value of the improvements completed. If the Township Supervisors fail to act within said forty-five (45) day period, the Supervisors shall be deemed to have approved the release of funds as requested. The Township Supervisors may, prior to final release at the time of completion and certification by their engineer, require retention of ten percent (10%) of the estimated cost of the aforesaid improvements.

In the case where development is projected over a period of years, the Township may authorize submission of Final Plans by sections or stages of development, subject to such requirements or guarantees for improvements in the future sections or stages of development as it finds essential for the protection and proper development of any finally approved section of the development.

If water mains or sanitary sewer lines, or both, along with apparatus or facilities related thereto, are to be installed under the jurisdiction and pursuant to the rules and regulations of a public utility or municipal authority separate and distinct from the township, financial security to assure proper completion and maintenance thereof shall be posted in accordance with the regulations of the controlling public utility or municipal authority and shall not be included within the financial security as otherwise required by this section.

3.43 Remedies to Effect Completion of Improvements

In the event that any improvements which are required by this Ordinance have not been installed as provided in this Ordinance or in accord with the approved Final Plan, the Township may enforce any corporate bond or other security by appropriate legal and equitable remedies. If the proceeds of such bond or other security are insufficient to pay the cost of installing or making repairs or corrections to all the improvements covered by said security, the Township may, at its option, install part of such improvements in all or part of the subdivision or land development and may institute appropriate legal or equitable action to recover the moneys necessary to complete the remainder of the improvements. All of the proceeds, whether resulting from the security or from any legal or equitable action brought against the developer, or both, shall be used solely for the installation of the improvements covered by such security.

3.44 Release of Performance Guarantee

When the developer has completed all of the necessary and appropriate improvements, the developer shall notify the Township Supervisors, by certified or registered mail, of the completion of the improvements and shall send a copy of the notice to the Township Engineer.

The Township Supervisors shall within ten (10) days after receipt of notice of completion of improvements direct and authorize the Township Engineer to inspect the improvements. The Township Engineer shall then submit a written report regarding the improvements to the Supervisors and promptly mail a copy of the report to the developer by certified or registered mail.

The report shall be made and mailed by the Township Engineer within thirty (30) days after receipt of authorization from the Township Supervisors. The report shall be detailed and shall indicate approval or rejection of the improvements, either in whole or in part. If the improvements or any portion thereof shall not be approved or shall be rejected by the Township Engineer, the report shall contain a statement of reasons for such non-approval or rejection.

The Township Supervisors shall notify the developer within fifteen (15) days of receipt of the Engineer's report, in writing by certified or registered mail of their action.

If any portion of the improvements shall not be approved or shall be rejected by the Township Supervisors, the developer shall proceed to complete the improvements, and upon completion the same procedure of notification as outlined above shall be followed.

When completed improvements have been approved by the Township, the performance guarantee shall be reduced by no more than the amount which was estimated in the Subdivision Improvements Agreement for the approved improvements.

3.45 Preparation of As-Built Plans

As-built plans for all improvements within the subdivision or land development listed in the Subdivision Improvements Agreement shall be submitted to the Township within thirty (30) days after inspection and approval of the improvements by the

Township and prior to the release of the Performance Guarantee and acceptance of any such improvements by the Township. Plans shall be in accordance with the requirements of Section 4.30 of this Ordinance, be mylars in reproducible form, and certified by the developer to be in accordance with actual construction. The developer is responsible for the preparation of such plans.

If any information relating to potential lot owners shown on the recorded final plan shall have been changed, such as lot boundaries, easements, and maintenance responsibilities, a revised subdivision and/or land development plan shall be filed with the Township in accordance with the procedures of this Ordinance.

3.46 Maintenance Guarantee

Where the Township Supervisors accept dedication of all or some of the required improvements within a subdivision or land development following completion, the Township Supervisors may require the posting of financial security to secure structural integrity of said improvements as well as the functioning of said improvements in accordance with the design specifications as depicted on the final plan for a term not to exceed eighteen (18) months from the date of acceptance of dedication. The financial security shall be of the same type as permitted for installation of improvements and the amount of the financial security shall not exceed fifteen percent (15%) of the actual cost of installation of the improvements.

Section 3.50 Recording of Final Plan or Sketch Plan for Record

3.51 Endorsement by Township Supervisors

After the procedures required by this Ordinance have been completed and the Township Supervisors finally approves a plan the Supervisors shall endorse the Final Plan or Sketch Plan for Record.

3.511 The endorsed plans shall be clear and legible black-on-white prints on material acceptable to the Recorder of Deeds.

3.512 Before any Plan is released for recording, a copy of any permits required by the Pennsylvania Departments of Environmental Resources and Transportation shall be submitted to the Township.

3.513 The Township shall receive one reproducible reproduction of the Final Plan as approved and recorded within fifteen (15) days of recording. The reproducible shall contain the Recorder of Deeds information as to Deed Book Volume and date of recording.

3.514 All streets, parks or other improvements shown on the Final Plan shall be deemed to be private until such time as they have been offered for dedication to the Township and accepted by Township Supervisors. The acceptance of any improvements shall be by a separate action of the Supervisors and shall not be effected by approval of a subdivision or land development plan.

The developer shall agree with the Township to tender, if requested, a deed of dedication for any and all public improvements, including easements. Upon completion of any public improvements shown on an approved subdivision or land development plan and within ninety (90) days after approval of such public improvements, as herein provided, the Township may require that the developer offer such public improvements for dedication. In such a case, the developer shall prepare a deed of dedication and forward same to the Township for review by the Township Solicitor. The Township may require that the developer supply a Title Insurance Certificate from a reputable company before any property is accepted by the Township.

3.52 Filing With Recorder of Deeds

Upon approval of a Final Plan or Sketch Plan of Record by the Township Supervisors, the developer shall within ninety (90) days of such final approval record the plan in the office of the Recorder of Deeds. The Recorder of Deeds shall not accept any plan for recording unless the plan contains the endorsement of the Township Supervisors and official notification of review by the County Planning Commission. If the subdivider fails to record the plan within such period, the approval action of the Township Sueprvisors shall be null and void.

All Final Plan sheets which contain restrictive notes, lot boundaries, easements, maintenance responsibilities, other lot owner responsibilities, and such other information relating to potential lot owners shall be recorded.

3.61 Minor Subdivision - Sketch Plan for Record

In the case of any subdivision in which all proposed lots will (1) have frontage on and direct vehicular access to an existing improved Township or State road, (2) the parcel being subdivided will be divided into a total of not more than three lots or parcels after the effective date of this Ordinance, and (3) the lots will be used for only single family detached dwellings, the developer may submit only a Sketch Plan for Record to the Township. The Sketch Plan shall contain all information required by Section 4.10 of this Ordinance and be submitted and reviewed in accordance with Section 3.10. The Sketch Plan shall be submitted to the County Planning Commission for review. The Township Supervisors may also require submission to and review by the County Conservation District and the Pennsylvania Department of Transportation. Further subdivision from a tract subdivided under this section or subdivision of a lot or tract created under this Section will require a review of Plans in accordance with the standard procedures of this Ordinance, and this shall be noted on the Plan.

3.62 Resubdivision - Revised Final Plan

3.621 Any replatting or resubdivision of land, including changes to recorded plans, shall be considered a subdivision and shall comply with all requirements of this Ordinance; however, in those instances where (1) only lot lines shown on a recorded plan will be changed, (2) all resultant lots will conform to the Township Zoning Ordinance and this Ordinance, (3) easements and rights-of-way will not be changed, (4) street horizontal and vertical alignment will not be changed, (5) block sizes will not be changed, (6) utility sizes and locations will not be changed, (7) open space and recreation areas will not be changed, and (8) the number of lots will not be increased, the Township Supervisors may at its discretion permit the developer to submit only a revised Final Plan to the Township for review.

In addition to all items specified in Section 4.30 of this Ordinance, the plan shall graphically show the lot line changes being made. The Final Plan shall be reviewed in accordance with Section 3.30 and shall be submitted to the County Planning Commission for review.

If the revision of lot lines would result in the relocation of driveway access points previously approved by PennDOT, the Township Supervisors shall require submission of the revised plan to PennDOT for approval.

3.63 Auction Sale

In the case of the proposed subdivision of land by process of auction sale, the following procedure may be used by the developer.

- 3.631 The developer shall prepare and submit a Preliminary Plan in accordance with the requirements of this Ordinance.
- 3.632 The Preliminary Plan shall comply with the requirements of this Ordinance and in addition contain the following notation:

This property is intended to be sold by auction on or about _____, 19____, in whole or in part according to this Plan. Sale of lots at such auction shall be in the form of agreement to purchase, and no actual transfer of ownership or interest in such lots shall occur until a Final Plan showing such subdivision of property is approved by the Township Supervisors in accordance with the Township Subdivision and Land Development Ordinance and recorded in the office of the County Recorder of Deeds.

- 3.633 After approval of the Preliminary Plan by the Township Supervisors, the auction sale may proceed. After the auction sale the developer shall prepare and submit a Final Plan in accordance with this Ordinance.

3.64 Lot Annexations - Sketch Plan for Record

Where the conveyance, sale or transfer of land from one parcel to an adjacent parcel is proposed for the sole purpose of increasing lot size, and not for the purpose of creating a separate new lot or a land development, the developer may submit only a Sketch Plan for Record to the Township. The Sketch Plan shall contain all information required by Section 4.10 of this Ordinance and be submitted and reviewed in accordance with Section 3.10. Precise bearings and distances from field survey shall be shown for the parcel being transferred, and evidence shall be submitted that the parcel from which a parcel is being transferred will

not violate or further violate, as the case may be, any requirement of the Township Zoning Ordinance or other Township Regulations. If development is subsequently proposed for the parcel which has been increased in size, no building or zoning permit shall be issued unless all applicable requirements of Township Regulations are complied with. The subdivision plan shall contain a notation that the parcel being transferred is not to be considered a separate building lot.

3.65 Abbreviated Subdivision - Final Plan

In the case of any subdivision in which all proposed lots will have frontage on and direct vehicular access to an existing improved Township or State road, the parcel being subdivided will be divided into more than three (3) but not more than six (6) lots or parcels, and the lots will be used for only single family detached dwellings, the Township Supervisors may at their discretion permit the developer to submit only a Final Plan to the Township, rather than both Preliminary and Final Plans. The Final Plan shall contain all information required by Section 4.30 of this Ordinance and shall be submitted and reviewed in accordance with Section 3.30. The Final Plan shall be submitted to the County Planning Commission for review. Submissions to and reviews from the County Conservation District and the Pennsylvania Department of Transportation may be required by the Township. Further subdivision from a tract subdivided under this section or subdivision of a lot or tract created under this section will require a review of Plans in accordance with the standard procedures of this Ordinance, and this shall be noted on the Plan.

3.66 Exempted Land Developments - Final Plan

In the case of a land development consisting of a single non-residential building containing no more than 12,500 square feet of gross floor area and located on a lot not exceeding two (2) acres in size or two single family detached dwellings on a lot or lots, the developer may submit only a Final Plan to the Township. The Final Plan shall contain all information required by Section 4.30 of the Ordinance and shall be submitted and reviewed in accordance with Section 3.30. The Final Plan shall be submitted to the County Planning Commission for review. Submissions to and reviews from the County Conservation District and the Pennsylvania Department of Transportation may be required by the Township.

ARTICLE IV - PLAN REQUIREMENTS

Section 4.10

Sketch Plans

- 4.11 The Sketch Plan shall be clearly and legibly drawn to a scale of one inch (1") equals twenty feet (20') or one inch (1") equals fifty feet (50') with all dimensions shown in feet and hundredths of a foot, except that if the average size of the proposed lots is two acres or larger, the plan may be drawn to a scale of one inch (1") equals one hundred feet (100').
- 4.12 The Sketch Plan shall be made on sheets no smaller than eighteen inches (18") by twenty-four inches (24") and no larger than thirty-six inches (36") by forty-eight inches (48").
- 4.13 If the Sketch Plan requires more than one sheet, a key diagram showing the relative location of all the sheets shall be drawn on each sheet. In addition, a match line shall be drawn on each sheet and the developer shall indicate along each match line what sheet is adjoined at that match line.
- 4.14 The Sketch Plan for Record shall contain at least the following data, legibly drawn to scale:
- 4.1401 Name and address of the developer.
 - 4.1402 Name and address of the record owner.
 - 4.1403 Name of the subdivision or land development.
 - 4.1404 Date of the plan.
 - 4.1405 Plan status.
 - 4.1406 Tract boundaries.
 - 4.1407 A statement of the total acreage of the tract.
 - 4.1408 North point.
 - 4.1409 Source of Title to the land as shown in the records of the County Recorder of Deeds. A copy of the deed shall be submitted with the plan.
 - 4.1410 Graphic scale.

- 4.1411 Written scale.
- 4.1412 The name and address of the person or firm responsible for the design of the subdivision or land development.
- 4.1413 The names of owners of adjoining properties and the names of adjoining subdivisions.
- 4.1414 A location map, drawn to a scale of 1" = 800', with sufficient information to enable the Township Planning Commission to locate the property being subdivided or developed. This map shall also show all existing roads within or adjacent to the tract, proposed roads within the subdivision or land development, and proposed roads within adjacent recorded subdivisions or land developments.
- 4.1415 Significant topographical and physical features such as water courses, water bodies, quarries, railroad tracks, 100 year flood plains, wetlands, tree masses, rock outcroppings, existing buildings, existing on-site sewage disposal and water supply systems, areas of carbonate geology, areas of 15 to 25% slope and areas of over 25% slope, and historic resources.
- 4.1416 Proposed street and lot layout.
- 4.1417 When apartments and/or townhouses are proposed, the building, street and access drive, recreation and parking layout shall be shown.
- 4.1418 When commercial or industrial buildings are proposed, the building, street and access drive, parking and loading layout shall be shown.
- 4.1419 Approximate lot sizes.
- 4.1420 Proposed street cartway and right-of-way widths.
- 4.1421 A statement telling what methods of water supply and sewage disposal will be used.

- 4.1422 A statement telling the use for each proposed lot, parcel and building indicated on the plan.
- 4.1423 Mapping of soils types throughout the tract.
- 4.1424 Contour lines at intervals of no more than ten (10) feet taken from U.S.G.S. maps, aerial survey, or field survey, with source of datum.
- 4.1425 Existing rights-of-way, easements, and utilities on or adjacent to the tract.
- 4.1426 Zoning district lines within the property and zoning district designations and area, yard and height requirements applicable to the property.
- 4.1426 A signed and notarized Certification of Ownership and Acknowledgement of Plan.
- 4.1427 Certificates for approval by the Township Planning Commission and Township Supervisors.
- 4.1428 The seal of the surveyor or engineer responsible for the Plan.
- 4.1429 Precise bearings and distances for all parcels to be conveyed (which shall be field surveyed).
- 4.1430 Base flood elevations for the 100-year storm.
- 4.1431 Building setback lines and all proposed structures.
- 4.1432 Existing street cartway and right-of-way lines and widths.
- 4.1433 An erosion and sediment control plan, which shall be reviewed by the County Conservation District and approved by the Township Supervisors. The Township may permit, at its discretion, a statement that individual lot purchasers will be responsible for the preparation of erosion and sediment control plans prior to any earthmoving activities.

4.1434

If the subdivision proposes a new driveway intersection with a State Route, a copy of the Highway Occupancy Permit for such intersection. Any conditions listed in a permit shall be noted on the Plan. In lieu of a permit for a driveway intersection, the Township Supervisors may permit the following note to be placed on the Plan:

A highway occupancy permit is required pursuant to Section 420 of the Act of June 1, 1945 (P.L. 1242, No. 428), known as the "State Highway Law", before a driveway access to a state highway is permitted. Access to the state highway shall only be as authorized by a highway occupancy permit.

The approval of this subdivision/land development plan shall in no way imply that a state highway permit can be acquired or that this municipality will support, encourage or not oppose the granting of such a permit. It is possible that access to the property from a state highway will not be permitted by the Commonwealth and the property therefore cannot be used for the purpose intended by any purchaser. Purchasers are accordingly warned and should govern themselves accordingly, acquiring state and local highway occupancy permits before purchasing any premises.

4.1435 Location of existing water supply and sewage disposal systems.

4.15 Where a Sketch Plan shows the proposed subdivision or development of only a portion of the developer's total property, the Plan shall be accompanied by a drawing showing the entire contiguous land holdings of the developer and indicating the area of ultimate proposed subdivision or development. (This drawing shall be shown on a separate sheet from the Sketch Plan.) The proposed street system for the remainder of the property proposed for ultimate subdivision or development shall be shown so that the street system in the submitted portion can be considered in relation to future connections with the unsubmitted portion. In the case of extremely large properties, the Township Planning Commission may delimit the area for which a prospective street system on adjacent property must be shown. The developer shall also include a statement indicating proposed future land use for the unsubmitted portion of his property.

Section 4.20

Preliminary Plans

- 4.21 The Preliminary Plan shall be clearly and legibly drawn to a scale of one inch (1") equals twenty feet (20') or one inch (1") equals fifty feet (50') with all dimensions shown in feet and hundredths of a foot, except that if the average size of the proposed lots is two acres or larger, the plan may be drawn to a scale of one inch (1") equals one hundred feet (100').
- 4.22 The Preliminary Plan shall be made on sheets no smaller than eighteen inches (18") by twenty-four inches (24") and no larger than thirty-six inches (36") by forty-eight inches (48").
- 4.23 If the Preliminary Plan requires more than one sheet, a key diagram showing the relative location of all the sheets shall be drawn on each sheet. In addition, a match line shall be drawn on each sheet and the developer shall indicate along each match line what sheet is adjoined at that match line.
- 4.24 A plan index, listing the title of each plan included in the submission, shall be included on the plans intended for eventual recording.
- 4.25 The Preliminary Plan shall show:
- 4.2501 Name of the proposed subdivision or land development, which shall be other than just the name of the subdivider or landowner.
 - 4.2502 Name of the Township.
 - 4.2503 Plan status.
 - 4.2504 North point.
 - 4.2505 Graphic Scale.
 - 4.2506 Written scale.
 - 4.2507 Date of plan, including the month, day and year that the original drawing was completed and in the case of revised drawings the month, day and year that the original drawing was revised and a description of each revision.

- 4.2508 Name and address of the record owner.
- 4.2509 Name and address of the developer.
- 4.2510 Source of Title to the tract.
- 4.2511 A copy of the deed(s) for the tract.
- 4.2512 Name and address of registered engineer or surveyor responsible for the plan.
- 4.2513 The names of any abutting subdivisions and land developments and the book and page numbers where recorded.
- 4.2514 The names of the owners of any adjacent unplatted land and the book and page numbers where recorded.
- 4.2515 A location map for the purpose of locating the property being subdivided or developed, drawn at a scale of 1" = 800', showing the relation of the property, differentiated by tone or pattern, to adjoining property and to all roads, municipal boundaries, recorded subdivision and land development plans, and recorded but unconstructed streets within one thousand feet (1000') of the subdivision or land development. A scale, north point and the proposed street system within the subdivision or land development shall be shown.
- 4.2516 Total tract boundaries of the property being subdivided or developed showing bearings and distances.

The source of tract boundary data shall be given if not from field survey.

If the developer is going to retain a single parcel with an area in excess of ten (10) acres and that parcel will not be improved beyond its current level of improvement, that parcel may be considered residue and may be identified by deed plotting. If the retained parcel has an area of ten (10) acres or less, it shall be considered a lot within the subdivision and described to the accuracy requirements of this Ordinance.

- 4.2517 Total acreage of the tract.
- 4.2518 Zoning district lines within the property and zoning district designations and area, yard and height requirements applicable to the property.
- 4.2519 Contour lines at vertical intervals of not more than two feet (2') for land with average natural slope of four percent (4%) or less and at intervals of not more than five feet (5') for land with average natural slope exceeding four percent (4%). Contour lines shall be from aerial or field survey.
- 4.2520 Location and elevation of the datum to which contour elevations refer. Datum used shall be a known, established bench mark. Sanitary sewer manholes shall not be used as a datum base.
- 4.2521 All existing buildings, sanitary sewer lines, on-site sewage disposal systems, water lines, wells, fire hydrants, utility lines, storm drainage facilities, bridges, railroad tracks, and other significant man-made features within the proposed subdivision or land development and within fifty feet (50') of the boundaries of the proposed subdivision or land development.
- 4.2522 All existing soils types boundaries.
- 4.2523 Soils characteristics for detention and retention pond areas.
- 4.2524 Natural drainage channels, water courses and water bodies.
- 4.2525 Tree masses and isolated live trees over one (1) foot in diameter.
- 4.2526 Quarries and rock outcroppings.
- 4.2527 Wetlands.

4.2528 100-year flood plains, including delineation of floodway and flood fringe, established by study of FEMA, with base flood elevations for the 100-year storm. For those watercourses for which studies have not been performed by FEMA, calculated 100-year flood plains shall be established by the developer in accordance with Appendix IV of this Ordinance.

When a subdivision or land development contains a flood plain, the elevation of roads, building sites and public utilities in the vicinity of the flood plain shall be given.

4.2529 All existing streets and streets recorded but not constructed on or abutting the tract, including names, existing and ultimate right-of-way widths and lines, cartway widths and lines, and approximate grades.

4.2530 All existing easements and rights-of-way and the purposes for which they have been established, deed restrictions, and covenants.

4.2531 All proposed streets, their location, suggested name, right-of-way and cartway widths and lines, centerline radii of horizontal curves, intended ownership, a statement of any conditions governing their use, and classification (i.e. collector). The designation of minor, collector, and arterial streets is subject to the approval of the Township Supervisors.

Streets to be dedicated shall be indicated. For streets which will not be dedicated, the arrangements to be made for the ownership and maintenance of those streets shall be given.

4.2532 Location, width, and purpose of all proposed easements and rights-of-way.

4.2533 Building setback lines along each street, lot line, and utility line.

4.2534 Lot lines, with approximate dimensions.

- 4.2535 Approximate lot areas.
- 4.2536 Lot numbers.
- 4.2537 A statement of the total number of lots and parcels.
- 4.2538 Intended use of lots.
- 4.2539 Location, size and material of all water mains, with connections to existing facilities; fire hydrants; storage tanks; and water sources.
- 4.2540 Location, size, material and grade of all sanitary sewers, with connections to existing facilities; pumping stations; force mains; and sewage treatment plants, with type and degree of treatment proposed and size and capacity of treatment facilities.
- 4.2541 Location, size, material and grade of all storm drainage facilities, with connections to existing facilities. Cross-sections shall be shown for all drainage swales.
- 4.2542 Location, size and proposed use of all parks, playgrounds, recreation areas, public buildings, and other public uses. Areas to be dedicated to the Township shall be noted. Areas to be reserved for public use but not to be dedicated shall be noted, any conditions governing such areas shall be listed, and the arrangements to be made for the ownership, administration and maintenance of these areas shall be given.
- 4.2543 Provisions for pedestrian and other non-vehicular circulation throughout the tract.
- 4.2544 Typical street cross-section drawing(s) of each proposed street, including construction details of streets, shoulders, curbs, and sidewalks and cross-slopes of streets, shoulders, sidewalks, and planting strips.

- 4.2545 Tentative profiles along the centerline of each proposed street. Such profiles shall show existing and finished grades at one of the following sets of scales or any combination thereof. Station numbers; length of vertical curves; existing and proposed sanitary sewer mains and manholes with top and invert elevation data; existing and proposed storm sewer mains, inlets, manholes and culverts with top and invert elevation data; and existing and proposed water mains where they cross other utilities shall be indicated.
- 4.25451 One inch (1") equals ten feet (10') horizontal and one inch (1") equals one foot (1') vertical, or
- 4.25452 One inch (1") equals twenty feet (20') horizontal and one inch (1") equals two feet (2') vertical, or
- 4.25453 One inch (1") equals forty feet (40') horizontal and one inch (1") equals four feet (4') vertical, or
- 4.25454 One inch (1") equals fifty feet (50') horizontal and one inch (1") equals five feet (5') vertical.
- 4.2546 A plan for the surface drainage of the tract, including storm water run-off calculations and the proposed method of accommodating the anticipated run-off. Storm water calculations shall be made and drainage facilities designed in accordance with Article V and Appendix V of this Ordinance.
- 4.2547 Preliminary designs of any bridges or culverts. Such designs shall meet all applicable requirements of the Pennsylvania Department of Transportation and the Pennsylvania Department of Environmental Resources. Capacity/loading calculations shall be submitted.
- 4.2548 The proposed location of all townhouses and parking facilities to serve the townhouses.

- 4.2549 In the case of land development plans, the following additional information shall be shown:
- 4.25491 The location and use of all buildings.
 - 4.25492 Location and grade of all parking areas and access drives, the size and number of parking spaces, and the width of aisles and access drives.
 - 4.25493 The location, number, and dimensions of off-street loading areas.
 - 4.25494 Provisions for landscaping of the tract.
 - 4.25495 Provisions for lighting of the tract.
 - 4.25496 Provisions for traffic control.
 - 4.25497 The location of refuse collection areas.
 - 4.25498 A table showing extent of compliance with the Area, Yard, and Height Regulations of the Township Zoning Ordinance.
- 4.2550 Location of school bus stop shelters or pads.
 - 4.2551 Proposed restrictive covenants.
 - 4.2552 Design speed of all proposed streets.
 - 4.2553 Sight distance calculations for vertical curves in streets (see Section 5.217).
 - 4.2554 Sight distance calculations at street intersections (see Section 5.219).
 - 4.2555 Horizontal curve radii of cartway and right-of-way lines at street intersections. The proposed cartway tie-in to existing street cartways shall be indicated.

- 4.2556 On the subdivision plan or a plan view drawing of streets, station numbers corresponding to the street profiles.
- 4.2557 Guide rail locations and construction detail.
- 4.2558 Clear sight triangles at street intersections.
- 4.2559 Proposed ownership and maintenance of storm drainage facilities.
- 4.2560 A typical treatment of the construction of driveways and the handling of storm drainage where driveways will intersect streets. The Township may require driveway culverts to be sized and such size noted on the plan.
- 4.2561 Proposed location and type of traffic control devices.
- 4.2562 Areas of 15 to 25% slope and areas of over 25% slope.
- 4.2563 Areas of carbonate geology.
- 4.2564 The location of deep probe and soil percolation test holes.
- 4.2565 The disposition of solid waste generated within the subdivision or land development.
- 4.26 The following additional information shall be submitted with the Preliminary Plan:
- 4.2601 Where a Preliminary Plan shows the proposed subdivision or development of only a portion of the developers total property, the Plan shall be accompanied by a drawing showing the entire contiguous land holdings of the developer and indicating the area of ultimate proposed subdivision or development. (This drawing shall be shown on a separate sheet from the Preliminary Plan.) The proposed street system for the remainder of the property proposed for ultimate subdivision or development shall be shown so that the street system in the submitted portion can be considered in relation to future connections with the unsubmitted portion. In the case of

extremely large properties, the Township Planning Commission may delimit the area for which a prospective street system on adjacent property must be shown. The developer shall also include a statement indicating proposed future land use for the unsubmitted portion of his property.

- 4.2602 In the case of a proposed revision of a FEMA-mapped flood plain, a letter of approval of such revision from FEMA.
- 4.2603 A traffic study when required by Section 5.99 of this Ordinance.
- 4.2604 A letter from the agency having right of approval of the water supply and distribution system indicating whether it has adequate capacity to serve the subdivision or land development and giving its comments regarding the proposed water supply and distribution systems.
- 4.2605 A letter from the agency having right of approval of the sanitary sewer system indicating whether it has adequate capacity to serve the subdivision or land development and giving its comments regarding the proposed sanitary sewer system.
- 4.2606 Habitats of Threatened and Endangered Species of Special Concern in Pennsylvania within the tract, as established by the Pennsylvania Biological Survey and/or Pennsylvania Natural Diversity Inventory.
- If such habitats exist on the tract, the measures proposed to protect the habitats shall be indicated.
- 4.2607 All Historic and Archaeological Resources which have been identified and/or inventoried by the Township, the County, the County Planning Commission, and/or the Pennsylvania Historical and Museum Commission located within the tract or within fifty (50) feet of the tract.

- 4.2608 Where the subdivider proposes to locate a street, driveway, or other improvement within a portion of a utility right-of-way, or to relocate an existing utility line, a letter from the appropriate utility company giving permission to locate within the right-of-way or relocate the existing line.
- 4.2609 A plan for the preservation of existing natural features on the site (see Section 5.90).
- 4.2610 In the case of subdivision or land development plans proposed to be submitted in stages at Final Plan, a drawing delineating the proposed stages and indicating the order of submittal and schedule of submittal of the stages. Staging of sanitary sewer, water and storm drainage facilities and the location of any temporary street turnarounds shall also be indicated.
- 4.2611 Schematic architectural drawings of proposed townhouses, apartment buildings, and commercial and industrial buildings, including building orientation.
- 4.2612 Proposed driveway locations and evidence that the standards for driveways established in this Ordinance (Section 5.55) can be met.
- 4.2613 A preliminary center line stakeout of proposed roads so that an on-site road alignment evaluation may be conducted.
- 4.2614 The results of tests at proposed road locations which shall indicate the suitability of the sites for road construction.
- 4.2615 Impact studies as required by Section 5.99.

Section 4.30

Final Plans

- 4.31 The Final Plan shall be clearly and legibly drawn to a scale of one inch (1") equals twenty feet (20') or one inch (1") equals fifty feet (50') with all dimensions shown in feet and hundredths of a foot, except that if the average size of the proposed lots is two acres or larger, the plan may be drawn to a scale of one inch (1") equals one hundred feet (100').
- 4.32 The Final Plan shall be made on sheets no smaller than eighteen inches (18") by twenty-four inches (24") and no larger than thirty-six inches (36") by forty-eight inches (48").
- 4.33 If the Final Plan requires more than one sheet, a key diagram showing the relative location of all the sheets shall be drawn on each sheet. In addition, a match line shall be drawn on each sheet and the developer shall indicate along each match line what sheet is adjoined at that match line.
- 4.34 A plan index, listing the title of each plan included in the submission, shall be included on the plans intended for eventual recording.
- 4.35 The Final Plan shall show:
- 4.3501 Name of the proposed subdivision or land development, which shall be other than just the name of the subdivider or landowner.
 - 4.3502 Name of the Township.
 - 4.3503 Plan status.
 - 4.3504 North point.
 - 4.3505 Graphic Scale.
 - 4.3506 Written scale.
 - 4.3507 Date of plan, including the month, day and year that the original drawing was completed and in the case of revised drawings the month, day and year that the original drawing was revised and a description of each revision.

- 4.3508 Name and address of the record owner.
- 4.3509 Name and address of the developer.
- 4.3510 Source of Title to the tract.
- 4.3511 A copy of the deed(s) for the tract.
- 4.3512 Name, address, and seal of registered engineer or surveyor responsible for the plan.
- 4.3513 The names of any abutting subdivisions and land developments and the book and page numbers where recorded.
- 4.3514 The names of any adjacent unplatted land and the book and page numbers where recorded.
- 4.3515 A location map for the purpose of locating the property being subdivided or developed, drawn at a scale of 1" = 800', showing the relation of the property, differentiated by tone or pattern, to adjoining property and to all roads, municipal boundaries, recorded subdivision and land development plans, and recorded but unconstructed streets within one thousand feet (1000') of the subdivision or land development. A scale, north point and the proposed street system within the subdivision or land development shall be shown.
- 4.3516 The total tract boundary lines of the area being subdivided or developed, based on field survey, with accurate distances to hundredths of a foot and bearings to one-quarter (1/4) of a minute. These boundaries shall be balanced and closed with an error or closure not to exceed one foot (1') in ten thousand feet (10,000'); provided however, that the boundary(s) adjoining additional unplatted land of the developer (for example, between separately-submitted Final Plan sections) are not required to be based upon field survey, and may be calculated.

The proposed location and elevation (if the elevation is established) of all boundary line (perimeter) monuments shall be indicated, along with a statement of the total area of the property being subdivided or developed. The Township Supervisors may require perimeter monuments to be set and elevations established prior to approval of the Final Plan.

The surveyor and/or engineer responsible for the plan shall certify as to the accuracy of the survey and the drawn plan in accordance with Appendix II. Plans and surveys shall be prepared in accordance with the Professional Engineers Registration Law.

If the developer is going to retain a single parcel with an area in excess of ten (10) acres and that parcel will not be improved beyond its current level of improvement, that parcel may be considered residue and may be identified by deed plotting. If the retained parcel has an area of ten (10) acres or less, it shall be considered a lot within the subdivision and described to the accuracy requirements of this Ordinance.

- 4.3517 Total acreage of the tract.
- 4.3518 Zoning district lines within the property and zoning district designations and area, yard and height requirements applicable to the property.
- 4.3519 Location and elevation of the datum to which elevations refer. Datum used shall be a known, established bench mark. Sanitary sewer manholes shall not be used as a datum base.
- 4.3520 The following information if not shown on a Preliminary Plan:
 - 4.35201 Contour lines at vertical intervals of not more than two feet (2') for land with average natural slope of four percent (4%) or less and at intervals of not more than five feet (5') for land with average natural slope exceeding four percent (4%). Contour lines shall be from aerial or field survey.

- 4.35202 All existing buildings, sanitary sewer lines, on-site sewage disposal systems, water lines, wells, fire hydrants, utility lines, storm drainage facilities, bridges, railroad tracks, and other significant man-made features within the proposed subdivision or land development and within fifty feet (50') of the boundaries of the proposed subdivision or land development.
- 4.35203 All existing soils types boundaries.
- 4.35204 Soils characteristics for detention and retention pond areas.
- 4.35205 Natural drainage channels, water courses and water bodies.
- 4.35206 Tree masses and isolated live trees over one (1) foot in diameter.
- 4.35207 Quarries and rock outcroppings.
- 4.35208 Areas of 15 to 25% slope and areas of over 25% slope.
- 4.35209 Areas of carbonate geology.
- 4.3521 Wetlands.
- 4.3522 100-year flood plains, including delineation of floodway and flood fringe, established by study of FEMA, with base flood elevations for the 100-year storm. For those watercourses for which studies have not been performed by FEMA calculated 100-year flood plains shall be established by the developer in accordance with Appendix IV of this Ordinance.
- When a subdivision or land development contains a flood plain, the proposed elevation of roads, building sites and public utilities in the vicinity of the flood plain shall be given.
- 4.3523 All existing streets and streets recorded but not constructed on or abutting the tract, including names, existing and ultimate right-of-way widths and lines, and cartway widths and lines.

- 4.3524 All existing easements and rights-of-way and the purposes for which they have been established, deed restrictions, and covenants.
- 4.3525 All proposed streets, their location, suggested name, right-of-way and cartway widths and lines, centerline radii of horizontal curves, intended ownership, and a statement of any conditions governing their use.
- Streets to be dedicated shall be indicated. For streets which will not be dedicated, the arrangements to be made for the ownership and maintenance of those streets shall be given.
- 4.3526 For the cartway edges or curb lines and right-of-way lines of all recorded (except those which are to be vacated) and proposed streets, and for the existing and ultimate right-of-way lines of all existing streets within or abutting the property to be subdivided, the length, in feet to the second decimal point, of all straight lines and the length of arc, radius, delta angle (in degrees, minutes, and seconds) of all curved lines.
- 4.3527 Location, width, and purpose of all proposed easements and rights-of-way. Bearings and distances shall be provided for easements when not parallel to lot or street lines.
- 4.3528 Building setback lines along each street, lot line, and utility line and all proposed structures.
- 4.3529 All lot lines shall be shown and shall be completely dimensioned in feet to the second decimal point, if straight, and if curved, with central angle in degrees, minutes and seconds and length of arc and radius. Lot line distances to street right-of-way lines shall be given. Bearings to one-quarter (1/4) of a minute shall be shown for all lot lines and each lot shall be balanced to an accuracy of one foot in ten thousand (10,000) feet. As an alternative to bearings for each lot line, angles at the intersection of all lot lines may be given.

- 4.3530 The area of each lot in square feet or acres, exclusive of street rights-of-way.
- 4.3531 Lot numbers, numbered consecutively.
- 4.3532 A statement of the total number of lots and parcels.
- 4.3533 Intended use of lots.
- 4.3534 Location, size and material of all water mains, with connections to existing facilities; fire hydrants; blow-offs; valves; storage tanks; and water sources.
- 4.3535 Location, size, material, pipe length, invert elevation and grade of all sanitary sewers, with connections to existing facilities; location and construction details of all manholes; design of pumping stations; force mains; and sewage treatment plants, with type and degree of treatment proposed and size and capacity of treatment facilities.
- 4.3536 Location, size, material, pipe length, invert elevation and grade of all storm drainage facilities, with connections to existing facilities; location, slope, velocity within, and cross-section for all drainage swales; the location and construction details of all manholes, inlets, endwalls, headwalls, culverts and junction boxes; the location and design of all detention facilities and other drainage facilities; the size, depth, length, and width of riprap aprons, with design calculations.
- 4.3537 Location, size and proposed use and design of all parks, playgrounds, recreation areas, public buildings, and other public uses. Areas to be dedicated to the Township shall be noted. Areas to be reserved for public use but not be dedicated shall be noted, any conditions governing such areas shall be listed, and the arrangements to be made for the ownership, administration and maintenance of these areas shall be given.
- 4.3538 Provisions for pedestrian and other non-vehicular circulation throughout the tract.

4.3539 Typical street cross-section drawing(s) of each proposed street, including right-of-way and cartway widths, construction details of streets, shoulders, curbs, and sidewalks and cross-slopes of streets, shoulders, sidewalks, and planting strips. The typical location, size, and depth of any underground utilities shall be indicated.

4.3540 Profiles along the centerline of each proposed street. Such profiles shall show at least the following information, properly labeled:

Existing profile along both cartway edges or at the top of curbs.

Proposed finished grade at the top of both curbs or along both cartway edges.

The length of all vertical curves.

Existing and proposed sanitary sewer mains and manholes, with top and invert elevation data.

Existing and proposed storm sewer mains, inlets, manholes and culverts, with top and invert elevation data.

Existing and proposed water mains when they cross other utilities.

Station numbers.

The profiles shall be drawn at at one of the following sets of scales or any combination thereof.

4.35401 One inch (1") equals ten feet (10') horizontal and one inch (1") equals one foot (1') vertical, or

4.35402 One inch (1") equals twenty feet (20') horizontal and one inch (1") equals two feet (2') vertical, or

4.35403 One inch (1") equals forty feet (40') horizontal and one inch (1") equals four feet (4') vertical, or

- 4.35404 One inch (1") equals fifty feet (50') horizontal and one inch (1") equals five feet (5') vertical.
- 4.3541 A plan for the surface drainage of the tract, including storm water run-off calculations and the proposed method of accommodating the anticipated run-off. Storm water calculations shall be made and drainage facilities designed in accordance with Article V and Appendix V of this Ordinance.
- 4.3542 Designs of any bridges or culverts. Such designs shall meet all applicable requirements of the Pennsylvania Department of Transportation and the Pennsylvania Department of Environmental Resources. Capacity/loading calculations shall be submitted.
- 4.3543 The location of all townhouses and parking facilities to serve the townhouses.
- 4.3544 A certificate of ownership, acknowledgement of plan and offer of dedication shall be lettered on the Plan, using the form specified in Appendix I, and shall be signed by the owner(s) of the property and be notarized.
- 4.3545 Certificate for approval of the Plan by the Township Planning Commission.
- 4.3546 Certificate for approval of the Plan by the Township Supervisors.
- 4.3547 A blank space in which the appropriate stamp and notation of the County Planning Commission may be applied.
- 4.3548 A blank space in order that the Recorder of Deeds may acknowledge receipt and recording of the plan when it is presented.
- 4.3549 In the case of land development plans, the following additional information shall be shown:

- 4.35491 The location and use of all buildings.
- 4.35492 Location and grade of all parking areas and access drives, the size and number of parking spaces, and the width of aisles and access drives.
- 4.35493 The location, number, and dimensions of off-street loading areas.
- 4.35494 Provisions for landscaping of the tract.
- 4.35495 Provisions for lighting of the tract.
- 4.35496 Provisions for traffic control.
- 4.35497 The location of refuse collection areas and provisions to be made for refuse collection.
- 4.35498 A table showing extent of compliance with the Area, Yard, and Height Regulations of the Township Zoning Ordinance.
- 4.35499 A grading plan for the tract showing existing and proposed contour lines at the interval required by Section 4.35201. Lowest floor elevations for proposed buildings shall be indicated.
- 4.3550 Location of school bus stop shelters or pads.
- 4.3551 Restrictive covenants and deed restrictions applicable to the development, whether proposed or previously existing.
- 4.3552 Design speed of all proposed streets.
- 4.3553 Sight distance calculations for vertical curves in streets (see Section 5.217).
- 4.3554 Sight distance calculations at street intersections (see Section 5.219).
- 4.3555 Horizontal curve radii of cartway and right-of-way lines at street intersections. The cartway tie-in to existing street cartways shall be indicated.

- 4.3556 On the subdivision plan or a plan view drawing of streets, station numbers corresponding to the street profiles.
- 4.3557 Guide rail locations and construction detail.
- 4.3558 Clear sight triangles at street intersections.
- 4.3559 Proposed ownership and maintenance of storm drainage facilities.
- 4.3560 A typical treatment of the construction of driveways and the handling of storm drainage where driveways will intersect streets. The Township may require driveway culverts to be sized and such size noted on the plan.
- 4.3561 Location and type of traffic control devices.
- 4.3562 Whenever a developer proposes to establish a street which is not offered for dedication to public use, the Township Supervisors may require the developer to submit, and also to record with the Plan, a copy of an agreement made with the Township on behalf of his heirs and assigns, which shall establish the conditions under which the street may later be offered for dedication.
- 4.3563 If the subdivision or land development proposes a new street or driveway intersection with a State Route, a copy of the Highway Occupancy Permit for such intersection. In lieu of a permit for a driveway intersection, the Township Supervisors may permit the following note to be placed on the Plan:

A Highway Occupancy Permit is required pursuant to Section 420 of the Act of June 1, 1945 (P.L. 1242, No. 428), known as the "State Highway Law", before a driveway access to a state highway is permitted. Access to the state highway shall only be as authorized by a Highway Occupancy Permit.

The approval of this subdivision/land development plan shall in no way imply that a state highway permit can be acquired or that this municipality will support, encourage or not oppose the granting of such a permit. It is possible that access to the property from a state highway will not be permitted by the Commonwealth and the property therefore cannot be used for the purpose intended by any purchaser. Purchasers are accordingly warned and should govern themselves accordingly, acquiring state and local highway occupancy permits before purchasing any premises.

Any conditions listed in a Permit shall be noted on the Plan.

- 4.3564 A copy of all permits required from the Pennsylvania Department of Environmental Resources for affecting water courses, bodies of water, or water obstructions.
- 4.3565 An erosion and sediment control plan for the tract, in accordance with Section 5.80.
- 4.3566 A landscape plan showing the number, location, size and species of all trees and shrubs that will be planted within the subdivision or land development. Utility easements and rights-of-way shall be shown on the plan.
- 4.3567 A final grading plan showing existing and proposed contour lines at the interval required by Section 4.35201 shall be submitted. Lowest floor elevations for proposed buildings shall be indicated.
- 4.3568 Copies of all approvals required for sanitary sewer and water systems shall be received prior to approval of the Final Plan, including confirmation that the appropriate agencies can and will serve the proposed development.

- 4.3569 A lighting plan showing the location of poles, the type and height of poles, and the type and brightness of lighting fixtures shall be submitted. The type of fixture to be placed at each location shall be noted.
- 4.3570 All information required pursuant to Section 5.21101 of this Ordinance.
- 4.3571 All information required pursuant to Section 5.523 of this Ordinance, regarding access from adjoining municipalities.
- 4.3572 When the tract contains wetlands, a copy of all required permits or permit waivers from PaDER and/or Army Corps of Engineers.
- 4.3573 Copies of approvals required by any other governmental regulatory agencies concerning matters under their jurisdiction.
- 4.3574 A copy of any agreements incident to the construction, operation, maintenance and/or dedication of facilities for public use.
- 4.3575 When required by the Township, the following notification: "The provisions of Notes _____ and _____ hereof shall be and are hereby considered covenants running with the land affected thereby, enforceable by any other owner of property in this subdivision. In addition to the foregoing, the Township of Marion may, but need not, at its discretion, enforce such covenants as it desires, and is hereby given such right, irrevocably."
- 4.3576 A note to be placed on the plan indicating any area that is to be offered for dedication, if applicable, and that the conveyance of land constituting all or part of such offered land shall not constitute the revocation of the offer and all conveyances shall be under and subject to said offer.
- 4.3577 A plan for the preservation of existing natural features on the site (see Section 5.90).
- 4.3578 Proposed driveway locations and evidence that the standards for driveways established in this Ordinance (Section 5.55) can be met.

4.3579 The following additional information shall be submitted with the Plan if not submitted with a Preliminary Plan:

- 4.35791 In the case of a proposed revision of a FEMA-mapped flood plain, a letter of approval of such revision from FEMA.
- 4.35792 A traffic study when required by Section 5.99 of this Ordinance.
- 4.35793 Habitats of Threatened and Endangered Species of Special Concern in Pennsylvania within the tract, as established by the Pennsylvania Biological Survey and/or Pennsylvania Natural Diversity Inventory.
- 4.35794 If such habitats exist on the tract, the measures proposed to protect the habitats shall be indicated.
- 4.35795 If required by the Township, all Historic and Archaeological Resources which have been identified and/or inventoried by the Township, the County, the County Planning Commission, and/or the Pennsylvania Historical and Museum Commission located within the tract or within fifty (50) feet of the tract.
- 4.35796 Where the developer proposes to locate a street, driveway, or other improvement within a portion of a utility right-of-way, or to relocate an existing utility line, a letter from the appropriate utility company giving permission to locate within the right-of-way or relocate the existing line.

- 4.35797. Schematic architectural drawings of proposed townhouses, apartment buildings, and commercial and industrial buildings, including building orientation.
- 4.35798 Impact studies as required by Section 5.99.
- 4.35799 When on-site sewage disposal is proposed, final documentation of the approval of the tract for on-site sewage disposal.
- 4.357910 The disposition of solid waste generated within the proposed subdivision or land development.

Section 4.40

Soil Percolation Test Requirements

- 4.41 Soil percolation tests shall be performed for all subdivisions in which buildings at the time of construction will not be connected to an operating public or community sanitary sewage disposal system.
- 4.42 Soil percolation tests shall be made in accordance with the procedure required by the Pennsylvania Department of Environmental Resources and the Township Sewage Enforcement Officer.
- 4.43 Soil percolation tests shall be performed at or near the site of proposed on-site sanitary sewage disposal facilities. At least one test shall be performed on each lot within the subdivision.

If the soil percolation tests are performed at a site which the Township believes is not a feasible location for an on-site system given the proposed lot and street layout, topography, and intended use of the lot, the Township may require soil percolation tests to be performed at a location which it deems feasible.

- 4.44 The results of the soil percolation tests shall be analyzed by the Township, and by the Pennsylvania Department of Environmental Resources as necessary, and the Final Plan lot layout shall be based on this analysis. If the analysis of the soil percolation test results reveals that the soil is unsuitable for the intended use at the lot size(s) originally proposed, the Township may require that the lot size(s) be increased in accordance with the test results.

ARTICLE V - DESIGN STANDARDS

Section 5.10 Application and General Standards

- 5.11 The standards and requirements contained in Articles V and VI are intended as the minimum for the promotion of the public health, safety and general welfare, and shall be applied as such by the Township Planning Commission and Township Supervisors in reviewing all subdivision and land development plans.
- 5.12 Whenever other Township regulations impose more restrictive standards and requirements than those contained herein, such other regulations shall prevail; otherwise, the standards and requirements of this ordinance shall apply.
- 5.13 The layout or arrangement of the subdivision or land development shall conform to the Comprehensive Plan, any regulations or maps adopted in furtherance thereof, and any other official plans of the Township which have been adopted.
- 5.14 The plan of the proposed subdivision or land development shall be coordinated with existing adjacent development in order to provide for harmonious development of the area as a whole.
- 5.15 Land shall be suited to the purpose for which it is to be subdivided or developed. Lands subject to hazards to life, health, or property such as may result from fire, flood, disease or other causes shall either be made safe for the purpose for which such land is proposed to be used, or such land shall be set aside for uses which shall not endanger life or property or further aggravate or increase the existing menace.
- 5.16 All subdivisions and land developments shall be reviewed to assure that all such proposals are consistent with the need to minimize flood damage, that all utilities and facilities, such as sewer, gas, electrical and water systems are located and constructed to minimize or eliminate flood damage, and that adequate drainage is provided so as to reduce exposure to flood hazards.

Section 5.20 Streets

5.21 General Standards

5.2101 All design elements of all streets, including horizontal and vertical alignment, sight distance, and super-elevation, are subject to review and approval by the Township Supervisors. When reviewing the design of streets, in addition to the standards in this Ordinance, the Rural Design Criteria in the Pennsylvania Department of Transportation Design Manual Part 2, Highway Design, January 1990 edition, and A Policy on Geometric Design of Rural Highways and Streets, 1984 edition, shall be consulted to assure that the road design is in accordance with acceptable engineering practice.

5.2102 For certain aspects of vertical and horizontal alignment discussed below, standards are determined by design speed of the road involved. For all proposed streets, the developer shall indicate the proposed design speed. The designated design speed is subject to the approval of the Township Supervisors. In general, the design speed on arterial streets shall be considered as 55 mph (to be determined in each individual case), on collector streets a minimum of 35 MPH (to be determined in each individual case) and on minor streets 35 MPH unless a lesser design speed is permitted by the Township Supervisors.

5.2103 The speed limit proposed to be posted for streets shall not exceed the design speed.

5.2104 Streets in and bordering a subdivision or land development shall be coordinated, and be of such widths and grades and in such locations as deemed necessary to accommodate prospective traffic, and facilitate fire protection.

5.2105 The location and width of all proposed streets shall conform to the Official Plans which have been adopted by the Township and shall be properly related to all existing streets, recorded streets, and Official Plans which have been adopted or approved by the Township, County, or State.

- 5.2106 Streets within the subdivision or land development and adjacent roads which will receive traffic from and distribute traffic to the subdivision or land development shall be adequate in construction, grade, width and capacity to accommodate traffic generated by the subdivision or land development.
- 5.2107 The proposed street system shall extend existing or recorded streets at the same width as the existing or recorded streets if these streets meet or exceed the standards of Section 5.2131. If the existing or recorded streets do not meet or exceed the standards of Section 5.2131, the proposed street extensions shall meet the standards of Section 5.2131.
- 5.2108 Where, in the opinion of the Township Supervisors, it is desirable to provide for street access to adjoining property, streets shall be extended by dedication to the boundary of such property. The location and number of access points to adjoining properties are subject to Township Supervisors approval.
- 5.2109 When streets will be extended to the boundaries of the subdivision or land development to provide for access to potentially developable tracts and sanitary sewer and/or water lines will be constructed in the streets within the developer's tract, the Township Supervisors may require extension of the sanitary sewer and/or water lines to the tract boundary in order to facilitate future extensions to abutting land.
- 5.2110 If a subdivision proposes lots, all of which front on existing public roads, the Township Supervisors may require the developer to reserve land adequate to provide for future street access from the public roads on which the lots front to the land to the rear of the proposed lots. Such reserved areas shall be of such dimensions to permit the construction of streets meeting the standards of this Ordinance.

- 5.21101 When reservations for future streets will adjoin lots to be developed prior to the construction of the streets, the developer shall establish the proposed grades of the future streets and the extent of the area necessary for the construction of those streets. If the area necessary for the construction of the streets extends beyond the proposed street right-of-way lines, all excavation and grading necessary for the roads beyond the right-of-way lines shall be done as required improvements in conjunction with the subdivision which contains the adjoining lots or else construction easements shall be provided on the adjoining lots, sufficient to permit construction of the future street.
- 5.21102 Where reservations for future streets intersect existing streets, radii shall be provided for the reservations such that the requirements of Sections 5.2186 and 5.2187 of this Ordinance could be met for a street to be constructed in the future.
- 5.2111 If lots or parcels in the subdivision are large enough for resubdivision, or if a portion of the developer's property is not proposed to be subdivided but could be subdivided in the future, the Township Supervisors may require the reservation of land adequate to provide for future street access to land which could be resubdivided or subdivided in the future and require that the location of land reserved for future streets be coordinated with the street system shown on the subdivision plan.
- 5.2112 Connections shall be provided between streets within the subdivision or land development to provide adequate access for emergency vehicles, other vehicles, and pedestrians.

- 5.2113 New minor streets shall be so designed as to discourage through traffic, but the developer shall provide for the extension and continuation of arterial and collector streets into and from adjoining properties when required by the Township Supervisors. Minor streets shall be extended and continued into and from adjoining properties when necessary for the proper development of and traffic circulation in the Township.
- 5.2114 Where a subdivision or land development abuts an existing street which does not meet the standards of this Ordinance, the Township Supervisors may require the dedication of land sufficient to widen the street to meet the standards of this Ordinance.
- 5.2115 Where a subdivision or land development fronts on and will provide for vehicular access to and from an existing Township road which does not meet the minimum cartway width requirements of this Ordinance, the Township Supervisors may require the developer to improve at his expense the Township road cartway to meet those requirements. Pavement shall be constructed in accordance with the requirements of this Ordinance. In addition, provision shall be made for adequate drainage along the sides of the roads. Such drainage provisions shall be approved by the Township Supervisors.
- 5.2116 Private streets (streets not to be offered for dedication) shall be designed and constructed in accordance with the requirements of this Ordinance and other Township regulations.
- 5.2117 Where streets and other public improvements continue into adjoining municipalities, evidence of compatibility of design, particularly with regard to street widths, shall be submitted. The applicant shall coordinate such design with both municipalities to avoid abrupt changes in cartway width or in improvements provided.
- 5.2118 The street system shall be designed with regard to:

5.21181 consideration of existing topographical considerations.

5.21182 providing buildable lots.

5.21183 minimizing the number of street intersections, through encouraging the use of three-way rather than four-way intersections when intersections of minor streets are involved.

5.21184 avoiding excessive lineal footage of street.

5.2119 All access drives within multiple family and non-residential developments which are intended for circulation within the development shall be designed to the horizontal and vertical alignment standards for streets contained within this Ordinance.

5.212 Partial and Half Streets

5.2121 New half or partial streets will not be permitted, but wherever a tract to be subdivided borders an existing recorded half or partial street, the Township Supervisors may require the developer to provide adjacent to such half or partial street a reservation of land adequate to allow the construction of a road meeting the standards of this Ordinance.

5.213 Street Widths

5.2131 Minimum street right-of-way and cartway (pavement) widths shall be as follows:

<u>Street Type</u>	<u>Required Widths (in feet)</u>
Minor Streets and Permanent Cul-de-Sacs	
No Parking Permitted	
Right-of-Way	44
Cartway	24
Parking Permitted One Side	
Right-of-Way	48
Cartway	28
Parking Permitted Both Sides	
Right-of-Way	56
Cartway	36
Collector Street	
Right-of-Way	60
Cartway	
No Parking Permitted	24
Parking Permitted	40
Arterial Street	
Right-of-Way	As determined after consultation with the Township, the County and PennDOT
Cartway	
Marginal Access Street	
Right-of Way	33
Cartway	As specified for minor streets
Service Street	
Right-of-Way	24
Cartway	24

5.2132 Additional right-of-way widths may be required by the Township Supervisors for the purpose of promoting the public safety and convenience and for providing for proposed traffic volumes.

5.2133 The designation of streets as "minor", "collector", and "arterial" and as to "no parking", "parking permitted one side", and "parking permitted both sides" is subject to Township Supervisors approval. The Township Supervisors may prohibit parking along collector streets.

5.214 Restriction of Access

5.2141 Whenever a subdivision or land development abuts or contains an existing or proposed arterial or collector street the Township Supervisors may require restriction of access to the street by:

5.21411 provision of reverse frontage lots, or

5.21412 provision of service streets along the rear of the abutting lots, together with prohibition of private driveways intersecting the arterial or collector street, or

5.21413 provision of marginal access streets, provided that the reserve strips establishing such marginal access streets shall be placed within the jurisdiction of the Township under an agreement meeting the approval of the Township, or

5.21414 provision of a system of minor streets which intersect the arterial or collector street and on which lots would front.

5.2142 Except as specified by Section 5.21413; reserve strips shall be prohibited.

5.215 Street Grades

5.2151 There shall be a minimum center line grade of three quarters percent (0.75%).

5.2152 Center line grades shall not exceed the following:

5.21521 Minor Street or Service Street: ten (10) percent

5.21522 Collector Street: seven (7) percent

5.21523 Arterial Street: six (6) percent

5.21524 Street Intersection: five (5) percent

5.2153 Grades up to twelve percent (12%) may be permitted by the Township Supervisors on minor streets, except cul-de-sacs, if the Supervisors at their discretion deems that unsafe conditions will not result from the increase in grade.

5.216 Horizontal Curves

5.2161 Whenever street lines are deflected in excess of five (5) degrees, connection shall be made by horizontal curves.

5.2162 Minimum sight distance shall be provided as follows:

<u>Design Speed</u> <u>(in miles per hour)</u>	<u>Minimum Sight Distance</u> <u>(in feet)</u>
20	125
25	150
30	200
35	250
40	325
45	400
50	475
55	550

5.2163 Minimum center line radii for horizontal curves shall be as follows:

<u>Design Speed</u> <u>(in miles per hour)</u>	<u>Minimum Sight Distance</u> <u>(in feet)</u>
20	100
25	150
30	230
35	310
40	430
45	550
50	700
55	850

The Township Supervisors at their discretion may permit smaller center line radii than required above when the subdivider substantiates that the minimum sight distance as required by Section 5.2162 will be provided.

5.2164 A straight section of road of at least one hundred (100) feet shall be provided between all horizontal curves on collector streets. A straight section of road of at least two hundred (200) feet shall be provided between all horizontal curves on arterial streets.

5.2165 Combinations of the minimum radius and maximum grade are prohibited.

5.217 Vertical Curves

5.2171 At all changes in street grades where the algebraic difference in grade exceeds one percent (1%), vertical curves shall be provided. The minimum sight distance provided shall be as follows for both crest and sag vertical curves.

<u>Design Speed (in miles per hour)</u>	<u>Minimum Sight Distance (in feet)</u>
20	125
25	150
30	200
35	250
40	325
45	400
50	475
55	550

5.218 Intersections

5.2181 Streets shall intersect as nearly as possible at right angles, and no street shall intersect another at an angle of less than seventy-five (75) degrees (measured at the intersection of the street centerlines) nor more than one hundred five (105) degrees. The angle of intersection with an arterial street shall be ninety (90) degrees.

5.2182 No more than two streets shall intersect at the same point.

- 5.2183 Streets intersecting another street shall either intersect directly opposite to each other or be separated by at least one hundred fifty (150) feet between center lines, measured along the center line of the street being intersected.
- 5.2184 Intersections shall be approached on all sides by a straight area at least fifty feet (50') in length, the grade of which shall not exceed five percent (5%) within fifty (50) feet of the intersection of the nearest right-of-way lines.
- 5.2185 Intersections with arterial streets shall be located not less than five hundred (500) feet apart, measured from center line to center line along the center line of the arterial streets.
- 5.2186 Street curb intersections shall be rounded by a tangential arc with a minimum radius of:
- 5.21861 twenty (20) feet for all intersections involving only minor streets or service streets;
 - 5.21862 thirty (30) feet for all intersections involving a collector street;
 - 5.21863 forty (40) feet for all intersections involving an arterial street
- 5.2187 Street right-of-way lines shall be parallel to (concentric with) curb arcs at intersections.

5.219 Sight Distances at Intersections

- 5.2191 Clear sight triangles shall be provided at all street inter- sections, shall be reserved as such, and shall be drawn on the Plan. Within such triangles, no vision-obstructing object shall be permitted which obscures vision above the height of thirty (30) inches and below the height of ten (10) feet, measured from the center line grade of intersecting streets. Such triangles shall be established from a distance of:
- 5.21911 a minimum of seventy-five (75) feet from the point of intersection of the center lines, except that

5.21912 Clear sight triangles of a minimum of one hundred (100) feet shall be provided for all intersections involving collector streets.

5.21913 clear sight triangles of a minimum of one hundred and fifty (150) feet shall be provided for all intersections involving arterial streets.

5.2192 Whenever a portion of the line of such clear sight triangles occurs behind the required building setback line, such portion shall be considered a building setback line.

5.2193 Sight distance at street intersections shall be such to provide the following minimum stopping distance for a vehicle traveling on an approaching street which has no stop or signal control:

Design Speed of Approaching Street with No Stop or Signal Control (in miles per hour)	Minimum Stopping Distance (in feet) Required Unless Alternative Permitted by Township Supervisors	Alternative Stopping Distnace (in feet) Permissible at Discretion of Township Supervisors only on lightly traveled Highways where the removal of sight obstructions would be costly
20	150	90
25	175	110
30	200	130
35	240	155
40	275	180
45	320	200
50	350	220
55	425	240

5.2194 Street intersections shall be located and designed to provide the following minimum sight distance for a vehicle traveling on an approaching street which has a Stop Control:

Design Speed of Street being
approached by vehicle on Stop
Control Street (in miles per
hour)

Minimum Sight Distance
Required (in feet)

20	200
25	250
30	300
35	350
40	400
45	450
50	500
55	550

For calculating sight distance, refer to A Policy on Geometric Design of Rural Highway and Streets, 1984 edition.

5.220 Cul-de-Sac Streets

5.2201 Dead-end streets are prohibited unless designed as cul-de-sac streets, provided that in the case of streets which are planned for future extension into adjoining tracts and will not be the primary means of access to any lot or dwelling unit, a turnaround is not required.

5.2202 Except as provided in Section 5.2201 any street dead-ended for access to an adjoining property or because of authorized stage development shall be provided with a turnaround within the subdivision or land development and the use of such turnaround shall be guaranteed to the public until such time as the street is extended.

If a cul-de-sac turnaround is offset, it shall not be offset to the right.

Should a temporary cul-de-sac be proposed, agreements satisfactory to the Township Supervisors and Township Solicitor shall be made for construction and installation responsibilities of all improvements when the temporary cul-de-sac is abandoned and the street is extended.

In the event that the Township Supervisors shall not consider development of adjoining property to be imminent, the Supervisors may require that a permanent curbed cul-de-sac be constructed.

5.2203 Cul-de-sac streets shall be at least two hundred fifty (250) feet from the right-of-way of the street intersected to the beginning of the turnaround. Cul-de-sac streets shall not exceed one thousand (1,000) feet in length as defined in this Ordinance and shall not furnish access to more than twenty (20) dwelling units. The Township Supervisors may permit temporary cul-de-sacs longer than one thousand feet (1,000') at their discretion if future extension of the cul-de-sac is likely in the opinion of the Supervisors. At their discretion, the Supervisors may permit cul-de-sacs to serve more than twenty (20) dwelling units when it believes adequate provision will be made for vehicular circulation and parking.

5.2204 Unless future extension is clearly impractical or un-desirable, the turnaround right-of-way shall be placed adjacent to the tract boundary with sufficient additional right-of-way width provided along the boundary line to permit extension of the street at full width.

5.2205 All cul-de-sac streets, whether permanently or temporarily designed as such, shall be provided at the closed end with a fully paved turnaround. Minimum radius to the pavement edge or curb line shall be fifty (50) feet, and minimum radius to the right-of-way line shall be sixty (60) feet.

5.2206 Drainage of cul-de-sac streets shall preferably be toward the open end. If drainage is toward the closed end, water shall be conducted away in an underground storm sewer or by other means approved by the Township Supervisors.

5.2207 The center line grade on a cul-de-sac street shall not exceed ten percent (10%) and the grade of the diameter of the turnaround shall not exceed five percent (5%).

5.221 Street Names

5.2211 Proposed streets which are in alignment with others already existing and named shall bear the names of the existing streets.

5.2212 In no case shall the name of a proposed street duplicate an existing street name in the Township and the postal district, irrespective of the use of the suffix street, road, avenue, boulevard, drive, way, place, court, lane, etc.

5.2213 All street names shall be subject to the approval of the Township Supervisors and Postmaster having jurisdiction.

5.222 Service Street (Alleys)

5.2221 Service streets are prohibited in residential subdivisions except where required by the Township Supervisors to avoid direct driveway access to arterial or collector streets.

5.2222 Service streets may be permitted by the Township Supervisors in other types of development, provided that the developer produces evidence satisfactory to the Supervisors of the need for such service streets and provided that the service streets are not the primary means of access.

5.2223 Dead-end service streets are prohibited unless permitted at the discretion of the Township Supervisors. Dead-end service streets shall be terminated with a paved circular turnaround with a minimum radius to the outer pavement edge (curb line) of forty (40) feet.

5.2224 Parking is prohibited along service streets.

Section 5.30 Guide Rail

5.31 Streets shall be designed to preclude or minimize the need for guide rail. The Township Supervisors may require guide rail to be placed for protection on embankments when a barrier is required in Design Manual Part 2 Highway Design by the Pennsylvania Department of Transportation, January 1990 edition.

5.32 Fixed obstructions along streets which would require guide rail shall be precluded or minimized. The Township Supervisors may require guide rail to be placed when a barrier is required for fixed objects in Design Manual Part 2 Highway Design by the Pennsylvania Department of Transportation, January 1990 edition.

5.33 The design and selection of guide rail shall be in accordance with the standards in Design Manual Part 2 Highway Design, January 1990 edition, however, the Township Supervisors shall approve all guide rail systems.

Section 5.40 Blocks

5.41 Layout

5.411 The length, width and shape of blocks shall be determined with due regard to the provision of adequate sites for buildings of the type proposed, zoning requirements, topography, and requirements for safe and convenient vehicular and pedestrian circulation, including the reduction of intersections with arterial and collector streets.

5.42 Length

5.421 Blocks shall have a maximum length of one thousand eight (1,800) feet and a minimum length of five hundred (500) feet. The Township may decrease the permitted maximum and/or minimum lengths of blocks if the topography of land, proposed lot sizes, or surface water drainage conditions warrant such a decrease.

5.422 Blocks along arterial streets shall not be less than one thousand (1,000) feet long.

5.43 Depth

5.431 Residential blocks shall be of sufficient depth to accommodate two tiers of lots, except where reverse frontage lots are required or where prevented by the size, topographical conditions or other inherent conditions of the property.

5.44 Non-Residential Blocks

5.441 Blocks in non-residential areas may vary from the elements of design detailed above if required by the nature of the use. In all cases, however, adequate provisions shall be made for off-street parking and loading areas and pedestrian and vehicular circulation.

5.45 Crosswalks

- 5.451 Crosswalks may be required by the Township Supervisors whenever necessary to facilitate pedestrian circulation and to give access to community facilities. Such crosswalks shall have a minimum width of ten feet (10) and contain a walkway, constructed of a material approved by the Township Supervisors, with a minimum width of four feet (4').

Section 5.50 Lots and Parcels

5.51 General Standards

- 5.5101 The size, shape and orientation of lots shall be appropriate for the type of development and use contemplated, and be in accordance with the provisions of the Township Zoning Ordinance. Lots shall be capable of being built upon in accordance with the provisions of the Township Zoning Ordinance.
- 5.5102 Side lot lines shall be at right angles to straight street lines and radial to curved street lines.
- 5.5103 Lot lines shall follow municipal boundaries rather than cross them.
- 5.5104 The depth of residential lots shall not be less than one nor more than three times their width at the building setback line.
- 5.5105 Depth and width of parcels intended for non-residential uses shall be adequate for the use proposed and sufficient to provide satisfactory space for on-site parking, loading and unloading, setbacks, buffer yards and landscaping, etc.
- 5.5106 Subdivisions shall be designed to avoid the creation of remnants of land. If remnants of land would result after subdividing, adequate provision, which shall be approved by the Township, shall be made for the disposition and maintenance of those remnants.

5.5107

Flag lots are prohibited, unless permission is granted by the Township Supervisors. The Supervisors may grant permission to utilize flag lots when it deems flag lots appropriate because of topographical or other conditions unique to the site. The access strip portions of a flag lot must be wide enough to permit the construction of a road with a right-of-way meeting the requirements of this ordinance and shall not be used for building purposes.

5.51071 In granting permission to use flag lots, the Township Supervisors shall find:

5.510711 That the use of flag lots will not result in conditions which will cause increased interruptions to traffic flow, accident hazards and sedimentation and runoff problems onto public roads.

5.510712 That the use of an internal street system or marginal access streets on which lots would front will not be more appropriate for development of the tract than the use of flag lots.

5.510713 That the use of flag lots is necessary to permit utilization of a tract of ground, otherwise not feasible to utilize under the applicable standards for lots found in this Ordinance.

5.510714 No more than one (1) flag lot shall be created from the original tract of land for each ten (10) lots created from the original tract of land which meet the requirements of this Ordinance for lot configuration.

5.510715 Should a flag lot be divided into two or more lots, the access strip shall be constructed into a street complying with the specifications of this Ordinance.

- 5.510716 All structures shall be located on the flag lot so as to provide the required setback should the access strip be used for construction of a street.
- 5.5108 Where an ultimate right-of-way line has been provided, all setbacks and lot areas shall be measured from such ultimate right-of-way line.
- 5.5109 Wherever feasible, lots shall be designed so that buildings can be constructed above street grade. Where this is not possible, the developer shall indicate what measures are to be taken to assure proper drainage away from the buildings.
- 5.5110 When only a portion of a tract is designed at a time and there exists the potential for development of the remainder of the tract, lots shall be designed such that they do not restrict access to the remainder of the tract, do not unduly restrict the potential development of the remainder of the tract, nor result in the creation of awkward or difficult-to-develop parcels in the remainder of the tract.
- 5.5111 The maximum slope utilized when grading lots or streets along an adjoining tract of land not owned by the developer shall be a three (3) to one (1) slope ratio of horizontal distance to vertical distance.

5.52 Lot Frontage and Access

- 5.521 All lots shall abut and have direct driveway access to an existing or proposed public street or private street meeting the requirements of this Ordinance.
- 5.522 Reverse frontage lots shall be avoided except where required by the Township Supervisors to restrict access to existing streets or to overcome specific disadvantages of topography or orientation. All residential reverse

frontage lots shall contain a landscape screen, fence, earth mounding, or similar screening device and barrier to vehicular access subject to Township approval within the rear yard.

5.523 Where access to land within a subdivision or land development will be solely by proposed roads within an adjoining municipality, the Township Supervisors may require assurance from the adjoining municipality that adequate provisions have been made to insure construction of the proposed access roads.

5.524 When the rear wall of a building will face a public street, the Township Supervisors may require a landscape screen, fence, earth mounding, or similar screening device subject to Township approval between the building and the public street.

5.525 After consideration of street speeds, traffic volumes, projected traffic generated at a proposed land use, and the location and arrangement of existing and proposed driveways and intersections, the Township Supervisors may require the developer to install at his expense an acceleration or deceleration lane, or both, to serve a proposed driveway or street. If additional street right-of-way is required to construct the acceleration or deceleration lane, the additional right-of-way shall be provided by the developer.

When required by the Township Supervisors, the developer shall furnish a study to the Township which will provide the information necessary to permit the determination as to whether an acceleration or deceleration lane is required.

5.526 For lots proposed to abut a railroad right-of-way containing railroad tracks which are used for rail service, when deemed necessary by the Township a landscape screen to provide a sight and noise buffer shall be placed within those lots in the yards abutting the railroad right-of-way. The screen shall be adequate for the intended purpose and a plan for the screen shall be approved by the Township.

5.53 Lot Size

- 5.531 The minimum lot size and width requirements set forth in the Township Zoning Ordinance shall be met. The minimum lot area requirements found in the Zoning Ordinance may be increased by the Township according to the results of the soil percolation tests required by Section 4.40 of this Ordinance.

5.54 Off-Street Parking

- 5.541 Each proposed dwelling unit in a subdivision or land development shall be provided with a minimum of two off-street parking spaces.
- 5.5411 In the case of single-family or two-family dwellings and townhouses with on-lot parking, such off-street parking spaces shall be provided behind the street right-of-way line and may be provided in an attached or separate garage, carport, or driveway. The spaces shall not be located within any clear sight triangle required by this Ordinance.
- 5.5412 In the case of multiple-family dwellings, such off-street parking spaces shall be provided in parking facilities located adjacent to, within or near the multiple family dwellings. Spaces shall be located behind the street right-of-way line and not be located within any clear sight triangle required by this Ordinance. Each off-street parking space shall contain a minimum of two hundred (200) square feet. In addition, adequate aisles with a minimum width of twenty-four feet (24') for maneuvering and movement of vehicles shall be provided. The grade of areas used for parking shall not exceed six (6) percent. The grade of areas used only for access shall not exceed ten (10) percent.
- 5.542 Non-residential development shall meet the off-street parking requirements of the Township Zoning Ordinance.

5.55 Driveways

5.551 Subdivisions and land developments shall be provided with internal streets to which the lots will have driveway access in order to minimize the number of driveway intersections with existing public streets. This reduction in driveway intersections will lessen interruptions to traffic flow and accident hazards and minimize sedimentation and run-off problems onto existing public streets.

5.552 All driveways which provide access to arterial and collector streets, if such driveways are permitted by the Township Supervisors, shall be designed with turnaround areas so that cars will not back onto collector and arterial streets.

5.553 Provision shall be made at all intersections of driveways with streets to ensure adequate storm water drainage and erosion and sediment control.

The Township Supervisors may require subdivision and land development plans to show a typical treatment of the construction of driveways and handling of storm drainage where the driveways intersect a street. The Supervisors may require as a condition to approval of a plan that prior to the issuance of zoning or building permits the specific proposals for the construction of a driveway and treatment of storm drainage and erosion and sediment control for that driveway be submitted to the Township for approval.

5.554 Driveways shall be placed at locations at which sight distance is adequate to safely allow each permitted movement to be made into or out of the driveways; such that the free movement of normal street traffic is not impaired; such that the driveways will not create a hazard; and such that the driveways will not create an area of undue traffic congestion on streets. Applicable safe sight distance as established in the regulations of the Pennsylvania Department of Transportation shall be provided.

The Township Supervisors may require the driveway to a lot which abuts two or more streets to be restricted to that street which can more safely accommodate its traffic. The Township Supervisors may also require a driveway to be located directly across from a street or driveway on the opposite side of the street the driveway intersects if the Supervisors judge that offset driveways will create a safety hazard.

The Township Supervisors may require the permissible location of a driveway for a lot to be shown on the subdivision or land development plan, and further require that driveway locations be subject to approval of the Supervisors.

A clear sight triangle of a minimum of forty (40) feet shall be provided at the intersection of a driveway servicing a one or two family dwelling with a Township Street. A clear sight triangle of a minimum off forty (40) feet shall be provided at the intersection of all other driveways with Township Streets.

Such clear sight triangles shall be measured from the intersection of the centerline of the driveway and the centerline of the street and measured along the centerline of the street and driveway.

Within such clear sight triangles, no vision-obstructing object shall be permitted which obscures vision above the height of thirty (30) inches and below the height of ten (10) feet, measured from the center line grades of the intersecting driveway and street.

5.555

Entrances to private driveways serving multiple-family dwellings shall be rounded at a minimum radius of ten feet (10'). The maximum radius shall be thirty feet (30').

Entrances to private driveways serving one and two family dwellings shall be rounded at a minimum radius of five feet (5'). The maximum radius shall be twenty feet (20').

5.556

The angle of a driveway as it intersects a street shall be such that a vehicle entering the driveway may do so in an orderly and safe manner with a minimum of interference to through street traffic and such that a vehicle leaving the driveway may enter safely into the lane of traffic moving in the desired direction.

Driveways shall intersect streets as nearly as possible at right angles, and in no case at an angle of less than seventy (70) degrees or more than one hundred ten (110) degrees. Provided that the Township Supervisors may permit the use of one-way driveways on a property, and such one-way driveways may intersect streets at an angle of not less than forty-five degrees (45°).

5.557

Private driveways shall have such grades as to furnish safe and convenient parking spaces and to provide a safe and convenient means of access. The grades and construction materials of driveways shall be such that the materials of the driveway will not wash onto public streets. The maximum permissible grade shall be ten percent (10%) on all driveways, except that driveway grades shall not exceed five percent (5%) within twenty feet (20') of street cartway lines. Driveways shall be paved.

The Township Supervisors may require the developer to submit with his subdivision or land development plans evidence that the above, and the other standards for driveways established in this Section, can be met for each lot where doubt exists as to the feasibility of meeting the standards.

- 5.558 The center line of entrances to private driveways serving one and two family dwellings shall be located at least forty feet (40') from the point of intersection of the nearest street cartway lines if only minor streets are involved, at least eighty feet (80') if a collector street is involved, and at least one hundred twenty feet (120') if an arterial street is involved. The center line of entrances to private driveways serving multiple-family dwellings or non-residential buildings shall be located at least eighty feet (80') from the point of intersection of the nearest street cartway lines if only minor streets are involved, at least one hundred twenty feet (120') if a collector street is involved, and at least one hundred sixty feet (160') if an arterial street is involved.
- 5.559 The standards for driveway widths shall be as established in Township Ordinances.

Section 5.60 Sanitary Sewage Disposal

- 5.61 The subdivider shall provide the highest type of sanitary sewage disposal facility consistent with existing physical, geographical and geological conditions. The following types of sanitary sewage and disposal facilities are listed in order of decreasing desirability:
- 5.611 Public sanitary sewer and treatment plant system;
- 5.612 Community sanitary sewer system with a temporary sewage treatment plant;
- 5.613 Capped sewers with temporary, approved on-site facilities;
- 5.614 Approved on-site facilities.
- 5.62 Each property shall connect with an approved public or community sewer system, if reasonably accessible. Where sewers are not yet accessible but are planned for extension to the subdivision or land development within ten (10) years, the subdivider shall install sewer lines, including lateral connections, as may be

necessary to provide adequate service to each lot and dwelling unit when connection with the sewer system is made. Sewer lines shall be suitably capped at the limits of the subdivision or land development, and laterals shall be capped at the street right-of-way line. When capped sewers are provided, on-site disposal facilities shall also be provided.

- 5.63 All sanitary sewer systems shall conform in all respects to the requirements of the Pennsylvania Department of Environmental Resources, the Township, and any applicable Authority.
- 5.64 Whenever approval by the Municipal Authority or the Pennsylvania Department of Environmental Resources is required for the sanitary sewer system for a proposed subdivision or land development, the developer shall submit a copy of such approval to the Township prior to final approval of a Plan. Indication of ability to serve the tract shall be furnished to the Township at preliminary plan stage.
- 5.65 New and replacement sanitary sewer systems shall be designed to eliminate infiltration of flood waters into the systems and discharges from the systems into flood waters.
- 5.66 If on-site sanitary sewage disposal facilities are proposed, the Township may require that the Subdivider submit a Feasibility Report if the Township considers that such facilities are not the highest type consistent with existing conditions. Such Report shall compare the feasibility of providing on-site facilities with that of providing higher types of facilities (see Section 5.61). Based on analysis of the Feasibility Report, the Township may require the installation of a higher type of facility.
- 5.67 When on-site facilities are required, a carefully engineered facility shall be installed. Before covering and backfilling, all on-site facilities must be inspected by the Township Sewage Disposal Officer and must be so installed that they can be approved as complying with the approved engineering drawings that are part of the plans. Such approval shall be in writing. Two copies of an "as-built" drawing of on-site facilities shall be provided for the Township Engineer showing the location sizes and/or capacities of all pipes, tanks, cleanouts, vents and tile fields.

Section 5.70 Water Supply

- 5.71 New subdivisions and developments shall incorporate adequate provisions for a reliable, safe and adequate water supply to support intended uses within the capacity of available resources.
- 5.72 The subdivider shall provide the highest type of water supply and distribution facility consistent with existing physical, geographical, and geological conditions. The following types of water systems are listed in order of decreasing desirability:
- 5.721 Public water supply and distribution system
 - 5.722 Community water supply and distribution system
 - 5.723 Approved on-site system
- 5.73 Each property shall connect with an approved public or community water system, if reasonably accessible. A distribution system shall be designed to furnish an adequate supply of water to each lot and dwelling unit with adequate main sizes, water pressure and fire hydrant locations to meet the specifications of the Insurance Services Office.
- 5.74 All water supply and distribution systems shall be constructed in full compliance with Pennsylvania Department of Environmental Resources specifications, and all ordinances, rules, and regulations of the Township and applicable Authorities.
- 5.75 Where public or community systems are not reasonably accessible, cannot be connected to, or are not adequate to service the proposed development, but on-site sanitary sewage disposal systems are proposed to be used; or when a public water distribution system is planned for extension to the subdivision within ten (10) years; or if deemed necessary for the public health, safety and welfare, a community water supply and distribution system may be required by the Township. If such a system is provided, it shall be approved by the Township and the Pennsylvania Department of Environmental Resources, and appropriate agreements established to ensure proper and adequate maintenance shall be submitted to and approved by the Township.

- 5.76 Where individual on-site water supply system(s) are to be utilized, it is recommended (but not required) that the subdivider provide at least one test well for each ten proposed dwelling units. Such wells should be drilled, cased, and grout sealed into bed rock, at least fifty (50) feet deep, and should have a production capacity of at least five gallons per minute of safe, potable drinking water, as certified by a State or Township health officer. No well shall be closer than DER regulations permit from a tile field.
- 5.77 If water is to be provided by means other than by private wells owned and maintained by the individual owners of lots within the subdivision or land development, applicants shall present evidence to the Township Supervisor at preliminary plan stage that the subdivision or development is to be supplied by a certified public utility, a bona fide cooperative association of lot owners, or by a municipal corporation, authority or utility. A copy of a Certificate of Public Convenience from the Pennsylvania Public Utility Commission or an application for such certificate, a cooperative agreement or a commitment or agreement to serve the area in question, whichever is appropriate, shall be acceptable evidence.
- 5.78 Whenever approval by an Authority or other public agency, a utility company, or the Pennsylvania Department of Environmental Resources is required for the water supply and distribution system for a proposed subdivision or land development, the developer shall submit a copy of such approval to the Township prior to approval of a Final Plan.
- 5.79 New and replacement water supply systems shall be designed to eliminate infiltration of flood waters into the systems.

Section 5.80 Storm Water Management Standards and Design

5.81 General Principles for Storm Drainage Systems

Storm sewers, culverts, endwalls, inlets, and related installations and improvements shall be provided in order to:

- 5.811 Permit unimpeded flow of natural water courses;
- 5.812 Ensure adequate drainage of all streets;

- 5.813 Intercept storm water runoff along streets at intervals related to the extent and grade of the area drained;
- 5.814 Provide positive drainage away from on-site sewage disposal facilities and buildings;
- 5.815 Accommodate runoff so that there shall be no increase in rate of storm water peak discharge leaving the subdivision or land development during or after construction based on the design rainfall frequency established in this Ordinance. Pre- and post-development runoff shall be evaluated for all drainage areas discharging from the site.
- 5.816 Ensure adequate drainage at intersections of driveways with streets.
- 5.817 Provide that where existing storm sewers are reasonably accessible and of adequate capacity, subdivisions and land developments shall connect to the existing storm sewers.
- 5.818 Provide that when no existing storm sewer system is accessible and of adequate capacity, storm water runoff shall discharge to an existing watercourse with defined bed and barriers. Runoff shall not be increased or concentrated onto adjacent properties, nor shall the velocity of flow be increased beyond that existing prior to subdivision or land development unless written approval is given by the adjacent property owners to the proposed discharge of surface runoff and the written agreements are approved by the Township Supervisors.
- 5.819 Provide that when storm drainage will be directed into an adjacent municipality, all provisions for accommodating such storm drainage shall be submitted to the governing body of that municipality for review.

5.82 Design of Storm Drainage Systems

- 5.821 Complete storm water calculations in accordance with the design standards and Appendices of this Ordinance and all designs for drainage facilities shall be submitted to the Township for review.

5.822 Where a subdivision or land development is traversed by or contains a pond, lake, watercourse, drainage way, channel, storm drainage system, or stream, there shall be provided a drainage easement that conforms substantially with the line of such pond, lake, water course, drainage way, channel, storm drainage system, or stream of such width as will be adequate to preserve the unimpeded flow of drainage (100-yr. flow) and to provide for widening, deepening, relocating, improving or protecting such features or drainage facilities. Minimum easement width shall be ten feet (10') from each side of the water course, waterbody, stream, pond, lake or drainage facility, but the Township may require a greater easement when necessary. Bearings and distances shall be provided for the boundaries of easements.

5.823 Any changes in an existing drainage way shall be subject to the approval of the Pennsylvania Department of Environmental Resources, the Army Corps of Engineers, or the Federal Emergency Management Agency when each or all have jurisdiction. All permits and approvals shall be issued prior to construction of storm drainage-related improvements.

5.824 The developer shall properly grade and seed slopes, and fence open ditches when a safety hazard can result. Areas within easements shall be kept as lawn or in natural conditions to allow maintenance and entrance.

5.825 All drainage facilities shall be designed to adequately handle surface runoff and carry it to suitable outlets and shall be designed in accordance with the minimum design standards in the Appendices of this Ordinance.

5.8251 Subsurface drainage systems shall have manholes spaced at intervals not exceeding 400 feet and located wherever branches are connected or sizes are changed and wherever there is a change in alignment or grade. Inlets or other means of interconnection may be used instead of manholes when approved by the Township Supervisors.

- 5.8252 For drainage lines of 36" diameter or greater, manholes may be spaced at intervals greater than 400' with the approval of the Township Supervisors.
- 5.8253 Storm sewer lines within street rights-of-way shall be placed immediately in front of the curb when parallel to the right-of-way. Locating storm sewers under curbs in curves or at street intersections will not be permitted.
- 5.8254 Drainage structures that are to be located within State Highway rights-of-way shall be approved by the Pennsylvania Department of Transportation, and a letter from that Department indicating such approval shall be submitted to the Township.
- 5.8255 Subsurface storm drainage systems shall have PennDOT-approved inlets located as required by this Ordinance to intercept runoff. Inlets shall be designed and located to prevent hazards to vehicles, bicycles, and pedestrians.
- 5.8256 PennDOT-approved endwalls or end sections shall be used in lieu of inlets where feasible to minimize clogging of grates with leaves, debris, etc.
- 5.8257 Reinforced concrete pipe shall be used for all storm sewer lines of 30" diameter or greater to be constructed within street rights-of-way. Asphalt coated C.M.P. may be used in all other cases, however, it shall be backfilled with select granular (2-RC) material, solidly compacted in six inch (6") lifts, when maintenance will be a Township responsibility. All pipe materials shall meet PennDOT requirements, and shall have a minimum diameter of fifteen inches (15").
- 5.8258 Provisions shall be made to minimize erosion within water courses and at points of discharge from storm drainage facilities through the use of proper ground cover, rip-rap, or root-reinforcing systems.

5.826 Storm sewers, culverts, swales, channels, and related facilities shall be designed to accommodate and discharge all runoff from adjacent upstream drainage areas, assuming the upstream area is fully developed.

5.827 The owner or developer may continue to discharge storm water which has not been concentrated into a lower lying property if:

- A. The peak rate after development does not exceed the predevelopment peak rate;
- B. The increase in volume caused by the development will not have an adverse impact on the lower lying property; and
- C. There is no existing drainage problem on the downstream property.

5.83 Standards for Drainage of Streets

5.831 All streets shall be designed to provide for the discharge of surface water from their rights-of-way. The design storm shall be a 10-yr. frequency for residential subdivisions with a gross density less than six (6) units per acre, and a 25-yr. frequency for all other subdivisions or land developments. One hundred (100) years for section conveying runoff directly to detention facilities or as specified.

5.832 The pavement cross slope on streets shall not be less than 1/4" per foot and not more than 1/2" per foot. The slope of the shoulder areas shall not be less than 3/4" per foot and not more than 1" per foot.

5.833 Surface cross drainage at intersections or other roadway sections will not be permitted.

5.834 Inlets shall be spaced to limit the gutter flow spread into the travel lanes to one-half (1/2) the lane width during the design storm.

5.835 Inlet efficiency and bypass flows, per PennDOT design charts, shall be considered in the design of storm sewer systems.

5.836 To insure adequate drainage at low points along the line of streets, overflow swales shall be designed to convey the full 100-year storm flow away from all street low points. These swales shall be located to prevent flooding of downslope lots.

5.84 Design of Retention and Detention Facilities

5.841 General Requirements

- 5.8411 Where retention (permanent pool) and detention (dry bottom) basins are required by the Township Supervisors, adequate assurances of maintenance, indemnification, liability insurance, and security shall be provided and approved by the Supervisors.
- 5.8412 Retention and detention facilities shall be designed and located so as to not present a hazard to the public health or safety. Their design shall be approved by the Township Supervisors.
- 5.8413 Such facilities shall be designed so that no adverse effects will result from backwater flooding.

5.842 General Design Considerations

- 5.8421 The number and location of retention/detention facilities are subject to the approval of the Township Supervisors.
- 5.8422 For detention basins, a method of carrying low flow through the basin area shall be provided and the basin shall be provided with a positive gravity outlet to a natural channel or storm sewer of adequate capacity.
- 5.8423 If percolation of runoff is considered as a method of runoff abatement, percolation tests shall be taken at the site of the proposed detention facilities and the results submitted to the Township for review. At the discretion of the Township Supervisors, percolation facilities may be prohibited.
- 5.8424 The storage duration of storm water runoff shall not exceed twenty-four (24) hours after rainfall has ceased. The Township Supervisors may require the fencing of retention/detention basins when deemed necessary for the public safety.

- 5.8425 The pipe spillway outletting from the retention/detention basin shall be designed on the basis of a rainfall frequency that is consistent with the requirements of this Ordinance. Basin discharge velocities and quantities shall be consistent with the need to protect the public health, safety, and welfare and to prevent turbulent conditions and erosive velocities in a receiving watercourse.
- 5.8426 Minimum grades for turf areas inside detention basins shall be one (1) percent and maximum side slopes of retention/detention basins shall be thirty-three (33) percent (3 units horizontally to 1 unit vertically). Depending upon the location and the intended use of the detention facilities during non-functioning times, a side slope of less than thirty-three (33) percent for one or both slopes may be required by the Township Supervisors. Side slopes shall be kept as close to the natural land contours as practical, but when a detention basin is to be maintained by a future residential lot owner, the maximum side slope shall be twenty-five (25) percent (4 units horizontally to 1 unit vertically).
- 5.8427 Paved surfaces that are to serve as storm water storage areas shall have minimum grades of one-half (1/2) percent and shall be restricted to storage depths of six inches (6") maximum.
- 5.8428 If a portion of an area within a storm water storage area is to be paved for parking or recreational purposes, the paved surface shall be placed at the highest elevation possible within the storage area.
- 5.8429 The following additional conditions shall be complied with for retention basins:
- 5.84291 Water surface area shall not exceed one-tenth (1/10) of the tributary drainage area.

- 5.84292 Shoreline protection shall be provided to prevent erosion from wave action.
- 5.84293 Facilities shall be provided to allow the pond level to be lowered by gravity flow for cleaning purposes and shoreline maintenance.
- 5.84294 Aeration facilities as may be required to prevent pond stagnation shall be provided. Design calculations to substantiate the effectiveness of these aeration facilities shall be submitted with final engineering plans. Agreements for the perpetual operation and maintenance of aeration facilities shall be prepared to the satisfaction of the Township Supervisors.

5.843 Specific Design Considerations for Retention/Detention Basins

- 5.8431 Retention/detention basins shall be designed according to the methods outlined in U.S. Department of Agriculture, Soil Conservation Service Technical Release No. 55, "Urban Hydrology for Small Watersheds", latest edition. Other methods may be used with approval from the Township Supervisors.

- 5.84311 Design Storm - Storage volume for all subdivision and land development retention/detention facilities shall be based on a 25-year storm event.

Where deemed necessary in the public interest and for the public safety by the Township Supervisors, the Supervisors may require volume and allowable discharge to be calculated based on a 50- or 100-year storm.

5.84312 Design Storm Rainfall - Storm water runoff shall be based on the following 24-hour Type II distribution storm events:

<u>Storm Event</u>	<u>Inches Rainfall</u>
2 yr.	2.9
10 yr.	4.5
25 yr.	5.5
50 yr.	6.8
100 yr.	7.8

5.8432 The facilities shall be designed such that the peak discharge from the site after development to all points of discharge does not exceed the peak pre-development discharge for the 2-, 10-, and 25-year storm events.

5.8433 The pre-development ground condition for all lands within the subject property which are farm fields shall be considered as pasture with good ground cover.

5.8434 Retention/detention basins shall be designed to safely discharge the peak discharge of a post-development one hundred (100) year frequency storm event through an emergency spillway in a manner which will not damage the integrity of the basin or the downstream drainage area. The emergency spillway shall be designed by the 100-year inflow hydrograph through the spillway assuming there is no storage volume below the spillway invert.

5.8435 Retention/detention basins which are designed as earth fill dams shall incorporate the following minimum standards:

5.84351 The height of the dam shall not exceed fifteen feet (15'), unless approved by the Township Supervisors and the Pennsylvania Department of Environmental Resources.

5.84352 The minimum top width of dams up to fifteen feet (15') in height shall be equal to three-fourths of the dam height, but in no case shall the top width be less than eight feet (8').

- 5.84353 The side slopes of the settled earth fill shall not be steeper than three (3) horizontal to one (1) vertical.
- 5.84354 A cutoff trench at least four feet (4') deep of compacted relatively impervious material Unified Soil Classification CL or ML). If the side slopes are three (3) horizontal to one (1) vertical or flatter, only a key trench is required. The key trench shall be at least two (2) feet deep, or extend down to stable subgrade, whichever is deeper. Minimum bottom widths for the cutoff trench and key trench shall be four feet (4'). Maximum side slopes for the cutoff and key trench shall be one (1) horizontal to one (1) vertical. A compacted impervious core at least eight feet (8') wide at the top, having a maximum side slope of one (1) horizontal to one (1) vertical, shall extend for the full length of the embankment, and the top elevation shall be set at the 25-year design water surface elevation.
- 5.84355 All pipes and culverts through dams shall have properly spaced concrete anti-seep collars a minimum of 6" thick. Design calculations shall be submitted for review.
- 5.84356 The top of berm shall be constructed at least six inches (6") above the design elevations to allow for settlement of the embankment.
- 5.84357 The emergency spillway shall be constructed in undisturbed earth, or be of concrete construction along its bottom and sides.
- 5.84358 Whenever a basin will be located in an area underlain by limestone, a geological evaluation of the proposed location shall be conducted to determine susceptibility to sinkhole formations.

The design of all facilities over limestone formations shall include measures to prevent ground water contamination and, where necessary, sinkhole formation. Soils used for the construction of basins shall have low-erodibility factors ("K" factors). The Township may require the installation of an impermeable liner in detention basins.

5.85 Design Submission Requirements

The following storm water management data are required submittals:

- 5.851 All calculations, assumptions, and criteria used in the design of storm water management facilities and in the establishment of the calculated pre-development and post-development peak discharge.
- 5.852 All plans and profiles (including cross-country systems) of proposed storm water management facilities (storm sewers, swales, etc.) including horizontal and vertical location, size, and type of material. This information shall provide sufficient information required for the construction of all facilities.
- 5.853 A map(s) clearly delineating and labelling all drainage areas used in the design of storm water management facilities.
- 5.854 For all retention/detention basins, a plotting or tabulation of storage volumes with corresponding water surface elevations and outflow rates for those water surfaces.
- 5.855 For all retention/detention basins, the design inflow and outflow hydrographs and routing calculations to determine the function of the basin. The storage-indication routing method shall be used.

5.856 For all retention basins which hold two and one-half (2-1/2) acre feet or more of water during the 25-year design storm and have an embankment that is ten feet (10') or more in height, soil structures and characteristics shall be investigated. Plans and data prepared by a registered professional, experienced and educated in soil mechanics, shall be submitted.

5.857 A map(s) clearly delineating any existing wetlands as classified by a qualified environmental scientist experienced in wetland determination. Wetland determination shall be performed in accordance with U.S. Army Corps of Engineers procedures as outlined in publication TRY-87-1, "Wetlands Delineation Manual", latest edition.

No construction or development shall be permitted in wetlands without approval from the U.S. Army Corps of Engineers and the Pennsylvania Department of Environmental Resources, Bureau of Dams and Waterway Management.

5.86 Maintenance of Storm Water Management Facilities

Proposals for the ownership and maintenance responsibilities for all proposed storm drainage facilities shall be submitted to the Township for review and approval at Preliminary Plan stage. The Township Supervisors shall be satisfied that sufficient provision has been made for adequate and perpetual maintenance of all such facilities. All drainage facilities to be owned by the developer or his assigns shall be maintained to retain their design capacity.

5.87 Ground Water Recharge

The ability to retain and maximize the ground water recharge capacity of the area being developed is encouraged. Design of the storm water management facilities shall give consideration to providing ground water recharge to compensate for the reduction in the percolation that occurs when the ground surface is paved and roofed over.

5.88 Erosion and Sediment Controls and Plan Requirements

Land shall not be developed or changed by grading, excavation or the removal or destruction of natural topsoil, trees or other vegetative cover unless adequate provisions for minimizing erosion and sedimentation are provided.

5.882 A plan for erosion and sediment control shall be prepared and submitted to the Township as required by this section of the Ordinance. The plan shall meet all requirements and be approved by the County Conservation District, the Township, and the Pennsylvania Department of Environmental Resources (Chapter 102 of Title 25, latest revision), when applicable.

5.883 The erosion and sediment control plan shall be submitted at Final Plan submission for a subdivision or land development. The plan shall contain two (2) parts: (1) a map(s) describing the topography of the area within the subdivision or development, the proposed alterations of the area, and the erosion and sediment control measures and facilities which are proposed; and (2) a Narrative Report describing the project and giving the purpose, engineering assumptions, and calculations for control measures and facilities.

The map(s) shall show:

5.8831 The types, depth, slope, and areal extent of the soils on the site.

5.8832 The proposed alteration to the area, including:

Arrows indicating existing and proposed runoff flow direction, when contours do not adequately describe flow paths.

Areas of cuts and fills exceeding five feet (5') in vertical difference.

Structures, roads, paved areas, buildings.

Storm water and erosion and sediment control facilities.

Existing contours on the site at intervals required by this Ordinance and finished contours at the same interval. The Township may require that the proposed grading of individual lots be shown on the plan.

5.8833 The following certification statements:

1. "I CERTIFY THAT THE PLAN OF DEVELOPMENT AND THE PLAN FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS, STANDARDS AND SPECIFICATIONS OF THE COUNTY CONSERVATION DISTRICT."

Engineer for Developer Date

2. "I CERTIFY THAT ALL CONSTRUCTION AND/OR DEVELOPMENT WILL BE DONE AS DESCRIBED BY THIS PLAN OF DEVELOPMENT AND THE PLAN FOR SOIL EROSION AND SEDIMENT CONTROL, INCLUDING THE NARRATIVE REPORT."

Developer Date

The Narrative Report shall contain:

5.8834 A General Statement of the Project which shall contain:

A general description of the project.

A general description of storm water control methods.

A general description of accelerated erosion control.

A general description of sedimentation control.

5.8835 The Staging of Earthmoving Activities, including cover removal, control facility installation, installation of improvements, and program of operations.

5.8836 A Maintenance Program for the control facilities, including:

Frequency of inspection of control facilities.

Method of disposal of materials removed from the control facilities of the project area.

The methods, frequency, and ultimate disposal site for solid waste material. Construction waste shall be removed from the site and disposed of in an approved landfill. Construction waste shall not be buried on the site.

- 5.8837 A specification for both temporary and permanent seeding, including preparation of the seed bed. Application rates for seed, fertilizer and mulch shall be provided, and shall comply with the specifications and standards established by the County Conservation District.

The following items shall be shown on a map and also described in the Narrative Report:

- 5.8838 Temporary control measures and facilities for use during earthmoving, including:

Purpose.

Types of measures and facilities.

Location of measures and facilities.

Dimensioned construction details of the facilities.

- 5.8839 Permanent control measures and facilities for site restoration and long-term protection, including:

Purpose.

Types of measures and facilities.

Location of measures and facilities.

Dimensioned construction details of the facilities.

Design considerations and calculations.

- 5.884 All erosion and sediment control facilities shall be periodically inspected and checked for adequacy and compliance with the approved erosion and sediment control plan by the Township. The approved erosion and sediment control plan shall be maintained at the site of earthmoving at all times.
- 5.885 All control facilities shall be maintained for their designed operation to ensure adequate performance.
- 5.886 The following guidelines shall be followed as needed in developing erosion and sediment control measures:
- 5.8861 Stripping of vegetation, grading, filling, excavating or other alteration of the landscape shall be kept to a minimum and shall be done in such a way that will minimize erosion.
 - 5.8862 Whenever feasible, natural vegetation shall be retained, protected, and supplemented.
 - 5.8863 The disturbed area and the duration of exposure shall not exceed twenty (20) days, except in the case of building construction.
 - 5.8864 Disturbed soils shall be stabilized as quickly as practicable.
 - 5.8865 Temporary vegetation and/or mulching shall be used to protect exposed critical areas during development.
 - 5.8866 Erosion control and drainage measures shall be installed prior to earthmoving activities.
 - 5.8867 Both permanent and temporary provisions shall be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development. Where necessary, the rate of surface water runoff shall be mechanically retarded.

- 5.8868 Until disturbed areas are stabilized, sediment in runoff water shall be trapped by the use of debris basins, sediment basins, silt traps, or other similar approved measures.
- 5.887 The following guidelines shall be applied as needed in excavation and fills as part of erosion and sediment controls:
- 5.8871 All lots, tracts, or parcels shall be graded to provide positive drainage away from buildings, without ponding.
- 5.8872 Grading and cut-fill operations shall be kept to a minimum to ensure conformity with the natural topography, to minimize the erosion hazard, and to adequately handle surface runoff.
- 5.8873 Natural drainage patterns shall be preserved wherever possible and desirable.
- 5.8874 Adequate provisions shall be made to prevent surface water from damaging the cut face of excavations and the sloping surfaces of fills.
- 5.8875 Cut and fills shall not endanger adjoining property.
- 5.8876 Fill shall be placed and mechanically compacted to minimize sliding and erosion of the soil.
- 5.8877 Fills shall not encroach on natural watercourses, floodplains, or constructed channels.
- 5.8878 During grading operations, necessary measures for dust control shall be exercised.
- 5.8879 Grading equipment shall not cross live streams. Provisions must be made for the installation of culverts or bridges.

5.888

Whenever sedimentation is caused by stripping vegetation, regrading, or other development or earthmoving, it shall be the responsibility of the person, corporation, or other entity causing such sedimentation, at his expense, to remove it from all adjoining surfaces, drainage systems, and watercourses and to repair any damage which was caused within seventy-two (72) hours of such sedimentation or damage. The Township Supervisors may require a note to this effect to be placed on the Final Plan.

Section 5.90

Natural Features

- 5.901 Subdivisions and land developments shall be designed to preserve natural features such as trees greater than one (1) foot in diameter, water courses, rock outcroppings, wooded areas, natural water courses and bodies of water.
- 5.902 Topsoil shall not be removed from the subdivision site nor used as structural fill without the permission of the Township Supervisors. Topsoil may be removed from areas of earthmoving activity, but shall be stored elsewhere within the subdivision or land development and stabilized to minimize erosion. Upon completion of construction, the topsoil shall be redistributed on the site.
- 5.903 Street and lot designs of tracts shall be such to minimize alterations of the natural landscape.

Section 5.91

Flood Plains

- 5.911 Flood plains shall be calculated using the method established in Appendix IV of this Ordinance and shown on all subdivision and land development plans. The Flood Plain controls established within Township Ordinances shall be applied to those flood plains.
- 5.912 The Township Supervisors may require that vehicular access be provided to each dwelling unit within a subdivision or land development over a street or other approved means of access which is elevated above the level of the 100 year flood.
- 5.913 The following controls shall apply to the flood plains:
- 5.9131 No watercourse shall be altered or relocated unless approved by the Township Supervisors and, where applicable, the Pennsylvania Department of Environmental Resources, Bureau of Dams and Waterway Management and FEMA.
- 5.9132 No watercourse shall be altered or relocated unless the person proposing the alteration or relocation submits calculations assuring that the flood carrying capacity within the altered or relocated portion of the watercourse shall be designed to be not less than the flood carrying capacity of the watercourse prior to the proposed alteration or relocation.

- 5.9133 No encroachment shall be made on a flood plain or watercourse which will increase flood levels within the Township during the occurrence of the 100 year flood discharge. With any proposal for an encroachment, calculations which will indicate compliance with this requirement shall be submitted to the Township. All encroachments are subject to Township Supervisors approval. Encroachments into the 100-year floodway must be reviewed and approved by the Pennsylvania Department of Environmental Resources and FEMA.
- 5.9134 No construction or development shall be permitted within the floodplain without approval from the U.S. Corps of Engineers and the Pennsylvania Department of Environmental Resources.

Section 5.92

Utilities and Easements

- 5.921 Easements shall be provided for electric, telephone, and television cables, drainage swales, wires and conduits, storm and sanitary sewers, gas, water and heat mains and other utility lines. No structures shall be placed within such easements. No trees or shrubs shall be placed within easements unless approved by the Township Supervisors. The Township, applicable authorities and municipalities, and local utility companies shall be consulted when locating utilities and easements, and all utilities and easements shall be located in accordance with their standards.
- 5.922 Easements abutting street rights-of-way shall be a minimum of ten (10) feet in width. Other easements shall be a minimum of twenty (20) feet in width.
- 5.923 There shall be a minimum distance of fifty (50) feet, measured in the shortest distance, between any proposed dwelling unit and any petroleum products or natural gas transmission line which traverses the subdivision or land development.
- 5.924 Where gas or petroleum transmission lines are a part of the proposed development, either proposed or requiring relocation, construction shall occur within a right-of-way of fifty (50) feet minimum and shall comply with the applicable requirements of the Pennsylvania Public Utilities Commission.

- 5.925 Underground electric distribution lines shall be installed in all new subdivisions and land developments of five dwelling units or more. In existing subdivisions with five or more unimproved lots any extensions of the electric distribution lines shall be placed underground.
- 5.926 All telephone and television distribution lines shall be placed underground when electric distribution lines are placed underground.
- 5.927 When required by the Township Supervisors, the location of utility easements and rights-of-way shall be marked in the field.

Section 5.93 Compliance with Township Zoning Ordinance

All subdivisions and land developments shall be designed to meet the requirements of the Township's Zoning Ordinance, except as may be otherwise provided in this Ordinance.

Section 5.94 Access to the Subdivision or Land Development

- 5.941 The location and number of access points to a subdivision or land development shall be adequate for and appropriate to the size and nature of the development and surrounding roads and land uses.
- 5.942 All subdivisions and land developments containing more than twenty (20) dwelling units shall have at least two means of ingress and egress via streets or access drives meeting the design and construction standards of the Township.
- 5.943 For all subdivisions and land developments for which only one means of ingress and egress is proposed, the Township Supervisors may require, where deemed necessary in the public interest and for the public safety, the provision of additional street or access drive access meeting Township standards or the provision of an alternate means of ingress and egress meeting Township standards which could be used by emergency vehicles if the primary means of ingress and egress were rendered unusable. Such alternate means of ingress and egress shall be of such width and improved to such an extent to be usable by emergency vehicles, and shall not be used for structures, trees, or similar obstructions.

Section 5.95

Solid Waste Management

- 5.951 Provision shall be made in developments containing apartments and townhouses and in non-residential developments to adequately store within containers all solid waste generated between collections.
- 5.952 All storage containers shall be located to permit efficient depositing of wastes in the containers and efficient collection from the containers.
- 5.953 Debris, rubbish, or other waste material resulting from grading or construction activities on the lot shall be removed from the lot prior to the issuance of a certificate of use and occupancy for the lot. No debris, rubbish, or waste material shall remain within the area of an improvement covered by a performance guarantee upon expiration of the guarantee or completion of the improvements, whichever is sooner.

Section 5.96

Considerations for Solar Access

- 5.961 When maximal provision is to be made for the use of solar energy by structures, in general streets toward which buildings are to be oriented should run in an east-west direction.
- 5.962 Section 5.512 indicates that side lot lines shall be at right angles to straight street lines and radial to curved street lines. The Township Supervisors may allow variation from this requirement where provision is to be made for maximal use of solar energy, in which case side lot lines generally may run from due north to due south or with slight variation east or west of this axis.
- 5.9621 When lot lines will not be provided, consideration should be given to orienting buildings to maximize solar access. Generally, buildings should be located with their long axes running east to west, though in some high density or townhouse developments a north-south orientation for the long axes may be desirable.
- 5.9622 Consideration should be given to locating structures and open spaces such that buildings will not cast shadows on other buildings.

5.963 Consideration should be given to reserving solar easements within lots for protection of solar access.

Section 5.97 CARBONATE AREAS

5.971 Designation of Area

Areas subject to this Section shall include all areas of Duffield (DfA, DfB2 and DfC2), Duffield and Hagerstown (DhC3 and DhE3) Murrill (MrA3, MuA, MuB2 and MuC2), and Washington (Waa2, WaB2 and WaC2) soils.

In Carbonate Areas, alteration and development of land may be hazardous with respect to foundation safety of structures, the creation of unstable land as a result of changes in drainage, and the contamination of ground and surface waters. Within the limitations of the information available at the time of review of individual applications, the Township shall attempt to make reasonable judgments as to the applicant's compliance with the standards of Section 5.982. Under no circumstances shall the Township or any officer or employee of the Township assume any liability for any damages that may result from an applicant's or any interested party's reliance upon the regulations of Section 5.982 or any decisions made by the Township in the administration of such regulations.

5.972 Standards

5.9721 Land grading or construction of buildings or other site improvements shall not directly or indirectly diminish the flow of natural springs or contaminate existing or potential water supplies. If warranted, as determined by the Township Supervisors, water table data from observation wells shall be provided by the applicant.

5.9722 All buildings, structures, roads and other impervious surfaces and storm drainage facilities and other utilities shall be so situated, designed and constructed as to minimize the risk of structural damage from existing or future sinkholes. A recognized professional with competence in the field shall demonstrate that a minimal risk of structural damage due to sinkholes will exist or indicate mitigating measures to be taken to minimize the risk of structural damage.

5.9723 Whenever a detention or retention basin for the control of storm water will be located in a Carbonate Area, a geological evaluation of the proposed location shall be conducted to determine susceptibility to sinkhole formation. The design of all facilities over limestone formations shall include measures to prevent ground water contamination and, where necessary, sinkhole formation. Soils used for the construction of basins shall have low-erodibility factors ("K" factors). The Township may require the installation of an impermeable liner in basins. All detention facilities shall be above ground unless otherwise approved by the Township Supervisors.

5.9724 The following guidelines shall be considered during construction activities.

5.97241 Care should be taken to prevent collection and drainage of surface water into excavated or low-lying areas of the site during excavation and construction.

5.97242 Soft and wet conditions should be located wherever they may exist or be encountered.

5.97243 Soft areas should be removed and replaced with suitable fill compacted in accordance with recognized standards, such as ASTM.

5.97244 The bottom of all excavations should be inspected for soft or unusually moist conditions. A visual inspection of the excavated bearing surface, together with soundings or probes of the soil at regular intervals, should be done. Any soft or unusually moist soil should be further excavated and a determination made of the extent of the problem. Remedial measures should be adopted as necessary.

5.97245 The low points of swales and outlet locations for drainage pipes should be lined with impermeable liners instead of stone rip-rap in order to prevent infiltration of runoff.

- 5.97246 Excavation should be kept to a practical minimum.
- 5.97247 Water from roof drains or other drainage systems should be collected and conveyed away from structures to prevent infiltration near foundations. If possible, roof drains should discharge directly into a storm sewer system or the street gutter.
- 5.97248 Subsoil erosion/sinkholes that occur during the construction of a project should be corrected as quickly as possible under the supervision of a qualified Geotechnical Engineer.
- 5.97249 Blasting should be avoided.

5.9725 Should the Township Supervisors find that an applicant may create a significant risk to the public's health or safety, in spite of taking all reasonable actions to minimize such risks, or should the Supervisors determine that the applicant has not taken all reasonable actions to minimize such risks, the Supervisors may deny the application.

5.973

Submission Requirements

5.9731 The following information shall be submitted:

5.97311 For areas proposed for grading, construction of buildings and other improvements, the applicant shall indicate the presence of any of the following carbonate features:

- depressions
- fissures, lineaments, faults or air photo
- fracture traces
- "ghost lakes" occurring after rainfall events
- outcrops of bedrock
- seasonal high water tables
- sinkholes
- soil mottling, as defined by a soil

scientist
springs
surface drainage entering the ground

Such information shall be supported by an explanation of its source, including the qualifications of the individuals directly responsible for preparing such information.

- 5.97312 The applicant shall furnish a plan indicating existing and proposed drainage conditions, existing and proposed grading, the locations of existing private and public wells on adjoining properties and the locations and extent of all proposed uses and improvements.
- 5.97313 An Environmental Assessment Report containing the following information:
- 5.973131 Description of Existing Conditions. This section shall present a description of existing characteristics of the property with respect to geology, topography, ground and surface water hydrology, soils, vegetation, and existing improvements and uses.
 - 5.973132 Description of the Proposed Action. This section shall describe the proposed action including: types, locations and phasing of proposed site disturbances and construction, as well as proposed future ownership and maintenance of the property and the proposed improvements.
 - 5.973133 Proposed Measures to Control Potential Adverse Environmental Impacts. This section shall describe all measures proposed by the applicant to control all adverse impacts which may occur as a result of the proposed action.

5.973134 List and Qualifications of Preparers. The names, addresses, telephone numbers and qualifications of persons directly responsible for preparing the Environmental Assessment shall be provided.

Section 5.98

Required Studies to be Submitted by the Developer

- 5.981 A Traffic Impact Study shall be submitted in the following instances:
- a. A residential subdivision or land development which has or will accumulate to fifty (50) or more lots and/or dwelling units.
 - b. A non-residential subdivision of five (5) or more lots.
 - c. A non-residential land development containing 20,000 square feet or more of gross floor area.
 - d. Any non-residential land development within one quarter (1/4) mile of an intersection involving an arterial road or two collector roads.

Provided that the Township Supervisors reserve the right to require a traffic study for any subdivision or land development other than a minor residential subdivision, lot annexation, abbreviated residential subdivision, and plan for revision to lot lines when the Township Supervisors deems such a study necessary to adequately review the impact of the subdivision or land development on existing and proposed roads in accordance with Sections 5.2104 and 5.2106.

5.9811 The Traffic Impact Study shall be prepared by a qualified professional traffic engineer or traffic planner with verifiable experience in preparing such studies.

5.9812 The study area for the traffic study shall be based on engineering judgment and an understanding of existing traffic conditions at the site and represent the area which is likely to be affected by the development. The study limits shall be initially agreed upon by the developer, his engineer, and the Township.

- 5.9813 The Traffic Impact Study shall contain the following elements:
- 5.98131 The study area boundary and identification of the roadways included within the study area.
 - 5.98132 A general site description, including:
 - (1) Size, location, existing and proposed land uses and dwelling types, construction staging, and completion date of the proposed development.
 - (2) Existing land uses, approved and recorded subdivision and land developments and subdivisions and land developments proposed but not yet approved and recorded in the study area that are agreed upon by the Township, developer, and traffic engineer as having bearing on the development's likely impact shall be described and considered.
 - (3) Within the study area, the applicant must describe existing roadways and intersections (geometrics and traffic signal control) as well as improvements contemplated by government agencies or private parties.
 - 5.98133 Analysis of existing conditions, including:
 - (1) Daily and Peak Hour(s) Traffic Volumes. Schematic diagrams depicting daily and peak hour(s) traffic volumes shall be presented for roadways within the study area. Turning movement and mainline volumes shall be presented for the three peak hour conditions (AM, PM and site generated) while only mainline volumes are required to reflect daily traffic volumes. The source and/or method of computation for all traffic volumes shall be included.

- (2) Volume/Capacity Analyses at Critical Points. Utilizing techniques described in the Highway Capacity Manual Transportation Research Board Special Report 209 (1985 or latest edition) or derivative nomographs, an assessment of the relative balance between roadway volumes and capacity are to be described. The analysis shall be performed for existing conditions (roadway geometry and traffic signal control) for the appropriate peak hours.
- (3) Level of Service at Critical Points. Based on the results obtained in the previous section, levels of service (A through F) shall be computed and presented. Included in this section shall also be a description of typical operating conditions at each level of service.
- (4) A tabulation of accident locations during the most recent three-year period shall be provided.

5.98134 Analysis of future conditions without the proposed development. The future year(s) for which projections are made will be specified by the Township and will be dependent on the timing of the proposed development. The following information shall be included:

- (1) Daily and Peak Hour(s) Traffic Volumes. This section shall clearly indicate the method and assumptions used to forecast future traffic volumes. The schematic diagrams depicting future traffic volumes shall be similar to those described in Section 5.99133(1) in terms of location and times (daily and peak hours).
- (2) Volume/Capacity Analyses at Critical Locations. The ability of the existing roadway system to accommodate future traffic (without site development) shall be described in this section. If roadway improvements or modifications are committed for implementation the volume/capacity analysis shall be presented for these conditions.

(3) Levels of Service at Critical Points. Based on the results obtained in the previous section, levels of service (A through F) shall be determined.

5.98135 Trip Generation. The amount of traffic generated by the site shall be presented in this section for daily and the three peak hour conditions. The trip generation rates used in this phase of the analysis shall be justified and documented to the satisfaction of the Township Supervisors. Trip Generation (Fourth or latest edition) published by the Institute of Transportation Engineers shall be used unless the Township Supervisors approve other studies.

5.98136 Trip Distribution. The direction of approach for site generated traffic shall be presented in this section for the appropriate time periods. As with all technical analysis steps, the basic method and assumptions used in this work shall be clearly stated in order that the Township can replicate these results.

5.98137 Traffic Assignment. This section shall describe the utilization of study area roadways by site generated traffic. The proposed traffic volumes shall then be combined with anticipated traffic volumes from Section 5.99134 to describe mainline and turning movement volumes for future conditions with the site developed as the applicant proposes.

5.98138 Analysis of Future Conditions with Development. This section shall describe the adequacy of the roadway system to accommodate future traffic with development of the site.

Any unique characteristics of the site or within the study are (i.e., weekend tourists and antique sales, or holiday shopping) affecting traffic shall be considered. If staging of the proposed development is anticipated, analysis for each stage of completion shall be made.

The following information shall be included:

- (1) Daily and Peak Hour(s) Traffic Volumes, Mainline and turning movement volumes shall be presented for the highway network in the study area as well as driveways and internal circulation roadways for the appropriate time periods.
- (2) Volume/Capacity Analysis at Critical Points. Similar to Sections 5.99133(2) and 5.99134(2), a volume/capacity analysis shall be performed for the appropriate peak hours for future conditions with the site developed as proposed.
- (3) Levels of Service at Critical Points. As a result of the volume/capacity analysis, the level of service on the study area roadway system shall be computed and described in this section.

5.98139 Recommended Improvements. In the event that the analysis indicates unsatisfactory levels of service (levels of service D, E or F) as described in Highway Capacity Manual, Transportation Research Board Special Report 209 (1985 or latest edition) will occur on study area roadways, a description of proposed improvements to remedy deficiencies shall be included in this section. These proposals would not include committed projects by the Township and State which were described in Section 5.99132(3) and reflected in the analysis contained in Sections 5.99133 and 5.99134.

The following information shall be included:

- (1) Proposed Recommended Improvements. This section shall describe the location, nature and extent of proposed improvements to assure sufficient roadway capacity. Accompanying this list of improvements shall be preliminary cost estimates.
- (2) Volume/Capacity Analysis at Critical Points. Another iteration of the volume/capacity analysis shall be described which demonstrates the anticipated results of making these improvements.

- (3) Levels of Service at Critical Points. As a result of the revised volume/capacity analysis presented in the previous Sub-Section, levels of service for the highway system with improvements shall be presented.

5.98140 Conclusion. The last section of the report shall be a clear concise description of the study findings. This concluding section shall serve as an executive summary.

5.982 The impact studies listed below shall be submitted to the Township in the following instances:

- (a) A residential subdivision or land development which has or will accumulate to fifty (50) or more lots and/or dwelling units.
- (b) A non-residential subdivision of five (5) or more lots.
- (c) A non-residential land development containing 20,000 square feet or more of gross floor area.

Provided that the Township Supervisors reserve the right to require impact studies for any subdivision or land development other than a minor residential subdivision, lot annexation, abbreviated residential subdivision, and plan for revision to lot lines when the Township Supervisors deems such a study necessary to adequately review the impact of the subdivision or land development.

5.9821 Utilities Impact Study - A study shall be prepared by a registered professional engineer indicating the impact of the proposed development on the existing sanitary sewer, water, solid waste, and drainage systems serving the Township. Said impact study shall identify the existing capacity of facilities which would serve the development, the prospects of those facilities being able to provide service to it, and any improvements that might be required as a direct result of the proposed development. Additionally, the study shall identify the likely ability of sanitary sewer, water, solid waste, and drainage systems to continue to provide efficient and economic service to existing residents and businesses within the Township considering added service requirements of the proposed development.

5.9822 Recreation Impact Study - The study shall analyze the demand for recreational facilities which the proposed development will generate and determine whether adequate facilities exist or are planned or proposed. As a minimum, the study shall include the following:

- (a) A description of the projected age breakdown of the residents of the proposed development.
- (b) A description of any recreational facilities to be provided by the developer.
- (c) A description of existing municipal recreational facilities and the impact of the proposed development on these facilities. Accepted national standards for required recreation shall be used in the analysis.
- (d) Discussion of potential for any recreational facilities to be provided by the developer to compensate for any anticipated deficiencies of the Township's recreational facilities.
- (e) A description of any contributions the developer plans to make for Township recreation to compensate for expected impacts.

5.9823 Fiscal Impact Analysis - A fiscal impact analysis shall be prepared identifying the likely impact of the development on the Township and School District's tax structure and expenditure patterns. Included shall be a determination of the revenues to accrue to the Township and School District as a result of a proposed development, as well as an identification of the costs associated with delivering services to the proposed development. The fiscal impact analysis shall deal with the impact of the proposed development on the ability of the Township to deliver fire, police, administrative, public works and utility services to the development and on the Township's economy. In order to prepare the analysis, the applicant shall utilize a methodology from The New Guide to Fiscal Impact Analysis (Rutgers Center for Urban Policy Research, 1985, as modified from time to time), adapted as appropriate and to the Township satisfaction.

Particular aspects of the Township's service delivery capability to be analyzed shall include:

- (a) Public Works - This includes potential effects on the maintenance, repair and upkeep of roads, signal systems, sanitary sewer, water and drainage systems, open space and recreation areas or any other applicable function. This study shall address projected cost increases for the above mentioned items in terms of administration, personnel, equipment and materials.
- (b) Administration - This includes time that would be required by the Township Supervisors, Secretary, and other staff to process the application and handle the project during construction, as well as long term administration demands. This should include, but not be limited to, the handling of: plans, contracts, various legal instruments or agreements, permits, special problems, and escrow. Added demands on the code administration staff also shall be projected.
- (c) Fire and Emergency Services - The analysis shall incorporate the development's impact on fire company capabilities, including but not limited to, municipal water supply, pumping capacity, specialized equipment and training requirements.
- (d) Police - The study shall project the overall effects of the proposed development on existing Township police personnel numbers, equipment, vehicles and working space. The study shall include whatever facilities or assistance the development will provide to handle emergencies, criminal investigation, armed robbery, or other security-related problems.

5.9824 Historic and Archeological Resources Impact Study - All Historic and Archaeological Resources which have been identified and/or inventoried by the Township, the County Planning Commission, and/or the Pennsylvania Historical Museum Commission located within the tract shall be identified and the impact on such resources detailed.

5.9825 Environmental Impact Study - The study shall include the following impacts:

- (a) Habitats of Threatened and Endangered Species of Special Concern in Pennsylvania within the tract, as established by the Pennsylvania Biological Survey and/or Pennsylvania Natural Diversity Inventory, shall be identified and the impact on such resources detailed.

If such habitats exist on the tract, the measures proposed to protect the habitats shall be indicated.

- (b) The suitability of the site for the intensity of use proposed by the site's soils, slopes, woodlands, wetlands, flood plains, aquifers, natural resources and other natural features;
- (c) The impact of the proposed use on the site's soils, slopes, woodlands, wetlands, flood plains, natural resources and natural features, the degree to which these are protected or destroyed, the tolerance of the resources to development and any adverse environmental impacts; and
- (d) The impact of the proposal on the preservation of agriculture and other land uses which are essential to public health and welfare.

5.9826 Hydrogeologic Impact Study - Those applications proposing the use of a well shall require the preparation of hydrogeologic study. Such study shall be conducted by a qualified hydrogeologist and consist of the following minimum considerations:

- (a) A map showing the location of the site and proposed wells.
- (b) A description of the geologic conditions on and around the site, including factors which would affect the groundwater recharge rate and the degree of groundwater renovation. Site geology, including stratigraphy, structure, and soils shall be analyzed. Hydrogeology, including aquifer characteristics, groundwater movement, local

water use, aquifer yield, and water quality shall be analyzed. Goundwater impacts, availability of groundwater, well interference, water quality, and yield availability shall be analyzed.

- (c) Should it be determined that the proposed use(s) would result in a degradation of groundwater quality, or eliminate the potential groundwater use at nearby properties, the study shall present measures that will be employed to prevent these adverse impacts.
- (d) Results of a test well, including quality of water and flow rate.

ARTICLE VI - MOBILE HOME PARKS

Section 6.10 General Requirements

Mobile home parks shall comply with all of the design standards and improvement specifications found in Articles V and VII of this Ordinance.

Section 6.20 Plan Submission

The submission, review, approval or disapproval and recording of any mobile home park shall be in accordance with the provisions of Article III of this Ordinance.

Section 6.30 Plan Requirements

The Plan of any mobile home park shall comply with the requirements stated in Article IV of this Ordinance.

Section 6.40 General Regulations

All mobile home parks shall comply with all the requirements for mobile home parks as may be listed in the Township Zoning Ordinance and any other Township regulations, and shall meet all the requirements for mobile home parks established by the Commonwealth of Pennsylvania.

ARTICLE VII - IMPROVEMENT SPECIFICATIONS

Section 7.10 General Requirements

All streets, storm sewers, sanitary sewers, water mains, curbs, sidewalks, and other physical improvements to the property being subdivided or developed shall be provided, constructed, and installed by the developer as shown on the approved Final Plan and all supplemental plans and drawings accompanying the Preliminary Plan and approved Final Plan. The developer shall execute a Subdivision Improvements Agreement with the Township for the installation of all such improvements. All improvements shall be constructed in accordance with the applicable specifications of the Township or Authority having jurisdiction, or other applicable regulations. Where none apply, specifications of the Pennsylvania Department of Transportation and/or Pennsylvania Department of Environmental Resources shall be used. If none exist, Specifications prepared by the Township Engineer shall be used.

7.11 Supervision

Supervision of the installation of improvements required by Section 7.20 following shall in all cases be the responsibility of the Township or of the appropriate State regulatory agency. The applicant shall reimburse the Township for the reasonable and necessary expense incurred for the observation of the improvements. Such reimbursement shall be based upon a schedule established by ordinance or resolution.

The contractor shall schedule a meeting with the Township's representative prior to any construction. Shop drawings and specifications of all material to be used shall be submitted to the Township for approval prior to commencement of construction.

If the representative of the Township observing the construction or installation of improvements determines that the work is not in accordance with approved plans and specifications or is not being done in a workmanlike manner, said representative may stop work and/or require corrections to be made. Prior to any construction or installation, a forty-eight (48) hour start work notice is to be given to the representative.

7.12 Extension to Property Boundaries

Where required by the Township, improvements shall be extended to the boundaries of the subdivision or land development to facilitate extension into surrounding properties.

Section 7.20 Required Improvements

The following improvements shall be provided by the developer at his expense:

7.21 Street Grading. All streets, including those to be dedicated and those not to be dedicated, shall be graded at full right-of-way width in accordance with Township regulations.

Planting strips within street rights-of-way shall be graded, properly prepared, and seeded or sodded with lawn grass.

Where wet conditions are encountered, the Township Supervisors may require underdrains.

7.22 Cartway Paving. All streets, including those to be dedicated and those not to be dedicated, shall be paved to full cartway width in accordance with Township Regulations.

When no Township regulations have been adopted, paving shall be in accordance with Pavement Design Guidelines in PennDOT Publication Guidelines For Design of Local Roads and Streets, April 1983 Edition, as amended.

Weather limitations in the placing of paving materials are as follows:

- (1) The placing of bituminous concrete base course or binder course shall terminate after October 15 of each year and shall not be resumed until April 1 of the following year and until the ground temperature and air temperature do not fall below and are continuously above 35° F. for five (5) consecutive days prior to the day of placement of said materials.

When the air temperature falls below 50° F., extra precautions shall be taken in drying the aggregate, controlling the temperature of the delivered material and compacting the mixture. Bituminous concrete base course or binder course shall not be placed on wet surfaces, nor when the air temperature is 35° F. or lower, nor when the temperature of the surface on which it is to be placed is 35° F. or lower.

- (2) The placing of bituminous concrete wearing course or surface course shall terminate after October 15 of each year and shall not be resumed until April 1 of the following year and until the ground temperature and air temperature do not fall below and are continuously above 40° F. for five (5) consecutive days prior to the day of placement of said materials.

When the air temperature falls below 50° F., extra precautions shall be taken in drying the aggregate, controlling the temperature of the delivered material and compacting the mixture. Bituminous concrete wearing course or surface course shall not be placed on wet surfaces, nor when the air temperature is 40° F. or lower, nor when the temperature of the surface on which it is to be placed is 40° F. or lower.

- (3) In any case, no bituminous concrete shall be placed after December 15 or resumed prior to April 1 at the earliest. Placement shall not be resumed on April 1 unless five (5) consecutive days of both ground temperature and air temperature above 40° F. are experienced.

7.23 Curbs. Vertical curbs shall be installed along both sides of all streets within and abutting the subdivision or land development in accordance with Township specifications.

7.24 Sidewalks. Sidewalks with a minimum width of four (4) feet but meeting requirements of applicable Township regulations shall be installed on both sides of all streets within and abutting the subdivision or land development, except that sidewalks shall be required on only one side of marginal access streets and no sidewalks shall be required along service streets.

Sidewalks shall be provided along all parking areas in apartment, townhouse, commercial, industrial, and office land developments.

7.25 Storm Drainage. Storm sewers and related facilities shall be installed consistent with acceptable design principles and the standards contained in Section 5.80 and Appendix V of this Ordinance.

7.26 Sanitary Sewage Disposal

7.261 Sanitary sewage disposal systems shall be provided consistent with the requirements contained in Section 5.60 of this Ordinance.

7.262 Whenever individual on-site sanitary sewage disposal systems are utilized, the subdivider shall either install such facilities or shall require (by deed restriction or otherwise) as a condition of the sale of each lot or parcel within the subdivision that such facilities shall be installed by the purchaser of such lot or parcel at the time that a principal building is constructed.

7.263 If individual on-site systems are not used, the subdivider shall provide a community or public sanitary sewage disposal system. The design and installation of all systems shall be subject to the approval of the Township and the applicable public agencies. A community sewage disposal system shall be subject to satisfactory provisions for the maintenance thereof.

7.27 Water Supply

7.271 Water supply system(s) shall be provided consistent with the requirements of Section 5.70 of this Ordinance.

7.272 Where the subdivider proposes that on-site water supply systems shall be utilized within the subdivision, the subdivider shall either install such facilities or shall require (by deed restriction or otherwise) as a condition of the sale of each lot or parcel that the facilities shall be installed by the purchaser of such lot or parcel at the time that a principal building is constructed.

7.273 The design and installation of public and community water distribution systems shall be subject to the approval of the Township and the applicable public agencies or private companies. The water shall be supplied by a certified public utility, a bona fide cooperative association of lot owners, or by a municipal corporation, authority or utility. A copy of a Certificate of Public Convenience from the Pennsylvania Public Utility Commission or an application for such certificate, a cooperative agreement or a commitment or agreement to serve the area in question, whichever is appropriate, shall be acceptable evidence. A community water distribution system shall be subject to satisfactory provisions for the maintenance thereof.

7.28 Fire Hydrants. Fire hydrants shall be installed in all subdivisions and land developments containing public or community water supply systems. The location, number and separation of hydrants shall be approved by the Township and Fire Chief in accordance with the guidelines of the Insurance Services Office. The maximum distance between fire hydrants shall be 600 feet.

7.29 Monuments

7.291 Permanent stone, concrete, or steel pin encased in concrete monuments shall be accurately placed at changes in direction of lines in the boundary of the property.

7.292 All streets shall be monumented on the right-of-way line or the five feet range line on one side of the street at the following locations:

7.2921 At least one (1) monument at each street intersection;

7.2922 At changes in direction of street lines.

7.2923 At each end of each curved street line.

7.2924 At intermediate points wherever topographical or other conditions make it impossible to site between two (2) otherwise required monuments;

- 7.2925 At such other places along the line of streets as may be determined by the Township to be necessary so that any street may be readily defined in the future.
- 7.293 All monuments shall be placed so that the center of the monument coincides exactly with the point of intersection of the lines being monumented.
- 7.294 Monuments shall be set with their top level with the finished grade of surrounding ground, except that where monuments are located beneath a sidewalk, proper access shall be provided for their use.
- 7.30 Street Signs. Street name signs shall be installed at all street intersections. The design and placement of such signs shall be subject to approval of the Township.
- 7.31 Lot Markers. Metal markers shall be accurately placed at all lot corners prior to sale of lots.
- 7.32 Street Lights. In accordance with the conditions to be agreed upon by the developer, the Township, and the appropriate public utility, street lights shall be installed in all subdivisions and land developments.
- 7.33 Erosion and Sediment Control Measures. Installations necessary to implement the erosion and sediment control plan shall be made on the tract by the developer as required improvements.
- 7.34 Shade Trees. Deciduous hardwood trees of a species approved by the Township having a minimum caliper of two (2) to two and one-half (2-1/2) inches shall be provided. The trees are to be placed outside the street right-of-way at a maximum distance of fifty (50) feet between trees. Conditions of placement and inspection shall be specified by the Township. In addition, the developer shall preserve existing shade trees within the tract when feasible.
- 7.35 Solid Waste Management. The necessary arrangements to implement the solid waste management plan prepared by the developer for apartment, townhouse, commercial, office and industrial developments shall be made at his expense.

- 7.36 Traffic Control Devices. The traffic control devices shown on the approved plan, including such items as stop signs and signs restricting parking, shall be installed as required by the Township.
- 7.37 As-Built Drawings. As-built drawings shall be prepared in accordance with Section 3.45.
- 7.38 Rock Removal. Provision shall be made for rock removal in the Subdivision Improvements Agreement and Guarantee.
- 7.39 When required by the Township Supervisors pursuant to Section 5.525, acceleration and deceleration lanes shall be provided.
- 7.40 Backfilling. Utility excavations in areas of streets, access drives, parking areas, and loading areas shall be backfilled in accordance with the following standards:
- (1) Backfilling shall be done as promptly as possible.
 - (2) The trench shall be filled with hand-placed stone acceptable to the Township to a height of at least one foot (1') above the top of the conduit, pipe or pipe bell.
 - (3) The remainder of the trench shall be backfilled with 2-RC and promptly compacted. The backfill material shall be mechanically tamped in approximately six inch (6") layers.
 - (4) Where openings are made behind the curb line, work shall be prosecuted as required in these specifications and the opening covered with good topsoil to a depth of six inches (6") and seeded or sodded to the satisfaction of the Township.
 - (5) Whenever the trenches have not been properly filled or if settlement occurs, they shall be refilled, compacted, smoothed off and finally made to conform to the surface of the ground.
 - (6) Frozen material shall not be used for backfill, nor shall any backfilling be done when materials already in the trench are frozen.

- 7.41 Parking and Loading Area Paving. All access drives and parking and loading areas for apartment, townhouses, commercial, office and industrial land developments shall be constructed of a minimum of seven inches (7") of 2A subbase material, six inches (6") crushed aggregate base course, one and one-half inches (1-1/2") ID-2 binder course, and one inch (1") ID-2 wearing course. Alternate cross-sections may be permitted at the discretion of the Township Supervisors. All construction shall conform to PennDOT Publication 408, latest edition.
- 7.42 Guide Rail. Guide rail shall be provided pursuant to Section 5.30 of this Ordinance.
- 7.43 Driveways. Driveways shall be paved in accordance with this Ordinance and other regulations of the Township.

ARTICLE VIII - ADMINISTRATION

Section 8.10 Review Fees

8.11 The Township Supervisors shall establish by resolution a Schedule of Fees for the review of plans to be paid by the developer. The Schedule of Fees shall be obtainable from the Township Secretary. No Final Plan or Sketch Plan of Record shall be released for recording unless all fees have been paid in full.

Section 8.20 Modifications

8.21 The Township Supervisors may grant a modification of the requirements of one or more provisions of this Ordinance if the literal enforcement will exact undue hardship because of peculiar conditions pertaining to the land in question, provided that such modifications will not be contrary to the public interest and that the purpose and intent of this Ordinance is observed.

All requests for a modification shall be in writing and shall accompany and be a part of the application for development. The request shall state in full the grounds or provisions of this Ordinance involved and the minimum modification necessary. The request for modification may be referred to the Planning Commission for advisory comments. The Supervisors shall keep a written record of all action on all requests for modifications.

In granting modifications, the Supervisors may impose such conditions as will, in their judgment, secure substantially the objectives of the standards or requirements so modified.

8.22 No changes, erasures, modifications or revisions shall be made in any plan of a subdivision or land development after the plan has been endorsed by the Township Supervisors unless the plan is first resubmitted to and approved by the Supervisors in accordance with the provisions of this Ordinance.

Section 8.30 Appeals

8.31 Any person desiring to challenge the validity of any provision of this Ordinance or any amendment thereof shall make such challenge as prescribed by law.

8.32 Any person aggrieved by action of the Township Supervisors may appeal the action as prescribed by law.

8.41 Preventive Remedies. In addition to other remedies, the Township may institute and maintain appropriate actions by law or in equity to restrain, correct or abate violations, to prevent unlawful construction, to recover damages and to prevent illegal occupancy of a building, structure or premises. The description by metes and bounds in the instrument of transfer or other documents used in the process of selling or transferring shall not exempt the seller or transferor from such penalties or from the remedies herein provided.

The Township may refuse to issue any permit or grant any approval necessary to further improve or develop any real property which has been developed or which has resulted from a subdivision of real property in violation of this Ordinance. This authority to deny such a permit or approval shall apply to any of the following applicants:

- (a) The owner of record at the time of such violation.
- (b) The vendee or lessee of the owner of record at the time of such violation without regard as to whether such a vendee or lessee had actual or constructive knowledge of the violation.
- (c) The current owner of record who acquired the property subsequent to the time of violation without regard as to whether such current owner had actual or constructive knowledge of the violation.
- (d) The vendee or lessee of the current owner of record who acquired the property subsequent to the time of violation without regard as to whether such vendee or lessee had actual or constructive knowledge of the violation.

As an additional condition for issuance of a permit or the granting or an approval to any such owner, current owner, vendee or lessee for the development of any such real property, the Township may require compliance with the conditions that would have been applicable to the property at the time the applicant acquired an interest in such real property.

8.42 Enforcement Remedies. Any person, partnership or corporation who or which has violated the provisions of this Ordinance or any prior subdivision and land development ordinance of the Township shall, upon being found liable therefore in a civil enforcement proceeding commenced by the Township, pay a judgment of not more than \$500 plus all court costs, including reasonable attorney fees incurred by the Township as a result thereof. No judgment shall commence or be imposed, levied or be payable until the date of the determination of a violation by the district justice. If the defendant neither pays nor timely appeals the judgment, the Township may enforce the judgment pursuant to the applicable rules of civil procedure. Each day that a violation continues shall constitute a separate violation, unless the district justice determining that there has been a violation further determines that there was a good faith basis for the person, partnership or corporation violating the ordinance to have believed that there was no such violation, in which event there shall be deemed to have been only one such violation until the fifth day following the date of the determination of a violation by the district justice and thereafter each day that a violation continues shall constitute a separate violation.

The court of common pleas, upon petition, may grant an order to stay, upon cause shown, tolling the per diem judgment pending a final adjudication of the violation and judgment.

Nothing contained in this section shall be construed or interpreted to grant to any person or entity other than the Township the right to commence any action for enforcement pursuant to this section.

Section 8.50 Responsibility

The developer shall be responsible for observing the procedures established in this Ordinance and for submitting all plans and documents as may be required.

Section 8.60 Conflicts

8.61 Whenever there is a difference between the minimum standards specified herein and those included in other Township regulations the more stringent requirements shall apply.

8.62 All existing ordinances or parts of ordinances which are contrary to the provisions of this Ordinance are hereby repealed to the extent necessary to give this Ordinance full force and effect, except as noted in Section 8.61 or elsewhere in this Ordinance; provided however, that the provisions of this Ordinance shall not affect any suit or prosecution pending or to be instituted to enforce any provision of such repealed ordinance or to punish any offense against any such repealed ordinance committed prior to the effective date of this Ordinance.

Section 8.70 Revision and Amendment

8.71 The Township Supervisors may amend this Ordinance. Any amendments shall be made in accordance with the procedures established by law.

Section 8.80 Severability

8.81 The provisions of this Ordinance are severable, and should any article, section, subsection, paragraph, clause, phrase, or provision of this Ordinance be declared by a court of competent jurisdiction to be invalid, such judgment shall not affect the validity of the Ordinance as a whole or any part or provision thereof other than the part so declared to be invalid.

Section 8.90 Savings Clause

8.91 This Ordinance shall not affect any act done or any offense committed prior to its effective date nor affect any action to enforce any prior ordinance or to punish any offense against a prior ordinance.

ARTICLE IX - DEFINITIONS

- 9.10 Unless otherwise expressly stated, the following terms shall, for the purpose of these regulations, have the meaning indicated:
- 9.11 Words in the singular include the plural and those in the plural include the singular.
- 9.12 Words used in the present tense include the future tense.
- 9.13 Words "person", "subdivider", "owner", and "developer" include a corporation, incorporated association and a partnership, or other legal entity, as well as an individual.
- 9.14 The word "building" includes structures and shall be construed as if followed by the phrase "or part thereof".
- 9.15 The word "watercourse" includes channel, creek, ditch, dry run, spring, stream and river.
- 9.16 The words, "should" and "may" are permissive; the words "shall", "must" and "will" are mandatory and directive.
- 9.17 For words used in this Ordinance but not defined in this Ordinance, any definition established in the Township Zoning Ordinance shall apply.
- 9.20 Other terms or words used herein shall be interpreted or defined as follows:
- 9.21 Alley. See Service Street
- 9.22 Access Drive. A private drive providing vehicular access between a public or private street and a building, parking area and/or loading area within a land development.
- 9.23 Applicant. A landowner or developer, as hereinafter defined, who has filed an application for development including his heirs, successors and assigns.
- 9.24 Application for Development. Every application, whether preliminary or final, required to be filed and approved prior to start of construction or development.
- 9.25 Block. An area bounded on one side by a street and on the other three sides by a street, railroad right-of-way, watercourse, unsubdivided area, or similar feature.

- 9.26 Building. A structure enclosed within exterior walls or fire walls, built, erected and framed of component structural parts, designed for the housing, shelter, enclosure and support of individuals, animals, or property of any kind.
- 9.27 Building Setback Line. The line within a property defining the minimum required distance between any building and a street right-of-way.
- 9.28 Carbonate Area. An area containing soils developed from limestone materials.
- 9.29 Cartway. The portion of a street right-of-way, paved or unpaved, intended for vehicular use.
- 9.30 Clear Sight Triangle. An area of unobstructed vision at street intersections defined by lines of sight between points at a given distance from the intersection of the street center lines.
- 9.31 Commission. The Planning Commission of the Township of Marion, Berks County, Pennsylvania.
- 9.32 Common Parking Area. A parking facility other than those provided within the lot lines of a lot on which one single family detached dwelling, one single family semi-detached dwelling, one townhouse, one two family detached dwelling, or one two family semi-detached dwelling is located.
- 9.33 County. The County of Berks, Commonwealth of Pennsylvania.
- 9.34 County Planning Commission. The Planning Commission of the County of Berks, Commonwealth of Pennsylvania.
- 9.35 Crosswalk. A right-of-way established for public use to facilitate pedestrian access through a subdivision block.
- 9.36 Developer. Any landowner, agent of such landowner, or tenant with the permission of such landowner, who makes or causes to be made a subdivision of land or a land development.
- 9.37 Dry Bottom Water Storage Area. A man-made area used to detain surface water and meter the flow at an acceptable rate.

- 9.38 Dwelling Unit. Any structure, or part thereof, designed to be occupied as living quarters as a single housekeeping unit.
- 9.39 Easement. A right-of-way granted, but not dedicated, for limited use of private land for public or quasi-public purpose, and within which the owner of the property shall not erect any permanent structure, but shall have the right to make any other use of the land which is not inconsistent with the rights of the grantee or this Ordinance.
- 9.40 Endorsement. The application of the signatures of at least a majority of the Township Supervisors and the Township Seal to the Plan.
- 9.41 Engineer. A licensed professional engineer registered by the Commonwealth of Pennsylvania.
- 9.42 Flood Plain. A land area susceptible to being inundated by water from any source.
- 9.43 Grade. The inclination, with the horizontal, of a road, unimproved land, etc., which is generally expressed by stating the vertical rise or fall as a percentage of the horizontal distance.
- 9.44 Improvements. Those physical additions and changes to the land that may be necessary to produce usable and desirable lots.
- 9.45 Improvements Guarantee. Any security which is accepted by the Township to guarantee that certain improvements will be made within the subdivision or land development, including performance bonds, escrow agreements and any other collateral or surety agreements.
- 9.46 Land Development. (1) The improvement of one lot or two or more contiguous lots, tracts or parcels of land for any purpose involving (a) a group of two or more residential or non-residential buildings, whether proposed initially or cumulatively, or a single non-residential building on a lot or lots regardless of the number of occupants or tenure; or (b) the division or allocation of land or space, whether initially or cumulatively, between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups or other features; (2) a subdivision of land; and (3) the following land development activities shall be excluded from the definition of a Land

Development: (a) the conversion of an existing single-family detached dwelling or single family semi-detached dwelling into not more than three residential units, unless such units are intended to be a condominium; (b) the addition of an accessory building, including farm buildings, on a lot or lots subordinate to an existing principal building; or (c) the addition or conversion of buildings or rides within the confines of an enterprise which would be considered an amusement park. For purposes of this subclause, an amusement park is defined as a tract of area used principally as a location for permanent amusement structures or rides. This exclusion shall not apply to newly acquired acreage by an amusement park until initial plans for the expanded area have been approved by proper authorities.

- 9.47 Landowner. The legal or beneficial owner or owners of land including the holder of an option or contract to purchase (whether or not such option or contract is subject to any condition), a lessee if he is authorized under the lease to exercise the rights of the landowner, or other person having a proprietary interest in land.
- 9.48 Lot. A designated parcel, tract or area of land established by a plat or otherwise as permitted by law and to be used, developed or built upon as a unit.
- 9.49 Lot Area. The area contained within the property lines of a lot excluding space within all street rights-of-way.
- 9.50 Lot, Flag. A lot of irregular shape that has a narrow access strip (not meeting the minimum lot width requirements of the Township Zoning Ordinance and thus too narrow for the construction of a principal building) leading from a street or other right-of-way to a wider portion of the lot which is intended for construction of a principal building and which wider portion complies with the minimum lot width requirements of the Township Zoning Ordinance.
- 9.51 Maintenance Guarantee. A guarantee by the developer of the structural integrity of improvements dedicated to the Township.
- 9.52 Marker. A metal pipe or pin of at least three-quarter inch (3/4") in diameter and at least 24 inches in length.

- 9.53 Mobile Home. A transportable, single family dwelling intended for permanent occupancy, contained in one unit, or in two or more units designed to be joined into one integral unit capable of again being separated for repeated towing, which arrives at a site complete and ready for occupancy except for minor and incidental unpacking and assembly operations.
- 9.54 Mobile Home Lot. A parcel of land in a mobile home park, improved with the necessary utility connections and other appurtenances necessary for the erection thereon of a single mobile home.
- 9.55 Mobile home Park. A parcel or contiguous parcels of land which has been so designated and improved that it contain two or more mobile home lots for the placement thereon of mobile homes.
- 9.56 Monument. (1) A stone or concrete monument with a flat top at least four (4) inches in diameter or square, containing a copper or brass dowell (1/4" drill hole) and at least 24 inches in length. It is recommended that the bottom sides or radius be at least two (2) inches greater than the top, to minimize movements caused by frost. (2) An iron pin at least 30 inches in length with the bottom encased in concrete to a minimum depth of 8 inches.
- 9.57 Multiple Dwelling Building. A building providing separate dwelling units for three or more families.
- 9.58 Municipality. Township of Marion, Berks County, Pennsylvania.
- 9.59 Plan, Final. A complete and exact subdivision or land development plan (including all required supplementary data), prepared for official recording to define property rights and proposed streets and other improvements.
- 9.60 Plan, Preliminary. A tentative subdivision or land development plan (including all required supplementary data), in lesser detail than a final plan, showing, among other things, topographical data and approximate proposed street and lot layout as a basis for consideration prior to preparation of a final plan.
- 9.61 Plan, Record. The copy of the Final Plan which contains the original endorsements of the County Planning Commission and the Township Supervisors and which is intended to be recorded with the County Recorder of Deeds.

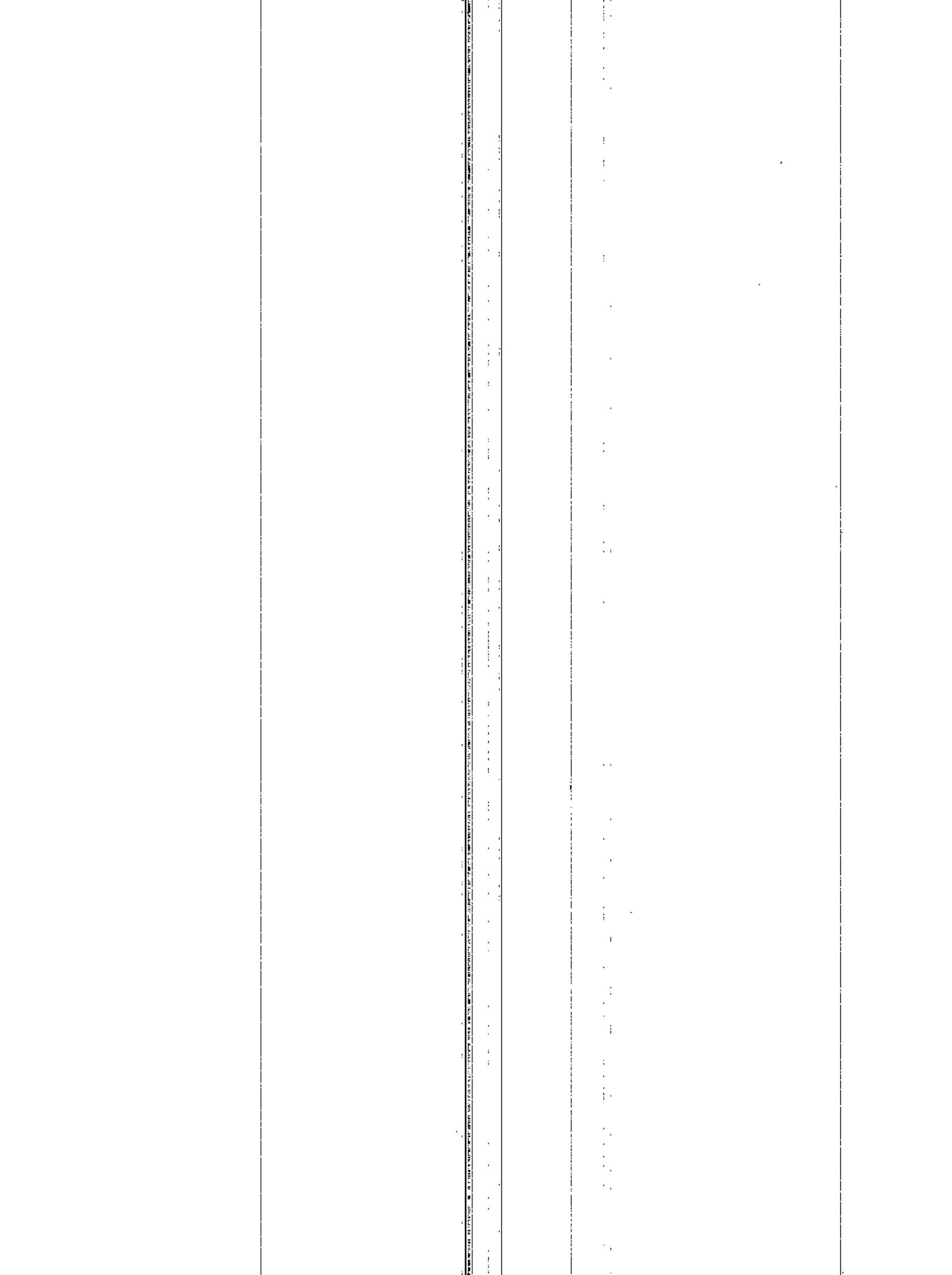
- 9.62 Plan, Sketch. An informal plan indicating salient existing features of a tract and the general layout of a proposed subdivision or land development.
- 9.63 Plan, Official. The Comprehensive Development Plan and/or Master Plan and/or Future Land Use Plan and/or Ultimate Right-of-Way Plan and/or Official Map and/or Topographical Survey and/or other such plans, or portions thereof, as may have been adopted pursuant to statute.
- 9.64 Planning Commission. The Planning Commission of the Township of Marion, Berks County, Pennsylvania.
- 9.65 Plat. A map or plan of a subdivision or land development, whether preliminary or final.
- 9.66 Public Grounds. Parks, playgrounds, trails, paths and other recreational areas; sites for schools, sewage treatment, refuse disposal and other publicly owned or operated facilities; publicly owned or operated scenic and historic sites.
- 9.67 Reserve Strip. A parcel of ground in separate ownership separating a street from other adjacent properties, or from another street, either proposed or existing.
- 9.68 Resubdivision. Any replatting of land, including changes to recorded subdivision or land development plans. See also Subdivision.
- 9.69 Reverse Frontage Lot. A lot extending between and having frontage on two generally parallel streets, excluding service streets, with vehicular access solely from one street.
- 9.70 Right-of-Way. The total width of any land reserved or dedicated as a street, alley, crosswalk or for other public or semi-public purposes.
- 9.71 Sanitary Sewage Disposal System, On-Site. Any structure designed to treat sanitary sewage within the boundaries of an individual lot.
- 9.72 Sanitary Sewerage System, Community. A sanitary sewage collection system in which sewage is carried from individual lots by a system of pipes to a temporary central treatment and disposal plant, generally serving a neighborhood area.

- 9.73 Sanitary Sewerage System, Public. A sanitary sewage collection system in which sewage is carried from individual lots by a system of pipes to a central treatment and disposal plant, generally not confined to one neighborhood.
- 9.74 Sight Distance. The required length of roadway visible to the driver of a passenger vehicle at any given point on the roadway when the view is unobstructed by traffic. Sight distance measurement shall be made from a point 3.75 feet above the center line of the road surface to a point 0.5 feet above the center line of the road surface.
- 9.75 Solid Waste. Garbage, refuse, and other discarded materials.
- 9.76 Street. A strip of land, including the entire right-of-way (i.e., not limited to the cartway) intended to be used by vehicular traffic or pedestrians. The word "street" includes street, avenue, boulevard, road, highway, freeway, parkway, lane, alley, viaduct and other ways used or intended to be used by vehicular traffic or pedestrians whether public or private. Streets are further classified according to the function they perform.
- 9.761 Arterial Street. A street serving a large volume of comparatively high-speed and long-distance traffic.
- 9.762 Collector Street. A street which intercepts minor streets to provide a route to give access to community facilities and/or other collector and arterial streets. Generally, streets in industrial and commercial subdivisions shall be considered collector streets.
- 9.763 Cul-de-Sac Street. A minor street intersecting another street at one end and terminating in a vehicular turnaround at the other end or, a minor street which intersects another street at one end, forms a loop and intersects itself.

The length of a cul-de-sac street shall be measured from the street intersection with a through street nearest the turnaround to the farthest portion of the turnaround, along the centerline of the cul-de-sac street, and any intervening streets as applicable.

- 9.764 Half (Partial) Street. A street, generally parallel and adjacent to a property line, having a lesser right-of-way width than normally required for improvement and use of the street.
- 9.765 Marginal Access Street. A minor street parallel and adjacent to an arterial or collector street, but separated from it by a reserve strip, which provides access to abutting properties and control of intersections with the arterial or collector street.
- 9.766 Minor Street. A street used primarily to provide access to abutting properties or buildings.
- 9.767 Service Street (Alley). A minor right-of-way providing secondary vehicular access to the side or rear of two or more properties.
- 9.77 Structure. Any man-made object having an ascertainable stationary location on or in land or water, whether or not affixed to the land.
- 9.78 Subdivider. Any landowner, agent of such landowner, or tenant with the permission of such landowner, who makes or causes to be made a subdivision or a land development.
- 9.79 Subdivision. The division or redivision of a lot, tract or parcel of land by any means into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of lease, partition by the court for distribution to heirs or devisees, transfer of ownership or building or lot development; provided, however, that the subdivision by lease of land for agriculture purposes into parcels of more than ten acres not involving any new street or easement of access or any residential dwelling shall be exempted. The term subdivision shall refer, as appropriate in this ordinance, to the process of subdividing land or to the land proposed to be subdivided. The term subdivision includes resubdivision.
- The enumerating of lots shall include as a lot that portion of the original tract remaining after other lots have been subdivided therefrom.
- 9.80 Supervisors. Board of Supervisors of the Township of Marion, Berks County, Pennsylvania.

- 9.81 Surveyor. A licensed surveyor registered by the Commonwealth of Pennsylvania.
- 9.82 Township. The Township of Marion, Berks County, Pennsylvania.
- 9.83 Township Planning Commission. The Planning Commission of the Township of Marion, Berks County, Pennsylvania.
- 9.84 Township Supervisors. Board of Supervisors of the Township of Marion, Berks County, Pennsylvania.
- 9.85 Turnaround. A circular area of specified radius and material intended for use by vehicles for the purpose of making turning movements at the terminus of a street.
- 9.86 Water Distribution System, Community. A system for supplying and distributing water from a common source to two or more dwellings and/or other buildings within a single neighborhood.
- 9.87 Water Distribution System, On-Site. A system for supplying and distributing water to a single dwelling or other building from a source located on the same lot.
- 9.88 Water Distribution System, Public. A system for supplying and distributing water from a common source to dwellings and other buildings, but generally not confined to one neighborhood.
- 9.89 Wet Bottom Water Storage Area. A water storage area in which a permanent water surface is maintained.
- 9.90 Wetlands. Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions; and those areas which may be classified as wetlands under applicable guidelines issued by the Federal government or by the Commonwealth of Pennsylvania.



FORM 1

APPLICATION FOR REVIEW OF SKETCH PLAN OR SKETCH PLAN FOR RECORD

Application is hereby made for review of the Sketch Plan submitted herewith and more particularly described below:

1. Name of Subdivision: _____
 Plan Dated: _____
2. Name of Applicant(s): _____
 Address: _____
 _____ Phone No. _____
3. Name of Owner(s): _____
 (If other than Applicant)
4. Applicant's interest, if other than owner: _____

5. Location of Subdivision: _____

6. Engineer of Surveyor responsible for plan: _____
 Address: _____

 Phone No. _____
7. Acreage being subdivided: _____ Number of Lots _____
8. Acreage of adjoining land in same ownership (if any): _____
9. Lot use proposed: _____ Single Family _____ Commercial
 _____ Two Family _____ Industrial
 _____ Townhouse _____ Other
 _____ Multi-Family _____ (Specify)
10. Zoning Classification: _____
 Zoning changes to be requested: _____
11. Type of water supply proposed: _____ Public System
 _____ Community System
 _____ Individual On-Site
12. Type of sanitary sewage disposal proposed:
 _____ Public System
 _____ Live
 _____ Capped
 _____ Community System
 _____ Individual On-Site

13. Type of off-street parking proposed: _____ Garages
_____ Driveways
_____ Other

14. List proposed improvements
1. _____
2. _____
3. _____

15. Intent: Sell Lots Only _____
Construct houses for sale _____
Other _____

Signature of Applicant

FORM 2
APPLICATION FOR REVIEW OF PRELIMINARY PLAN

Application is hereby made for review of the Preliminary Plan submitted herewith and more particularly described below:

1. Name of Subdivision: _____
Plan Dated: _____
2. Source of Title:
County Deed Book No.: _____ Page No. _____
3. Name of Applicant(s): _____
Address: _____

Phone No.: _____
4. Name of Property Owner(s): _____
(If other than applicant)
Address: _____

Phone No. _____
5. Applicant's interest, if other than owner: _____

6. Engineer of Surveyor responsible for plan: _____
Address: _____

Phone No. _____
7. Acreage being subdivided: _____ Number of Lots _____
8. Acreage of adjoining land in same ownership (if any): _____
9. Minimum lot area proposed: _____
10. Lot use proposed: _____ Single Family _____ Commercial
 _____ Two Family _____ Industrial
 _____ Townhouse _____ Other (Specify)
 _____ Multi-Family
11. Will construction of buildings be undertaken immediately?
_____ Yes _____ No
By Whom? _____ Subdivider
 _____ Other Developers
 _____ Purchasers of individual lots

12. Type of water supply planned: Public System
 Community System
 Individual On-Site

13. Type of sanitary sewage disposal planned:
 Public System
 Live
 Capped
 Community System
 Individual On-Site

14. Type of off-street parking proposed: Garages
 Driveways
 Other
(Specify)

15. Lineal feet of new streets planned: _____

16. Are all streets proposed for dedication? Yes No

17. Deed restrictions that apply or are contemplated. (if no restrictions, state "none", if "yes" attach copy): _____

18. Acreage proposed for parks or other public use: _____

19. Zoning classification: _____

20. Have appropriate public utilities been consulted?
 Yes No

21. List proposed improvements and utilities and intentions to install or post performance guarantee prior to final endorsement by the Township

	<u>Improvement</u>	<u>Intention</u>
1.		
2.		
3.		
4.		
5.		

22. List of maps and other material accompanying application and number of each:

	<u>Item</u>	<u>Number</u>
a.		
b.		
c.		
d.		
e.		
f.		
g.		

Date: _____

Signature of Applicant: _____

FORM 3
APPLICATION FOR REVIEW OF FINAL PLAN

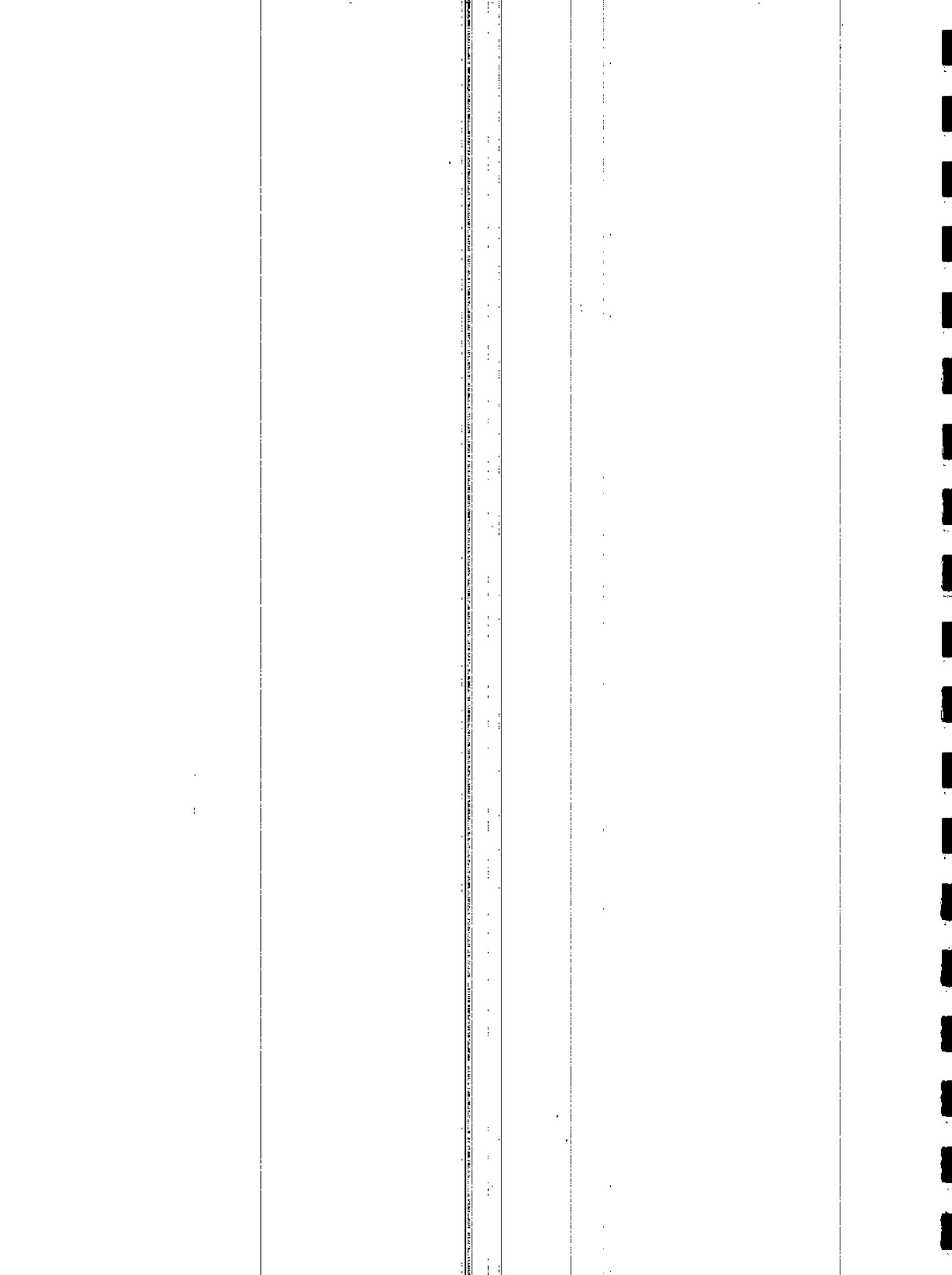
Application is hereby made for review of the Final Plan submitted herewith and described in the accompanying maps and documents.

1. Name of Subdivision: _____
Plan Dated: _____
2. Name of Applicant(s): _____
Address: _____
_____ Phone No. _____
3. Name of Property Owner(s): _____
(if other than applicant)
Address: _____
_____ Phone No. _____
4. Date of approval of Preliminary Plan: _____
5. Final Plan follows exactly the approved Preliminary Plan: _____
___ Yes ___ No
If no, list changes _____

6. List of maps and other documents accompanying application and the number of each.

	<u>Item</u>	<u>Number</u>
(a)		
(b)		
(c)		
(d)		
(e)		
(f)		
(g)		
(h)		

Date: _____ Signature of Applicant: _____



FORM 4

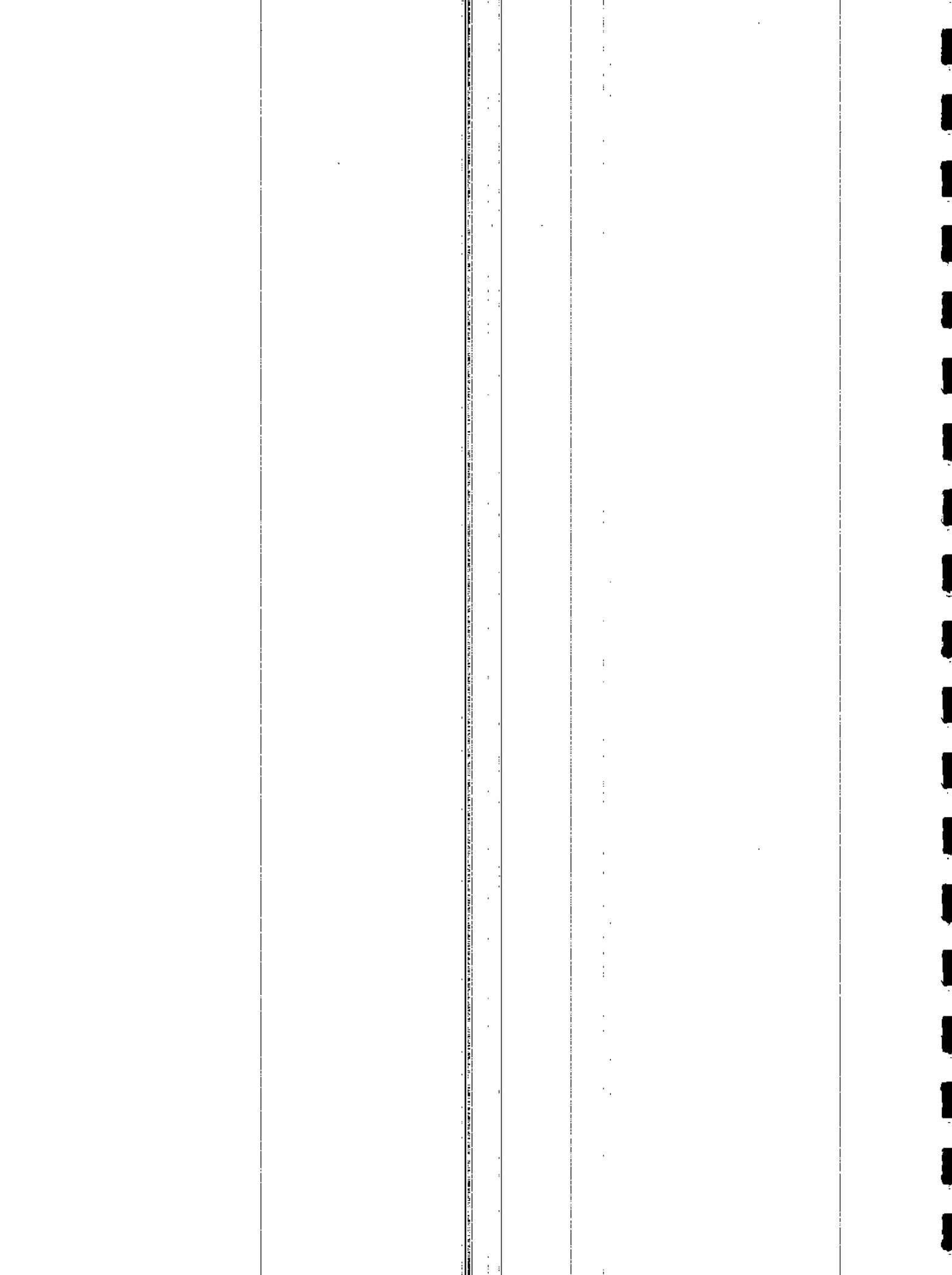
FORM FOR SUBMITTAL OF IMPROVEMENTS COSTS ESTIMATES

<u>Item No.</u>	<u>Description</u>	<u>Escrowed Quantities</u>		<u>Unit Price</u>	<u>Total</u>
		<u>Units</u>	<u>Quantity</u>		
A.					
1.					
2.					
3.					
	Subtotal Item A				
B.					
1.					
2.					
3.					
	Subtotal Item B				
	Subtotal of Items A and B				
	Escalation				
	Contingencies				
	TOTAL AMOUNT OF ESCROW				

I hereby certify that the foregoing estimate of the cost of completion of the required improvements is a fair and reasonable estimate of such cost.

Professional Engineer

(Seal of Engineer)



APPENDIX I - Certification of Ownership, Acknowledgement of Plan, and Offer of Dedication

The following certification, in the wording shown, must be labeled and complete on the Final Subdivision Plan:

Commonwealth of Pennsylvania
County of Berks

On this, the _____ day of _____, 19 _____, before me, the undersigned officer, personally appeared _____, who being duly sworn according to law, deposes and says that he is the _____ (1) _____, of the property shown on this plan, that the subdivision plan thereof was made at his/its direction, and that he acknowledges the same to be his/its act and plan _____ (2) _____, and that all streets _____ (3) _____ shown and not heretofore dedicated are hereby dedicated to the public use _____ (4) _____.

_____ (5) _____ (6) _____ (7)
_____ (8) _____ (9)

My commission expires _____, 19_____

- (1) insert either: Owner
Equitable Owner
President of the (name of corporation) which is the owner
- (2) whenever applicable, insert: and desires the same to be recorded as such according to law
- (3) Whenever applicable, insert: and open spaces
- (4) if necessary, insert: except those labeled "not for dedication: (and any other restrictions or reservations
- (5) where necessary, signature of secretary of corporation
- (6) signature of individual, of partners, or of president of corporation
- (7) if necessary, corporate seal
- (8) signature and (9) seal of notary public or other officer



APPENDIX II

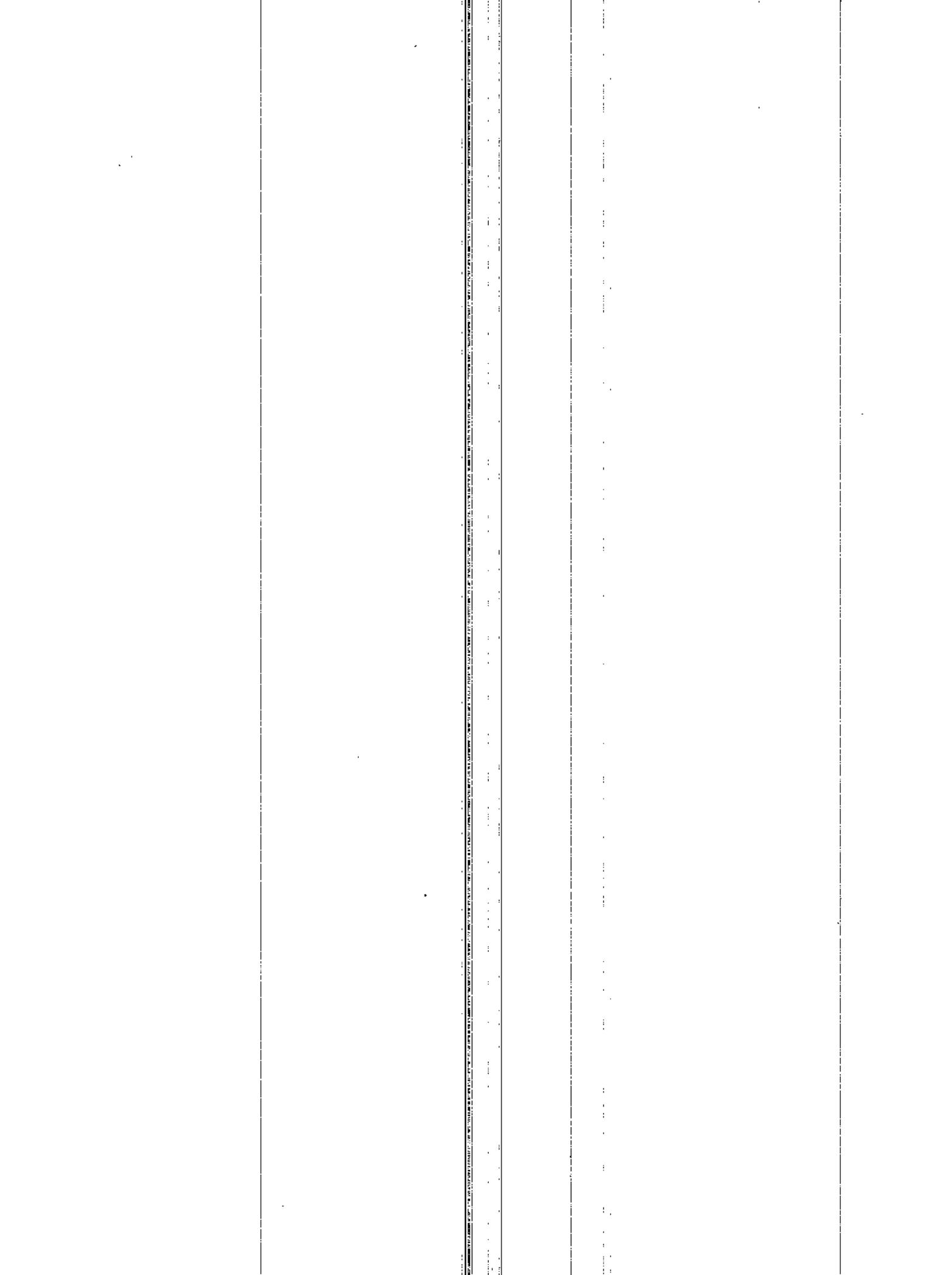
CERTIFICATION OF ACCURACY

The following certification, in the wording shown, must be labeled and completed on the Final Subdivision Plan:

I hereby certify that the plan shown and described hereon is true and correct to the accuracy required by the Subdivision and Land Development Ordinance of the Township of

_____, 19 _____ (1)
_____(2)

- (1) signature of the registered engineer or registered surveyor responsible for the preparation of the plan.
- (2) apply seal of the engineer or surveyor.



APPENDIX III - Certificate of Municipal Approval

The approval of the Final Plan by each municipality in which the subdivision is located must be indicated on the Record Plan, in substantially the following form:

At a meeting held on _____, 19____, the Township Supervisors of the Township of Marion approved the subdivision plan of the property of _____ (1), as shown hereon.

_____ (2)

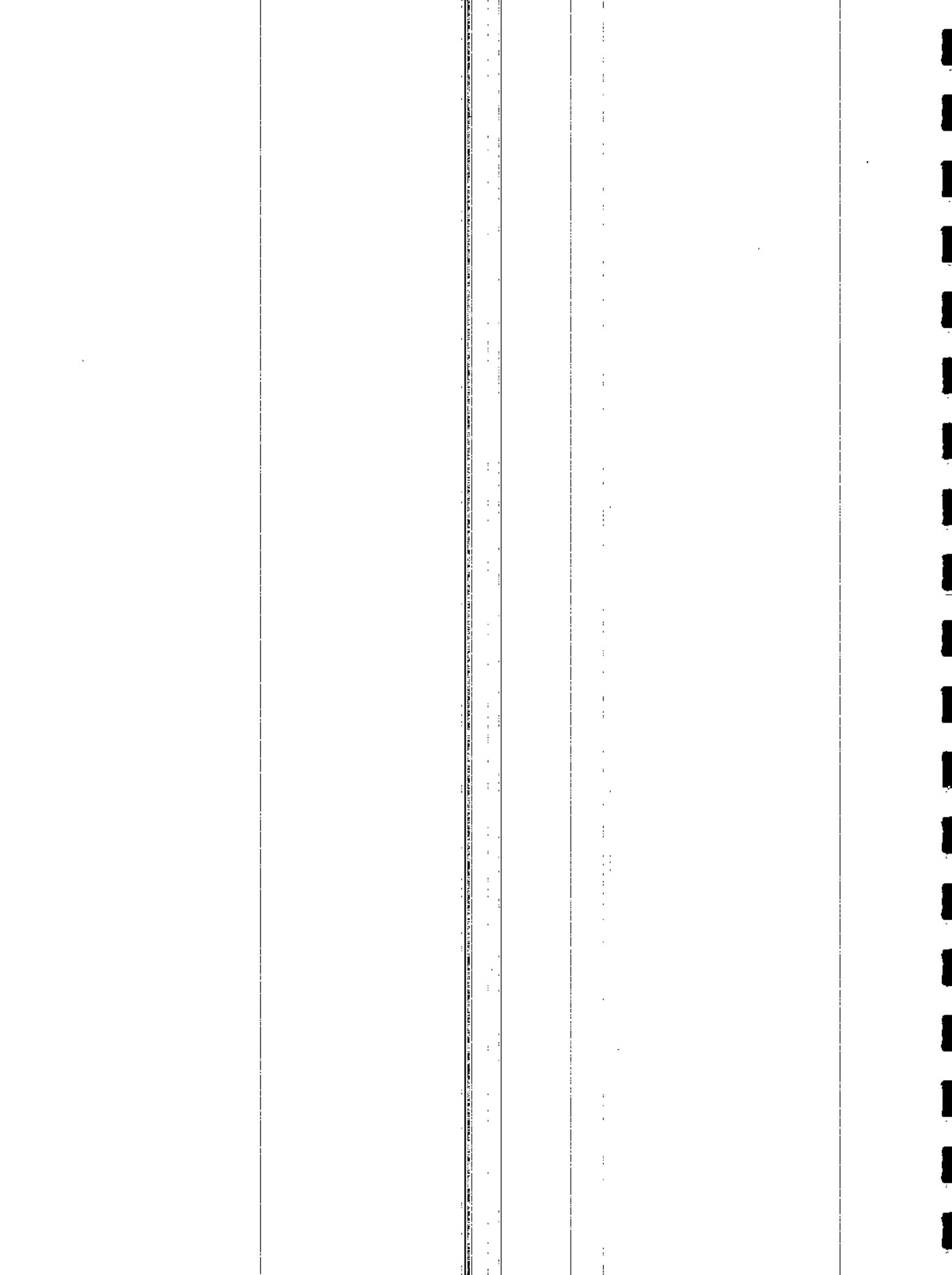
_____ (3)

- (1) insert name of property owner
- (2) signatures of the Township Supervisors
- (3) municipal seal

At a meeting held on _____, 19____, the Planning Commission of the Township of Marion approved the subdivision plan of the property of _____ (1) as shown hereon.

_____ (2)

- (1) insert name of property owner
- (2) signatures of the Planning Commission



APPENDIX IV

DETERMINATION OF FLOOD PLAINS

For all subdivisions and land developments, all existing and proposed 100-year floodplain areas shall be shown on the subdivision or land development plans. Floodplain areas shall be determined using the methods set forth below, except that where 100-year floodplains have been calculated and mapped by FEMA, such FEMA mapping shall be used.

A. Hydrologic Criteria for Estimating Runoff

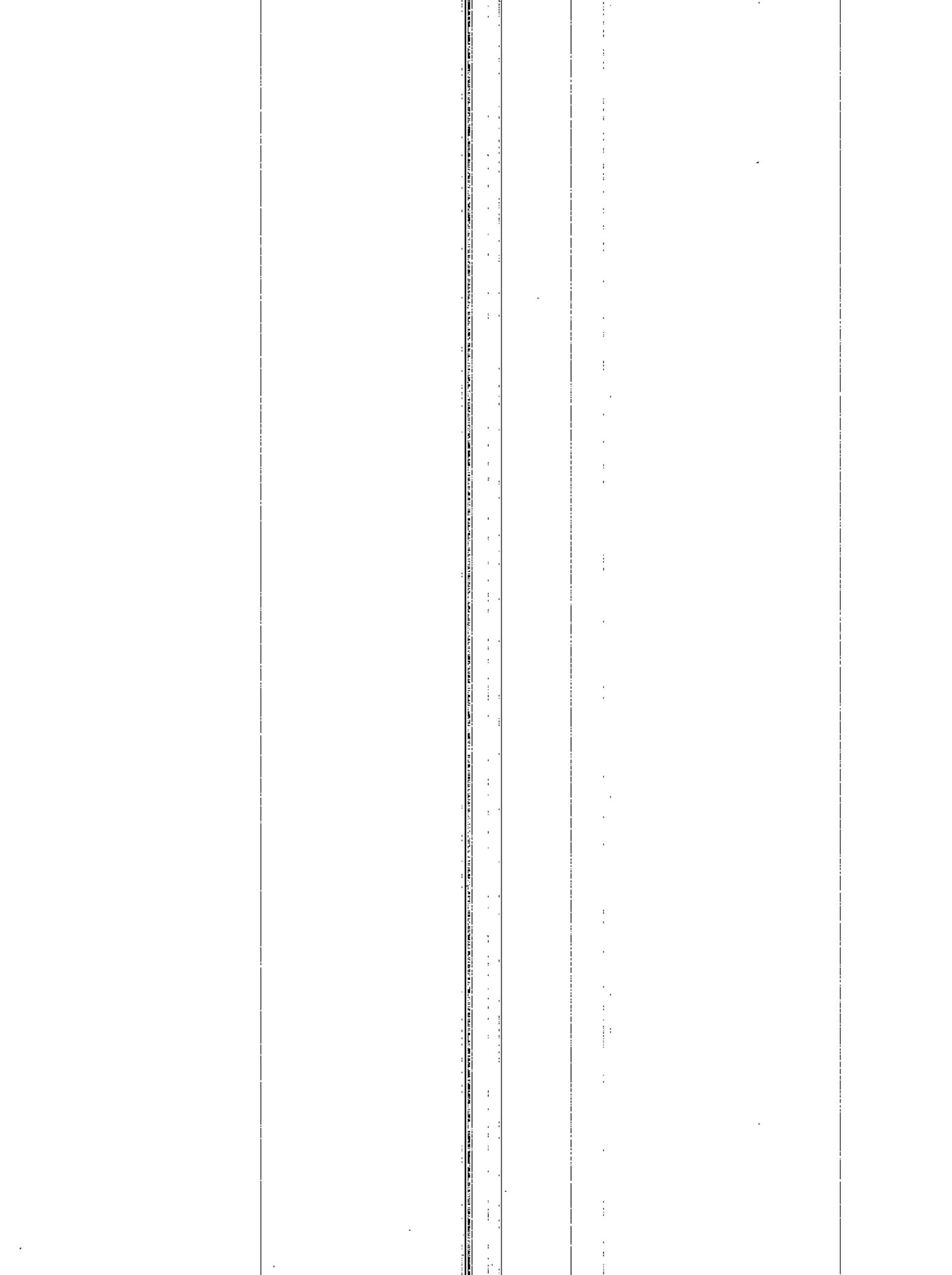
The following methods may be used in computing runoff for the 100-year storm. A conservative average of at least two (2) methods shall be used, and the design flow is subject to approval.

1. The method in Technical Release No. 55, "Urban Hydrology for Small Watersheds", latest edition, by the United States Department of Agriculture Soil Conservation Service. The graphical method may be used for streams whose drainage area at the point of interest is no larger than 2,000 acres, and the tabular method may be used for drainage areas up to twenty (20) square miles.
2. The Rational Method can be used for streams whose drainage area at the point of interest is no larger than 320 acres.
3. The method in Water Resources Bulletin Number 13, Floods in Pennsylvania, issued by the Pennsylvania Department of Environmental Resources can be used for streams whose drainage area at the point of interest is larger than two (2) square miles.
4. The "Procedure PSU-IV for Estimating Design Flood Peaks on Ungaged Pennsylvania Watersheds".
5. The Penn State Runoff Model.

B. Hydraulics of Flow

The horizontal and vertical limits of the floodplain shall be determined utilizing the Standard Stop Method (i.e., HEC-2 or similar approved computer model). If the HEC-2 model is used, the applicant shall submit a computer disc containing all input files for the calculations, in order to expedite the floodplain review. For drainage areas less than one hundred (100) acres, the Mannings Equation may be used.

All methods used and calculations performed in estimating runoff and computing flood elevations are subject to the review and approval of the Township.



APPENDIX V

DESIGN OF STORM DRAINAGE SYSTEMS

I. METHOD OF STORM WATER RUNOFF CALCULATIONS

The collection system shall be designed using the Rational Method in accordance with American Society of Civil Engineers Manual No. 37 or the U.S. Department of Agriculture Soil Cover Complex Method in Technical Release No. 55, latest edition.

The Rational Method uses the formula $Q = CiA$, where

"Q" is the required capacity in cubic feet per second for the collection system at the point of interest.

"C" is the runoff coefficient applicable to the entire drainage area. It shall be based upon existing development in the drainage area, consideration of soil conditions, topography, and the ultimate development of the proposed subdivision or land development.

"i" is the intensity of rainfall in inches per hour and shall be based on the Region 4 PennDOT storm intensity-duration-frequency curve, latest revision. Time of concentration calculations shall be submitted, and shall be based on methods outlined in Technical Release No. 55. The sheet and shallow concentrated flow lengths used in the calculations shall be justified based on existing or proposed topography. The time of concentration flow paths (pre- and post-development) should be shown on the grading plan. The pre-development sheet flow length shall be 150', unless a shorter length can be justified. The maximum post-development sheet flow length for unpaved surfaces shall be 150', with a maximum flow length of 100' for most situations, depending on the proposed site grading.

"A" is the drainage area in acres.

A. Values of Coefficient "C"

1. The following runoff coefficients shall be used for calculating runoff using the Rational Method:

RUNOFF COEFFICIENTS FOR THE RATIONAL METHOD*

HYDROLOGIC SOIL GROUP AND SLOPE RANGE

Land Use	A		B		C		D	
	0-6%	6%+	0-6%	6%+	0-6%	6%+	0-6%	6%+
Cultivated Land	0.25 ^a 0.30 ^b	0.35 0.40	0.30 0.35	0.40 0.45	0.35 0.40	0.45 0.50	0.40 0.50	0.50 0.60
Pasture	0.20 0.25	0.30 0.37	0.28 0.34	0.37 0.45	0.34 0.42	0.44 0.52	0.40 0.50	0.50 0.62
Meadow	0.10 0.14	0.13 0.16	0.13 0.16	0.19 0.22	0.16 0.20	0.23 0.26	0.19 0.23	0.26 0.30
Forest	0.08 0.11	0.11 0.14	0.11 0.14	0.14 0.18	0.13 0.16	0.16 0.20	0.16 0.20	0.20 0.25
Open Space (Lawn)	0.10 0.16	0.14 0.20	0.15 0.20	0.19 0.25	0.20 0.25	0.24 0.30	0.25 0.30	0.28 0.35
Paving, Buildings, Sidewalks	.95	.95	.95	.95	.95	.95	.95	.95

^aRunoff coefficients for storm recurrence intervals less than 25 years.

^bRunoff coefficients for storm recurrence intervals of 25 years or more.

*Higher coefficients may be required by the Township due to local soil conditions.

II. DESIGN OF DRAINAGE FACILITIES

- A. In the design of storm sewers, the following formulas shall be used:

$$V = \frac{1.49}{n} s^{2/3} (a/p)^2 \quad \text{(Manning's Formula for velocity)}$$

$$Q = va \quad \text{(Continuity Equation)}$$

Where:

V = velocity of flow (in feet per second)

n = coefficient of roughness

a = cross-sectional area of structure (in square feet)

p = perimeter of the wetted channel (in feet)

s = slope (in feet per foot)

Q = discharge (in cubic feet per second)

All storm sewers or culverts which are provided shall have a minimum diameter of fifteen inches (15").

In all cases where drainage is collected by a headwall or catch basin where inlet or outlet control may govern, the pipe shall be designed as a culvert as outlined in Hydraulic Design Series No. 5, latest edition, and 13 of the U.S. Department of Transportation, Federal Highway Administration, Washington, DC. The allowable headwater should be determined by the specific entrance conditions and sound engineering judgment. The design of culverts shall not create excessive headwater depths.

- B. The coefficient of roughness, "n", shall be as follows unless otherwise approved by the Township Supervisors:

<u>Pipe Material</u>	<u>"n"</u>
Concrete	0.012
Corrugated Steel	
Annular	0.024
Helical	
15"	0.012
18"	0.014
21"	0.016
24"	0.017
30"	0.018
36"	0.019
42"-54"	0.020
larger than 54"	0.021
PVC	0.011

For all open channels, the coefficients shall be taken from Tables 5-6 and Figures 5-5 of Open-Channel Hydraulics by Ven Te Chow, Ph.D., McGraw-Hill book Co., 1959.

C. Permissible Flow Velocities in Open Channels

The design of open channels, swales, diversions, etc. shall minimize possible erosion caused by excessive channel velocities. The storm sewer design frequency storm shall be used to determine the maximum channel velocity and type of ground cover required to stabilize the channel properly.

Grass-lined channels shall be considered stable if the calculated velocity for the design flow does not exceed the allowable velocities shown below:

- (1) Three (3) feet per second where only sparse vegetation can be established and maintained because of shade or soil condition.
- (2) Four (4) feet per second where normal growing conditions exist and vegetation is to be established by seeding.
- (3) Five (5) feet per second where a dense, vigorous sod can be quickly established or where water can be temporarily diverted during establishment of vegetation., Netting and mulch or other equivalent methods for establishing vegetation shall be used.
- (4) Six (6) feet per second where there exists a well established sod of good quality, or if root-reinforcing systems are installed.

These calculated grass-lined channel velocities may be exceeded if the designer can provide supportive design criteria as proof of erosion prevention.

Where the velocity of storm water runoff exceeds the allowable velocity, an erosion resistant lining shall be provided.

D. Permissible Velocities in Storm Pipe at Design Flow

Minimum - 2.5 feet per second

Maximum - Although there is no apparent limitation for the maximum permitted velocity in storm sewer pipes, the design shall consider minor losses due to bends, restrictions, manholes, etc. and the erosion potential at pipe outlets in the design of pipes. The pipe manufacturer's suggested maximum velocities, if any, shall also be considered in the pipe design.

III. ADDITIONAL NOTES

- A. All calculations are subject to approval by the Township.
- B. A drawing showing all drainage areas contributing to drainage facilities shall be submitted with the storm water runoff calculations.
- C. Alternative methods of storm water runoff determination may be permitted by the Township upon written request of the developer.
- D. When deemed appropriate by the Township, storm water runoff determination using alternative methods may be required.
- E. When open channels are used, side slopes, depth of channel, and width of channel shall be subject to approval of the Township and shall not be such that a danger to life, property and the public health, safety and welfare results.

Duly enacted by the Board of Supervisors of the Township of
Marion, Berks County, Pennsylvania, this ^{29th} day of
AUG., 19 *91*, in lawful session duly assembled.

BOARD OF SUPERVISORS,
TOWNSHIP OF MARION
BERKS COUNTY, PENNSYLVANIA

By:

Richard G. Webber
Supervisor

Harold E. Zelman
Supervisor

William R. Acaballo
Supervisor

Attest:

Doris E. Unberger
Secretary

**MARION TOWNSHIP STORMWATER
MANAGEMENT ORDINANCE
TABLE OF CONTENTS**

	<i>Page</i>
ARTICLE I- GENERAL PROVISIONS	1
Section 101. Statement of Findings	1
Section 102. Purpose	1
Section 103. Statutory Authority	2
Section 104. Applicability	2
Section 105. Repealer	2
Section 106. Severability	3
Section 107. Compatibility With Other Ordinance Requirements	3
ARTICLE II-DEFINITIONS	3
ARTICLE III-STORMWATER MANAGEMENT	10
Section 301. General Requirements	10
Section 302. Stormwater Management Districts	11
Section 303. Stormwater Management District Implementation Provisions (Performance Standards)	12
Section 304. Design Criteria for Stormwater Management Facilities	14
Section 305. Calculation Methodology	15
Section 306. Erosion and Sedimentation Requirements	17
Section 307. Ground Water Recharge (Infiltration/Recharge/Retention)	18
Section 308. Water Quality Requirements	20
Section 309. Stream Bank Erosion Requirements	21
ARTICLE IV-DRAINAGE PLAN REQUIREMENTS	22
Section 401. General Requirements	22
Section 402. Exemptions	22
Section 403. Drainage Plan Contents	22
Section 404. Plan Submission	25
Section 405. Drainage Plan Review	25
Section 406. Modification of Plans	27
Section 407. Resubmission of Disapproved Drainage Plans	27
ARTICLE V-INSPECTIONS	27
Section 501. Schedule of Inspections	27
ARTICLE VI-FEES AND EXPENSES	28
Section 601. General	28
Section 602. Municipality Drainage Plan Review Fee	28
Section 603. Expenses Covered by Fees	28
ARTICLE VII-MAINTENANCE RESPONSIBILITIES	28
Section 701. Performance Guarantee	28
Section 702. Maintenance Responsibilities	28
Section 703. Maintenance Agreement for Privately Owned Stormwater Facilities ..	29
Section 704. Municipal Stormwater Maintenance Fund	29
ARTICLE VIII-ENFORCEMENT AND PENALTIES	30
Section 801. Right-of-Entry	30
Section 802. Notification	30
Section 803. Enforcement	30
Section 804. Public Nuisance	32
Section 805. Penalties	32
Section 806. Appeals	32
Section 807. Repealer	32
Section 808. Severability Clause	33
Section 809. Effective Date	33
Section 810. Enactment	33

APPENDIX A - STANDARD STORMWATER FACILITIES	
MAINTENANCE & MONITORING AGREEMENT	34
APPENDIX B - STORMWATER MANAGEMENT DESIGN CRITERIA	37
APPENDIX C - SAMPLE DRAINAGE PLAN APPLICATION	42
APPENDIX D - STORMWATER MANAGEMENT DISTRICT WATERSHED MAP	47

ORDINANCE NO. 2002 - _____

AN ORDINANCE OF THE TOWNSHIP OF MARION, BERKS COUNTY, PENNSYLVANIA, CREATING STORMWATER MANAGEMENT REGULATIONS WITHIN CERTAIN STORMWATER MANAGEMENT DISTRICTS, REQUIRING DRAINAGE PLANS FOR REGULATED ACTIVITIES, PROVIDING FOR INSPECTIONS, FEES AND MAINTENANCE RESPONSIBILITIES, AND IMPOSING PENALTIES FOR A VIOLATION OF THE ORDINANCE.

Be It Enacted and Ordained by the Township of Marion, Berks County, Pennsylvania, and it is hereby enacted and ordained by the authority of the same as follows:

ARTICLE I- GENERAL PROVISIONS

Section 101. Statement of Findings

The governing body of the Municipality finds that:

- A. Inadequate management of accelerated stormwater runoff resulting from development throughout a watershed increases flood flows and velocities, contributes to erosion and sedimentation, overtaxes the carrying capacity of existing streams and storm sewers, greatly increases the cost of public facilities to convey and manage stormwater, undermines floodplain management and flood reduction efforts in upstream and downstream communities, reduces groundwater recharge, and threatens public health and safety.
- B. A comprehensive program of stormwater management, including reasonable regulation of development and activities causing accelerated erosion, is fundamental to the public health, safety, welfare, and the protection of the people of the Municipality and all the people of the Commonwealth, their resources, and the environment.

Section 102. Purpose

The purpose of this Ordinance is to promote health, safety, and welfare within the Tulpehocken Creek Watershed by minimizing the damages described in Section 101.A of this Ordinance through provisions designed to:

- A. Manage accelerated runoff and erosion and sedimentation problems at their source by regulating activities that cause these problems.
- B. Utilize and preserve the existing natural drainage systems.

- C. Encourage recharge of groundwater where appropriate and prevent degradation of groundwater quality.
- D. Maintain existing flows and quality of streams and watercourses in the municipality and the Commonwealth.
- E. Preserve and restore the flood-carrying capacity of streams.
- F. Provide proper maintenance of all permanent stormwater management facilities that are constructed in the Municipality.
- G. Provide performance standards and design criteria for watershed-wide stormwater management and planning.

Section 103. Statutory Authority

The Municipality is empowered to regulate land use activities that affect runoff by the authority of the Act of October 4, 1978 32 P.S., P.L. 864 (Act 167) Section 680.1 et seq., as amended, the "Stormwater Management Act", and the Second Class Township Code.

Section 104. Applicability

This Ordinance shall apply to those areas of the Municipality that are located within the Tulpehocken Creek Watershed, as delineated in Appendix D which is hereby adopted as part of this ordinance.

This Ordinance shall only apply to permanent stormwater management facilities constructed as part of any of the Regulated Activities listed in this Section. Stormwater management and erosion and sedimentation control during construction activities are specifically not regulated by this Ordinance, but shall continue to be regulated under existing laws and ordinances.

This Ordinance contains only the stormwater management performance standards and design criteria that are necessary or desirable from a watershed-wide perspective. Local stormwater management design criteria (e.g., inlet spacing, inlet type, collection system design and details, outlet structure design, etc.) shall continue to be regulated by the applicable Municipal Ordinances or at the municipal engineer's discretion.

The following activities are defined as "Regulated Activities" and shall be regulated by this Ordinance:

- A. Land development.
- B. Subdivision.
- C. Construction of new or additional impervious or semi-pervious surfaces (driveways, parking lots, etc.).
- D. Construction of new buildings or additions to existing buildings.
- E. Diversion or piping of any natural or man-made stream channel.
- F. Installation of Stormwater Management Facilities or appurtenances thereto.

Section 105. Repealer

Any ordinance or ordinance provision of the Municipality inconsistent with any of the provisions of this Ordinance is hereby repealed to the extent of the inconsistency only.

Section 106. Severability

Should any section or provision of this Ordinance be declared invalid by a court of competent jurisdiction, such decision shall not affect the validity of any of the remaining provisions of this Ordinance.

Section 107. Compatibility With Other Ordinance Requirements

Approvals issued pursuant to this Ordinance do not relieve the Applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable code, rule, act, or ordinance.

ARTICLE II-DEFINITIONS

For the purposes of this chapter, certain terms and words used herein shall be interpreted as follows:

- A. Words used in the present tense include the future tense; the singular number includes the plural, and the plural number includes the singular; words of masculine gender include feminine gender; and words of feminine gender include masculine gender.
- B. The word "includes" or "including" shall not limit the term to the specific example, but is intended to extend its meaning to all other instances of like kind and character.
- C. The word "person" includes an individual, firm, association, organization, partnership, trust, company, corporation, or any other similar entity.
- D. The words "shall" and "must" are mandatory; the words "may" and "should" are permissive.
- E. The words "used or occupied" include the words "intended, designed, maintained, or arranged to be used, occupied or maintained."

Accelerated Erosion - The removal of the surface of the land through the combined action of man's activity and the natural processes of a rate greater than would occur because of the natural process alone.

Agricultural Activities - The work of producing crops and raising livestock including tillage, plowing, disking, harrowing, pasturing and installation of conservation measures. Construction of new buildings or impervious area is not considered an agricultural activity.

Alteration - As applied to land, a change in topography as a result of the moving of soil and rock from one location or position to another; also the changing of surface conditions by causing the surface to be more or less impervious; land disturbance.

Applicant - A landowner or developer who has filed an application for approval to engage in any Regulated Activities as defined in Section 104 of this Ordinance.

BMP (Best Management Practice) - Stormwater structures, facilities and techniques to control, maintain or improve the quantity and quality of surface runoff.

Channel Erosion - The widening, deepening, and headward cutting of small channels and waterways, due to erosion caused by moderate to large floods.

Cistern - An underground reservoir or tank for storing rainwater.

Conservation District - The Berks (Lebanon and Lancaster) County Conservation District(s).

Culvert - A structure with appurtenant works which carries a stream under or through an embankment or fill.

Dam - An artificial barrier, together with its appurtenant works, constructed for the purpose of impounding or storing water or another fluid or semifluid, or a refuse bank, fill or structure for highway, railroad or other purposes which does or may impound water or another fluid or semifluid.

Design Storm - The magnitude and temporal distribution of precipitation from a storm event measured in probability of occurrence (e.g., a 5-year storm) and duration (e.g., 24-hours), used in the design and evaluation of stormwater management systems.

Designee - The agent of the Municipal Planning Commission and/or agent of the governing body involved with the administration, review or enforcement of any provisions of this ordinance by contract or memorandum of understanding.

Detention Basin - An impoundment structure designed to manage stormwater runoff by temporarily storing the runoff and releasing it at a predetermined rate.

Detention District - Those subareas in which some type of detention is required to meet the plan requirements and the goals of Act 167.

Developer - A person, partnership, association, corporation, or other entity, or any responsible person therein or agent thereof, that undertakes any Regulated Activity of this Ordinance.

Development Site - The specific tract of land for which a Regulated Activity is proposed.

Downslope Property Line - That portion of the property line of the lot, tract, or parcels of land being developed located such that all overland or pipe flow from the site would be directed towards it.

Drainage Conveyance Facility - A Stormwater Management Facility designed to transmit stormwater runoff and shall include streams, channels, swales, pipes, conduits, culverts, storm sewers, etc.

Drainage Easement - A right granted by a landowner to a grantee, allowing the use of private land for stormwater management purposes.

Drainage Permit - A permit issued by the Municipal governing body after the drainage plan has been approved. Said permit is issued prior to or with the final Municipal approval.

Drainage Plan - The documentation of the stormwater management system, if any, to be used for a given Development Site, the contents of which are established in Section 403.

Earth Disturbance - Any activity including, but not limited to, construction, mining, timber harvesting and grubbing which alters, disturbs, and exposes the existing land surface.

Erosion - The movement of soil particles by the action of water, wind, ice, or other natural forces.

Erosion and Sediment Pollution Control Plan - A plan that is designed to minimize accelerated erosion and sedimentation.

Existing Conditions - The initial condition of a project site prior to the proposed construction. If the initial condition of the site is undeveloped land, the land use shall be considered as "meadow" unless the natural land cover is proven to generate lower curve numbers or Rational "C" value, such as forested lands.

Flood - A general but temporary condition of partial or complete inundation of normally dry land areas from the overflow of streams, rivers, and other waters of this Commonwealth.

Floodplain - Any land area susceptible to inundation by water from any natural source or delineated by applicable Department of Housing and Urban Development, Federal Insurance Administration Flood Hazard Boundary - Mapped as being a special flood hazard area. Also included are areas that comprise Group 13 Soils, as listed in Appendix A of the Pennsylvania Department of Environmental Protection (PaDEP) Technical Manual for Sewage Enforcement Officers (as amended or replaced from time to time by PaDEP).

Floodway - The channel of the watercourse and those portions of the adjoining floodplains, which are reasonably required to carry and discharge the 100-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps

and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year frequency floodway, it is assumed - absent evidence to the contrary - that the floodway extends from the stream to 50 feet from the top of the bank of the stream.

Forest Management/Timber Operations - Planning and activities necessary for the management of forest land. These include timber inventory and preparation of forest management plans, silvicultural treatment, cutting budgets, logging road design and construction, timber harvesting, site preparation and reforestation.

Freeboard - A vertical distance between the elevation of the design high-water and the top of a dam, levee, tank, basin, or diversion ridge. The space is required as a safety margin in a pond or basin.

Grade - A slope, usually of a road, channel or natural ground specified in percent and shown on plans as specified herein. (To) **Grade** - to finish the surface of a roadbed, top of embankment or bottom of excavation.

Grassed Waterway - A natural or constructed waterway, usually broad and shallow, covered with erosion-resistant grasses, used to conduct surface water from cropland.

Groundwater Recharge - Replenishment of existing natural underground water supplies.

Impervious Surface - A surface that prevents the percolation of water into the ground.

Impoundment - A retention or detention basin designed to retain stormwater runoff and release it at a controlled rate.

Infiltration Structures - A structure designed to direct runoff into the ground (e.g., french drains, seepage pits, seepage trench).

Inlet - A surface connection to a closed drain. A structure at the diversion end of a conduit. The upstream end of any structure through which water may flow.

Land Development - (i) the improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving (a) a group of two or more buildings, or (b) the division or allocation of land or space between or among two or more existing or prospective occupants by means of, or for the purpose of streets, common areas, leaseholds, condominiums, building groups, or other features; (ii) any subdivision of land; (iii) development in accordance with Section 503(1.1) of the PA Municipalities Planning Code.

Land Earth Disturbance - Any activity involving grading, tilling, digging, or filling of ground or stripping of vegetation or any other activity that causes an alteration to the natural condition of the land.

Main Stem (Main Channel) - Any stream segment or other runoff conveyance facility used as a reach in the Tulpehocken Creek hydrologic model.

Manning Equation in (Manning formula) - A method for calculation of velocity of flow (e.g., feet per second) and flow rate (e.g., cubic feet per second) in open channels based upon channel shape, roughness, depth of flow and slope. "Open channels" may include closed conduits so long as the flow is not under pressure.

Municipality - Marion Township, Berks County, Pennsylvania.

Nonpoint Source Pollution - Pollution that enters a watery body from diffuse origins in the watershed and does not result from discernible, confined, or discrete conveyances.

NRCS - Natural Resource Conservation Service (previously SCS).

Open Channel - A drainage element in which stormwater flows with an open surface. Open channels include, but shall not be limited to, natural and man-made drainageways, swales, streams, ditches, canals, and pipes flowing partly full.

Outfall - Point where water flows from a conduit, stream, or drain.

Outlet - Points of water disposal from a stream, river, lake, tidewater or artificial drain.

Parking Lot Storage - Involves the use of impervious parking areas as temporary impoundments with controlled release rates during rainstorms.

Peak Discharge - The maximum rate of stormwater runoff from a specific storm event.

Penn State Runoff Model (calibrated) - The computer-based hydrologic modeling technique adapted to the Tulpehocken Creek watershed for the Act 167 Plan. The model has been "calibrated" to reflect actual recorded flow values by adjoining key model input parameters.

Pipe - A culvert, closed conduit, or similar structure (including appurtenances) that conveys stormwater.

Planning Commission - The planning commission of Marion Township, Berks County, Pennsylvania

PMF - Probable Maximum Flood - The flood that may be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in any area. The PMF is derived from the probable maximum precipitation (PMP) as determined based on data obtained from the National Oceanographic and Atmospheric Administration (NOAA).

Rational Formula - A rainfall-runoff relation used to estimate peak flow.

Regulated Activities - Actions or proposed actions that have an impact on stormwater runoff and that are specified in Section 104 of this Ordinance.

Release Rate - The percentage of pre-development peak rate of runoff from a site or subarea to which the post development peak rate of runoff must be reduced to protect downstream areas.

Retention Basin - An impoundment in which stormwater is stored and not released during the storm event. Stored water may be released from the basin at some time after the end of the storm.

Return Period - The average interval, in years, within which a storm event of a given magnitude can be expected to recur. For example, the 25-year return period rainfall would be expected to recur on the average of once every twenty-five years.

Riser - A vertical pipe extending from the bottom of a pond that is used to control the discharge rate from the pond for a specified design storm.

Rooftop Detention - Temporary ponding and gradual release of stormwater falling directly onto flat roof surfaces by incorporating controlled-flow roof drains into building designs.

Runoff - Any part of precipitation that flows over the land surface.

Sediment Basin - A barrier, dam, retention or detention basin located and designed to retain rock, sand, gravel, silt, or other material transported by water.

Sediment Pollution - The placement, discharge or any other introduction of sediment into the waters of the Commonwealth occurring from the failure to design, construct, implement or maintain control measures and control facilities in accordance with the requirements of this Ordinance.

Sedimentation - The process by which mineral or organic matter is accumulated or deposited by the movement of water.

Seepage Pit/Seepage Trench - An area of excavated earth filled with loose stone or similar coarse material, into which surface water is directed for infiltration into the ground.

Sheet Flow - Runoff that flows over the ground surface as a thin, even layer, not concentrated in a channel.

Soil-Cover Complex Method - A method of runoff computation developed by the NRCS that is based on relating soil type and land use/cover to a runoff parameter called Curve Number (CN).

Soil Group, Hydrologic - A classification of soils by the Natural Resources Conservation Service, formerly the Soil Conservation Service, into four runoff potential groups. The groups range from A soils, which are very permeable and produce little runoff, to D soils, which are not very permeable and produce much more runoff.

Spillway - A depression in the embankment of a pond or basin which is used to pass peak discharge greater than the maximum design storm controlled by the pond.

Storage Indication Method - A reservoir routing procedure based on solution of the continuity equation (inflow minus outflow equals the change in storage) with outflow defined as a function of storage volume and depth.

Storm Frequency - The number of times that a given storm "event" occurs or is exceeded on the average in a stated period of years. See "Return Period".

Storm Sewer - A system of pipes and/or open channels that convey intercepted runoff and stormwater from other sources, but excludes domestic sewage and industrial wastes.

Stormwater - The total amount of precipitation reaching the ground surface.

Stormwater Management Facility - Any structure, natural or man-made, that, due to its condition, design, or construction, conveys, stores, or otherwise affects stormwater runoff. Typical Stormwater Management Facilities include, but are not limited to, detention and retention basins, open channels, storm sewers, pipes, and infiltration structures.

Stormwater Management Plan - The plan for managing stormwater runoff in the Tulpehocken Creek Watershed adopted by Berks County as required by the Act of October 4, 1978, P.L. 864, (Act 167), and known as the "Tulpehocken Creek Watershed Action Act 167 Stormwater Management Plan.

Stormwater Management Site Plan - The plan prepared by the Developer or his representative indicating how stormwater runoff will be managed at the particular site of interest according to this Ordinance.

Stream Enclosure - A bridge, culvert or other structure in excess of 100 feet in length upstream to downstream which encloses a regulated water of this Commonwealth.

Subarea - The smallest drainage unit of a watershed for which stormwater management criteria have been established in the Stormwater Management Plan.

Subdivision - The division or re-division of a lot, tract, or parcel of land by any means into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of lease, transfer of ownership, or building or lot development: Provided, however, that the subdivision by lease of land for agricultural purposes into parcels of more than ten acres, not involving any new street or easement of access or any residential dwellings, shall be exempt.

Swale - A low lying stretch of land which gathers or carries surface water runoff.

Timber Operations - See Forest Management.

Time-of-Concentration (Tc) - The time for surface runoff to travel from the hydraulically most distant point of the watershed to a point of interest within the watershed. This time is the combined total of overland flow time and flow time in pipes or channels, if any.

Watercourse - A stream of water; river; brook; creek; or a channel or ditch for water, whether natural or manmade.

Waters of the Commonwealth - Any and all rivers, streams, creeks, rivulets, ditches, watercourses, storm sewers, lakes, dammed water, wetlands, ponds, springs, and all other bodies or channels of conveyance of surface and underground water, or parts thereof, whether natural or artificial, within or on the boundaries of this Commonwealth.

Wetland - Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, ferns, and similar areas.

ARTICLE III-STORMWATER MANAGEMENT

Section 301. General Requirements

- A. All regulated activities in Tulpehocken Creek Watershed which do not fall under the exemption criteria shown in Section 402 shall submit a Drainage Plan consistent with the Tulpehocken Creek Watershed Stormwater Management Plan to the Municipality for review. This criteria shall apply to the total proposed development even if development is to take place in stages. Impervious cover shall include, but not be limited to, any roof, parking or driveway areas and any new streets and sidewalks. Any areas designed to initially be gravel or crushed stone shall be assumed to be impervious for the purposes of comparison to the exemption criteria.
- B. Stormwater drainage systems shall be provided in order to permit unimpeded flow along natural watercourses, except as modified by Stormwater Management Facilities or open channels consistent with this Ordinance.
- C. The existing points of concentrated drainage that discharge onto adjacent property shall not be altered without permission of the affected property owner(s) and shall be subject to any applicable discharge criteria specified in this Ordinance.
- D. Areas of existing diffused drainage discharge shall be subject to any applicable discharge criteria in the general direction of existing discharge, whether proposed to be concentrated or maintained as diffused drainage areas, except as otherwise provided by this ordinance. If diffused flow is proposed to be concentrated and discharged onto adjacent property, the Developer must document that adequate downstream conveyance facilities exist to safely transport the concentrated discharge, or otherwise prove that no erosion, sedimentation, flooding or other harm will result from the concentrated discharge.
- E. Where a Development Site is traversed by watercourses drainage easements shall be provided conforming to the line of such watercourses. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations that may adversely affect the flow of stormwater within any portion of

the easement. Also, maintenance, including mowing of vegetation within the easement shall be required, except as approved by the appropriate governing authority.

- F. When it can be shown that, due to topographic conditions, natural drainageways on the site cannot adequately provide for drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainageways. Work within natural drainageways shall be subject to approval by PaDEP through the Joint Permit Application process, or, where deemed appropriate by PaDEP, through the General Permit process.
- G. Any Stormwater Management Facilities regulated by this Ordinance that would be located in or adjacent to waters of the Commonwealth or wetlands shall be subject to approval by PaDEP through the Joint Permit Application process, or, where deemed appropriate by PaDEP, the General Permit process. When there is a question whether wetlands may be involved, it is the responsibility of the Developer or his agent to show that the land in question cannot be classified as wetlands, otherwise approval to work in the area must be obtained from PaDEP.
- H. Any Stormwater Management Facilities regulated by this Ordinance that would be located on State highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation (PaDOT).
- I. Minimization of impervious surfaces and infiltration of runoff through seepage beds, infiltration trenches, etc. are encouraged, where soil conditions permit, to reduce the size or eliminate the need for detention facilities.
- J. Roof drains must not be connected to streets, sanitary or storm sewers or roadside ditches to promote overland flow and infiltration/ percolation of stormwater where advantageous to do so. When it is more advantageous to connect directly to streets or storm sewers, then it shall be permitted on a case by case basis by the Municipality.

Section 302. Stormwater Management Districts

- A. Tulpehocken Creek Watershed has been divided into stormwater management districts as shown on the Watershed Map in Appendix D.

In addition to the requirements specified below, the ground water recharge (Section 306), water quality (Section 307), and streambank erosion (Section 308) requirements shall be implemented.

Standards for managing runoff from each subarea in the Tulpehocken Creek Watershed for the 2, 5, 10, 25, and 100-year design storms are shown below. Development sites located in each of the A, B, or C Districts must control post-development runoff rates to pre-development runoff rates for the design storms as follows:

<u>District</u>	<u>Design Storm Post-Development</u>	<u>Design Storm Pre-Development</u>
A	2-year 5-year 10-year 25-year	1-year 5-year 10-year 25-year
B1	2-year 5-year 10-year 25- year	1-year 2-year 5-year 10-year

B2	2-year 5-year 10-year 25- year 100-year	1-year 2-year 5-year 10-year 100-year
C	2-year 5-year	1-year 2-year

EXPLANATION OF DISTRICT C: Development sites which can discharge directly to the Tulpehocken Creek main channel or major tributaries or indirectly to the main channel through an existing stormwater drainage system (i.e., storm sewer or tributary) may do so without control of post-development peak rate of runoff greater than the 5-year storm. Sites in District C will still have to comply with the groundwater recharge criteria (Ord. Section 306), the water quality criteria (Ord. Section 307), and streambank erosion criteria (Section 308). If the post-development runoff is intended to be conveyed by an existing stormwater drainage system to the main channel, assurance must be provided that such system has adequate capacity to convey the increased peak flows or will be provided with improvements to furnish the required capacity. When adequate capacity of downstream system does not exist and will not be provided through improvements, the post-development peak rate of runoff must be controlled to the pre-development peak rate as required in District A provisions (i.e., 10-year post-development flows to 10 pre-development flows) for the specified design storms.

Section 303. Stormwater Management District Implementation Provisions (Performance Standards)

- A. General - Post-development rates of runoff from any Regulated Activity shall meet the peak release rates of runoff prior to development for the design storms specified on the Stormwater Management District Watershed Map (Ordinance Appendix D) and Section 302, of the Ordinance.
- B. District Boundaries - The boundaries of the Stormwater management districts are shown on an official map that is available for inspections at the municipal office. A copy of the official map at a reduced scale is included in the Ordinance Appendix D. The exact location of the Stormwater management district boundaries as they apply to a given Development Site shall be determined by mapping the boundaries using the two-foot topographic contours (or most accurate data required) provided as part of the Drainage Plan.
- C. Sites Located in More Than 1 District - For a proposed Development Site located within two or more stormwater management district category subareas, the peak discharge rate from any subarea shall be the pre-development peak discharge for that subarea as indicated in Section 302. The calculated peak discharges shall apply regardless of whether the grading plan changes the drainage area by subarea. An exception to the above may be granted if discharges from multiple subareas recombine in proximity to the site. In this case, peak discharge in any direction may be a 100% release rate provided that the overall site discharge meets the weighted average release rate.
- D. Off-Site Areas - Off-site Areas that drain through a proposed Development Site are not subject to release rate criteria when determining allowable peak runoff rates. However, on-site drainage facilities shall be designed to safely convey off-site flows through the Development Site.

- E. Site Areas - Where the site area to be impacted by a proposed development activity differs significantly from the total site area, only the proposed impact area utilizing stormwater management measures shall be subject to the

Management District Criteria. In other words, unimpacted areas bypassing the Stormwater Management Facilities would not be subject to the Management District Criteria.

- F. "No Harm" Option - For any proposed Development Site not located in a provisional direct discharge district, the Developer has the option of using a less restrictive Runoff control (including no detention) if the developer can prove that "no harm" would be caused by discharging at a higher runoff rate than that specified by the Plan. The "no harm" option is used when a developer can prove that the post-development hydrographs can match pre-development hydrographs, or if it can be proved that the post-development conditions will not cause increases in peaks at all points downstream. Proof of "no harm" would have to be shown based upon the following "Downstream Impact Evaluation" which shall include a "downstream hydraulic capacity analysis" consistent with Section 303H to determine if adequate hydraulic capacity exists. The land Developer shall submit to the Municipality this evaluation of the impacts due to increased downstream stormwater flows in the watershed.

1. The "Downstream Impact Evaluation" shall include hydrologic and hydraulic calculations necessary to determine the impact of hydrograph timing modifications due to the proposed development upon a dam, highway, structure, natural point of restricted streamflow or any stream channel section, established with the concurrence of the Municipality.
2. The evaluation shall continue downstream until the increase in flow diminishes due to additional flow from tributaries and/or stream attenuation.
3. The peak flow values to be used for downstream areas for the design return period storms (2, 5, 10, 25, 50, and 100-year) shall be the values from the calibrated model for the Tulpehocken Creek Watershed. These flow values can be obtained from the watershed plan.
4. Developer-proposed Runoff controls which would generate increased peak flow rates at storm drainage problem areas would, by definition, be precluded from successful attempts to prove "no-harm", except in conjunction with proposed capacity improvements for the problem areas consistent with Section 303.H.
5. A financial distress shall not constitute grounds for granting a no-harm exemption.
6. Capacity improvements may be provided as necessary to implement the "no harm" option which proposes specific capacity improvements to provide that a less stringent discharge control would not create any harm downstream.
7. Any "no harm" justifications shall be submitted by the developer as part of the Drainage Plan submission per Article IV.

- G. "Downstream Hydraulic Capacity Analysis" - Any downstream capacity hydraulic analysis conducted in accordance with this Ordinance shall use the following criteria for determining adequacy for accepting increased peak flow rates:
1. Natural or man-made channels or swales must be able to convey the increased Runoff associated with a 2-year return period event within their banks at velocities consistent with protection of the channels from erosion. Acceptable velocities shall be based upon criteria included in the DEP *Erosion and Sediment Pollution Control Program Manual*.
 2. Natural or man-made channels or swales must be able to convey increased 25-year return period runoff without creating any hazard to persons or property.
 3. Culverts, bridges, storm sewers or any other facilities which must pass or convey flows from the tributary area must be designed in accordance with DEP Chapter 105 regulations (if applicable) and, at minimum, pass the increased 25-year return period runoff.
- H. Regional Detention Alternatives - For certain areas within the study area, it may be more cost-effective to provide one control facility for more than one Development Site than to provide an individual control facility for each Development Site. The initiative and funding for any regional Runoff control alternatives are the responsibility of prospective developers. The design of any regional control basins must incorporate reasonable development of the entire upstream watershed. The peak outflow of a regional basin would be determined on a case-by-case basis using the hydrologic model of the watershed consistent with protection of the downstream watershed areas. "Hydrologic model" refers to the calibrated model as developed for the Stormwater Management Plan.
- I. Hardship Option - The development of the plan and its standards and criteria was designed to maintain existing peak flows throughout the Tulpehocken Creek watershed as the watershed becomes developed. There may be certain instances, however, where the standards and criteria established are too restrictive for a particular landowner or Developer. The existing drainage network in some areas may be capable of safely transporting slight increases in flows without causing a problem or increasing flows elsewhere. If a Developer or homeowner may not be able to possibly meet the stormwater standards due to lot conditions or if conformance would become a hardship to an owner, the hardship option may be applied. The landowner would have to plead his/her case to the Township Supervisors with the final determination made by the Township. Any landowners pleading the "hardship option" will assume all liabilities that may arise due to exercising this option.

Section 304. Design Criteria for Stormwater Management Facilities

- A. Any Stormwater facility located on State highway rights-of-way shall be subject to approval by the Pennsylvania Department of Transportation (PaDOT).
- B. Any Stormwater Management Facility (i.e., detention basin) designed to store runoff and requiring a berm or earthen embankment required or regulated by this ordinance shall be designed to provide an emergency spillway to handle flow up to and including the 100-year post-development conditions. The height of

embankment must be set as to provide a minimum 1.0 foot of freeboard above the maximum pool elevation computed when the facility functions for the 100-year post-development inflow. Should any Stormwater Management Facility require a dam safety permit under PaDEP Chapter 105, the facility shall be designed in accordance with Chapter 105 and meet the regulations of Chapter 105 concerning dam safety which may be required to pass storms larger than 100-year event.

- C. Any facilities that constitute water obstructions (e.g., culverts, bridges, outfalls, or stream enclosures), and any work involving wetlands as directed in PaDEP Chapter 105 regulations (as amended or replaced from time to time by PaDEP), shall be designed in accordance with Chapter 105 and will require a permit from PaDEP. Any other Drainage Conveyance Facility that does not fall under Chapter 105 regulations must be able to convey, without damage to the drainage structure or roadway, runoff from the 25-year design storm with a minimum 1.0 foot of freeboard measured below the lowest point along the top of the roadway. Any facility that constitutes a dam as defined in PaDEP chapter 105 regulations may require a permit under dam safety regulations. Any facility located within a PaDOT right of way must meet PaDOT minimum design standards and permit submission requirements.
- D. Any Drainage Conveyance Facility and/or channel that does not fall under Chapter 105 Regulations, must be able to convey, without damage to the drainage structure or roadway, Runoff from the 10-year design storm. Conveyance facilities to or exiting from Stormwater Management Facilities (i.e., detention basins) shall be designed to convey the design flow to or from that structure. Roadway crossings located within designated Floodplain areas must be able to convey runoff from a 100-year design storm. Any facility located within a PaDOT right-of-way must meet PaDOT minimum design standards and permit submission requirements.
- E. Storm Sewers must be able to convey post-development runoff from a 10-year design storm without surcharging inlets, where appropriate.
- F. Adequate Erosion protection shall be provided along all open channels, and at all points of discharge.
- G. The design of all Stormwater Management Facilities shall incorporate sound engineering principles and practices. The Municipality shall reserve the right to disapprove any design that would result in the occupancy or continuation of an adverse hydrologic or hydraulic condition within the watershed.

Section 305. Calculation Methodology

Stormwater runoff from all Development Sites shall be calculated using either the rational method or a soil-cover-complex methodology.

- A. Any Stormwater runoff calculations shall use generally accepted calculation technique that is based on the NRCS soil cover complex method. Table 305-1 summarizes acceptable computation methods. It is assumed that all methods will be selected by the design professional based on the individual limitations and suitability of each method for a particular site.

The Municipality may allow the use of the Rational Method to estimate peak discharges from drainage areas that contain less than 200 acres. The Rational Method is recommended for drainage areas under 100 acres.

- B. All calculations consistent with this Ordinance using the soil cover complex method shall use the appropriate design rainfall depths for the various return period storms according to the region for which they are located as presented in Table B-1 in Appendix B of this Ordinance. If a hydrologic computer model such as PSRM or HEC-1 is used for Stormwater runoff calculations, then the duration of rainfall shall be 24 hours. The SCS 'S' curve shown in Figure B-1, Appendix B of this Ordinance shall be used for the rainfall distribution.
- C. For the purposes of pre-development flow rate determination, undeveloped land shall be considered as "meadow" in good condition, unless the natural ground cover generates a lower curve number or Rational 'C' value (i.e., forest), as listed in Table B-2 or B-3 in Appendix B of this document.
- D. All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times-of-concentration for overland flow and return periods from the Design Storm Curves from PA Department of Transportation Design Rainfall Curves (1986) (Figures B-2). Times-of-concentration for overland flow shall be calculated using the methodology presented in Chapter 3 of Urban Hydrology for Small Watersheds, NRCS, TR-55 (as amended or replaced from time to time by NRCS). Times-of-concentration for channel and pipe flow shall be computed using Manning's equation.
- E. Runoff Curve Numbers (CN) for both existing and proposed conditions to be used in the soil cover complex method shall be obtained from Table B-2 in Appendix B of this Ordinance.
- F. Runoff coefficients (c) for both existing and proposed conditions for use in the Rational method shall be obtained from Table B-3 in Appendix B of this Ordinance.
- G. Where uniform flow is anticipated, the Manning equation shall be used for hydraulic computations, and to determine the capacity of open channels, pipes, and storm sewers. Values for Manning's roughness coefficient (n) shall be consistent with Table B-4 in Appendix B of the Ordinance.

Outlet structures for Stormwater Management Facilities shall be designed to meet the performance standards of this Ordinance using any generally accepted hydraulic analysis technique or method.

- H. The design of any Stormwater detention facilities intended to meet the performance standards of this Ordinance shall be verified by routing the design storm hydrograph through these facilities using the Storage-Indication Method. For drainage areas greater than 200 acres in size, the design storm hydrograph shall be computed using a calculation method that produces a full hydrograph. The Municipality may approve the use of any generally accepted full hydrograph approximation technique that shall use a total Runoff volume that is consistent with the volume from a method that produces a full hydrograph.

**TABLE 305-1
Acceptable Computation Methodologies For
Stormwater Management Plans**

METHOD	METHOD DEVELOPED BY	APPLICABILITY
TR-20 (or commercial computer package based on TR-20)	USDA NRCS	Applicable where use of full hydrology computer model is desirable or necessary.
TR-55 (or commercial computer package based on TR-55)	USDA NRCS	Applicable for land development plans within limitations described in TR-55.
HEC-1	US Army Corps of Engineers	Applicable where use of full hydrology computer model is desirable or necessary
PSRM	Penn State University	Applicable where use of a hydrologic computer model is desirable or necessary; simpler than TR-20 or HEC-1.
Rational Method (or commercial computer package based on Rational Method)	Emil Kuichling (1989)	For sites less than 200 acres, or as approved by the Municipality and/or Municipal Engineer.
Other Methods	Varies	Other computation methodologies and/or Municipal Engineer.

Section 306. Erosion and Sedimentation Requirements

- A. Whenever the vegetation and topography are to be disturbed, such activity must be in conformance with Chapter 102, Title 25, Rules and Regulations, Part I, Commonwealth of Pennsylvania, Department of Environmental Protection, Subpart C, protection of natural Resources, Article II, Water Resources, Chapter 102, "Erosion Control," and in accordance with the Berks, Lebanon, or Lancaster County Conservation District.
- B. Additional Erosion and sedimentation control design standards and criteria that must be or are recommended to be applied where infiltration BMPs are proposed shall include the following:
 - 1. Areas proposed for infiltration BMPs shall be protected from sedimentation and compaction during the construction phase, so as to maintain their maximum infiltration capacity.
 - 2. Infiltration BMPs shall not be constructed nor receive runoff until the entire contributory drainage area to the infiltration BMP has received final stabilization.

Section 307. Ground Water Recharge (Infiltration/Recharge/Retention)

- A. The ability to retain and maximize the ground water recharge capacity of the area being developed is encouraged. Design of the infiltration/recharge Stormwater Management Facilities shall give consideration to providing Ground Water Recharge to compensate for the reduction in the percolation that occurs when the ground surface is paved and roofed over. These measures are encouraged, particularly in hydrologic soil groups A and B and should be utilized wherever feasible. Soils used for the construction of basins shall have low-erodibility factors ("K" factors).
- B. Infiltration BMPs shall meet the following minimum requirements:
1. Infiltration BMPs intended to receive runoff from developed areas shall be selected based on suitability of soils and site conditions and shall be constructed on soils that have the following characteristics:
 - a. A minimum depth of 48 inches between the bottom of the facility and the seasonal high water table and/or bedrock (limiting zones).
 - b. An infiltration and/or percolation rate sufficient to accept the additional stormwater load and drain completely as determined by field tests conducted by the Owner's professional designer.
 2. Infiltration BMPs receiving only roof runoff may be placed in soils having a minimum depth of 24 inches between the bottom of the facility and the limiting zone.
 3. The size of the recharge facility shall be based upon the following equation:

$$\text{Rev} = [(S) (Rv) (A)] / 12$$

Where:

Rev = Recharge Volume (acre-feet)
S = Soil specific recharge factor (inches)
Rv = Volumetric runoff coefficient
A = Site area contributing to the recharge facility (acres)

and:

$$Rv = 0.05 + 0.009 (I)$$

Where:

I = percent impervious area

and:

S shall be obtained based upon hydrologic soil group based upon the table below:

<u>Hydrologic Soil Group</u>	<u>Soil Specific Recharge Factor (S)</u>
A	0.38 inches
B	0.25 inches
C	0.13 inches
D	0.06 inches

If more than one hydrologic soil group (HSG) is present at a site, a composite recharge volume shall be computed based upon the proportion of total site area within each HSG.

3. The recharge volume provided at the site shall be directed to the most permeable HSG available.
 4. The recharge facility shall be capable of completely infiltrating the impounded water within 48 hours.
 5. The recharge facility shall be capable of completely infiltrating the impounded water within 48 hours.
- C. A detailed soils evaluation of the project site shall be performed to determine the suitability of recharge facilities. The evaluation shall be performed by a qualified professional, and at a minimum, address soil permeability, depth to bedrock, susceptibility to sinkhole formation, and subgrade stability. The general process for designing the infiltration BMP shall be:
1. Analyze hydrologic soil groups as well as natural and man-made features within watershed to determine general areas of suitability for infiltration practices.
 2. Provide field test to determine appropriate percolation rate and/or hydraulic conductivity
 3. Design Infiltration Structure for required storm volume based on field determined capacity at the level of the proposed infiltration surface.

- D. Extreme caution shall be exercised where infiltration is proposed in geologically susceptible areas such as strip mine or limestone areas. Extreme caution shall also be exercised where salt or chloride would be a pollutant since soils do little to filter this pollutant and it may contaminate the groundwater. It is also extremely important that the design professional evaluate the possibility of groundwater contamination from the proposed infiltration/recharge facility and recommend a hydrogeologic justification study be performed if necessary. Whenever a basin will be located in an area underlain by limestone, a geological evaluation of the proposed location shall be conducted to determine susceptibility to sinkhole formations. The design of all facilities over limestone formations shall include measures to prevent ground water contamination and, where necessary, sinkhole formation. The municipality will require the design and installation of an impermeable liner in detention and retention basins. A detailed hydrogeologic investigation may be required by the municipality or by the municipal engineer. .

The municipality will require the developer to provide safeguards within the Drainage Plan design preventing groundwater contamination where the groundwater is the source of drinking water supply.

It shall be the Developers responsibility to verify if the site is underlain by limestone. The following note shall be attached to all drainage plans and signed and sealed by the developers engineer/surveyor/landscape/architect/geologist:

" _____, certify that the proposed detention basin (circle one) is/is not underlain by limestone."

- E. Where pervious pavement is permitted for parking lots, recreational facilities, non-dedicated streets, or other areas, pavement construction specifications shall be noted on the plan.
- F. Recharge/infiltration facilities may be used in conjunction with other innovative or traditional BMPs, Stormwater control facilities, and nonstructural Stormwater management alternatives.

Section 308. Water Quality Requirements

- A. In addition to the performance standards and design criteria requirements of Article III of this Ordinance, the land developer SHALL comply with the following water quality requirements of this Article unless otherwise exempted by provisions of this Ordinance.

For water quality, the objective is to detain the post-development 2-year, 24-hour design storm to the pre-development 1-year flow using the SCS Type II distribution. Additionally, provisions shall be made such as adding a small orifice at the bottom of

the outlet structure so that the post-development 1-year storm takes a minimum of 24 hours to drain from the facility from a point where the maximum volume of water from the 1-year storm is captured. (i.e., the maximum water surface elevation is achieved in the facility. At the same time, the objective is not to attenuate the larger storms. This can be accomplished by configuration of the outlet structure not to control the larger storms, or by a bypass or channel to divert only the 2-year flood into the basin or divert flows in excess of the 2-year storm away from the basin.

Release of water can begin at the start of the storm (i.e., the invert of the water quality orifice is at the invert of the facility). The design of the facility shall consider and minimize the chances of clogging and sedimentation potential. Orifices smaller than 3 inches diameter are not recommended. However, if the Design Engineer can provide proof that the smaller orifices are protected from clogging by use of trash racks, etc., smaller orifices may be permitted.

- B. To accomplish A. above, the land developer MAY submit original and innovative designs to the Municipal Engineer for review and approval. Such designs may achieve the water quality objectives through a combination of BMPs (Best Management Practices).
- C. In selecting the appropriate BMPs or combinations thereof, the land developer SHALL consider the following:
 - 1. Total contributing area.
 - 2. Permeability and infiltration rate of the site soils.
 - 3. Slope and depth to bedrock.
 - 4. Seasonal high water table.
 - 5. Proximity to building foundations and well heads.
 - 6. Erodibility of soils.
 - 7. Land availability and configuration of the topography.
- D. The following additional factors SHOULD be considered when evaluating the suitability of BMPs used to control water quality at a given Development Site:
 - 1. Peak Discharge and required volume control.
 - 2. Stream bank erosion.
 - 3. Efficiency of the BMPs to mitigate potential water quality problems.
 - 4. The volume of runoff that will be effectively treated.
 - 5. The nature of the pollutant being removed.
 - 6. Maintenance requirements.
 - 7. Creation/protection of aquatic and wildlife habitat.
 - 8. Recreational value.Enhancement of aesthetic and property value.

Section 309. Stream Bank Erosion Requirements

Applying the water quality criteria in Section 308 above will also help the stream bank erosion problem. Thus, detaining the 2-year postdevelopment storm to the one-year predevelopment storm and detaining the 1-year post-development storm a minimum of 24 hours would therefore minimize the number of storms causing stream bank erosion. This is the same management criteria that has been recognized to also improve the water quality from Stormwater runoff.

ARTICLE IV-DRAINAGE PLAN REQUIREMENTS

Section 401. General Requirements

For any of the activities regulated by this Ordinance, the preliminary or final approval of Subdivision and/or Land Development plans, the issuance of any building or occupancy permit, or the commencement of any land disturbance activity may not proceed until the Property Owner or Developer or his/her agent has received written approval of a Drainage Plan from the Municipality.

Section 402. Exemptions

Any Regulated Activity that meets the exception criteria in the following table is exempt from the provisions of this Ordinance. This criteria shall apply to the total development even if development is to take place in phases. The date of the municipal Ordinance adoption shall be the starting point from which to consider tracts as "parent tracts" in which future subdivisions and respective impervious area computations shall be cumulatively considered. An exemption shall not relieve the applicant from providing adequate Stormwater management to meet the purpose of this Ordinance; however, Drainage Plans will not have to be submitted to the municipality.

Stormwater Management Exemption Criteria

<u>Total Parcel Size</u>	<u>Impervious Area Exemption (sq.ft.)</u>
≤ 1/4 acre	2,500 sq. ft.
>1/4 to 1 acre	5,000 sq. ft.
>1 to 2 acres	10,000 sq. ft.
> 2 to 5 acres	15,000 sq. ft.
>5 acres	20,000 sq. ft.

Exemptions shall be at discretion of Municipal Engineer upon review of site conditions, topography, soils and other factors as desired appropriate.

Section 403. Drainage Plan Contents

The Drainage Plan shall consist of all applicable calculations, maps, and plans. A note on the maps shall refer to the associated computations and erosion and sedimentation control

plan by title and date. The cover sheet of the computations and erosion and sedimentation control plan shall refer to the associated maps by title and date. All Drainage Plan materials shall be submitted to the municipality in a format that is clear, concise, legible, neat, and well organized; otherwise, the Drainage Plan shall be disapproved and returned to the Applicant.

The following items shall be included in the Drainage Plan:

A. General

1. General description of project.
2. General description of permanent stormwater management techniques, including construction specifications of the materials to be used for Stormwater Management Facilities.
3. Complete hydrologic, hydraulic, and structural computations for all Stormwater Management Facilities.

B. Map(s) of the project area shall be submitted on 24-inch x 36-inch sheets and shall be prepared in a form that meets the requirements for recording at the offices of the Recorder of Deeds of Berks County (Lebanon/Lancaster). The contents of the maps(s) shall include, but not be limited to:

1. The location of the project relative to highways, municipalities or other identifiable landmarks.
2. Existing contours at intervals of two feet. In areas of steep slopes (greater than 15 percent), five-foot contour intervals may be used.
3. Existing streams, lakes, ponds, or other bodies of water within the project area.
4. Other physical features including flood hazard boundaries, sinkholes, streams, existing drainage courses, areas of natural vegetation to be preserved, and the total extent of the upstream area draining through the site.
5. The locations of all existing and proposed utilities, sanitary sewers, and water lines within 50 feet of property lines.
6. An overlay showing soil names and boundaries.
7. Proposed changes to the land surface and vegetative cover, including the type and amount of impervious area that would be added.
8. Proposed structures, roads, paved areas, and buildings.
9. Final contours at intervals of two feet. In areas of steep slopes (greater than 15 percent), five-foot contour intervals may be used.
10. The name of the development, the name and address of the owner of the property, and the name of the individual or firm preparing the plan.

11. The date of submission.
12. A graphic and written scale of one (1) inch equals no more than fifty (50) feet; for tracts of twenty (20) acres or more, the scale shall be one (1) inch equals no more than one hundred (100) feet.
13. A North arrow.
14. The total tract boundary and size with bearing and distance boundary description shall be prepared by a surveyor licensed to practice in the Commonwealth of Pennsylvania
15. Existing and proposed land use(s).
16. A key map showing all existing man-made features beyond the property boundary that would be affected by the project.
17. Horizontal and vertical profiles of all open channels, including hydraulic capacity.
18. Overland drainage paths.
19. A fifteen foot wide access easement around all Stormwater Management Facilities that would provide ingress to and egress from a public right-of-way.
20. A note on the plan indicating the location and responsibility for maintenance of Stormwater Management Facilities that would be located off-site. All off-site facilities shall meet the performance standards and design criteria specified in this Ordinance.
21. A construction detail of any improvements made to sinkholes and the location of all notes to be posted, as specified in this Ordinance.
22. A statement, signed by the landowner, acknowledging the stormwater management system to be a permanent fixture that can be altered or removed only after approval of a revised plan by the municipality.
23. The following signature block for the Municipal Engineer:

 (Municipal Engineer), on this date (date of signature), have reviewed and hereby certify that the Drainage Plan meets all design standards and criteria of the Tulpehocken Creek Watershed Act 167 Stormwater Management Ordinance."
24. The location of all erosion and sedimentation control facilities.

C. Supplemental Information

1. A written description of the following information shall be submitted.
 - a. The overall Stormwater management concept for the project.
 - b. Stormwater runoff computations as specified in this Ordinance.

- c. Stormwater management techniques to be applied both during and after development.
 - d. Expected project time schedule.
2. A soil erosion and sedimentation control plan, where applicable, including all reviews and approvals, as required by PaDEP.
 3. A geologic assessment of the effects of runoff on sinkholes as specified in this Ordinance.
 4. The effect of the project (in terms of runoff volumes and peak flows) on adjacent properties adjacent properties and on any existing municipal Stormwater collection system that may receive runoff from the project site.
 5. A Declaration of Adequacy and Highway Occupancy Permit from the PaDOT District Office when utilization of a PaDOT storm drainage system is proposed.

D. Stormwater Management Facilities

1. All Stormwater Management Facilities must be located on a plan and described in detail.
2. When Groundwater Recharge methods such as seepage pits, beds or trenches are used, the locations of existing and proposed septic tank infiltration areas and wells must be shown.
3. All calculations, assumptions, and criteria used in the design of the Stormwater Management Facilities must be shown.

Section 404. Plan Submission

For all activities regulated by this Ordinance, the steps below shall be followed for submission. For any activities that require a PaDEP Joint Permit Application and regulated under Chapter 105 (Dam Safety and Waterway Management) or Chapter 106 (Floodplain Management) of PaDEP's Rules and Regulations, require a PaDOT Highway Occupancy Permit, or require any other permit under applicable state or federal regulations, the proof of application for said permit(s) shall be part of the plan. The plan shall be coordinated with the state and federal permit process.

- A. The Drainage Plan shall be submitted by the Developer as part of the Preliminary Plan submission for the Regulated Activity.
- B. Four (4) copies of the Drainage Plan shall be submitted.
- C. Distribution of the Drainage Plan will be as follows:
 1. Two (2) copies to the Municipality accompanied by the requisite Municipal Review Fee, as specified in this Ordinance.
 2. One (1) copy to the Municipal Engineers.
 3. One (1) copy to the County Planning Commission/Department.

Section 405. Drainage Plan Review

- A. The Municipal Engineer shall review the Drainage Plan for consistency with the adopted Tulpehocken Creek Watershed Act 167 Stormwater Management Plan. The Municipality shall require receipt of a complete plan, as specified in this Ordinance.
- B. The Municipal Engineer shall review the Drainage Plan for any submission or Land Development against the municipal subdivision and Land Development ordinance provisions not superseded by this Ordinance.
- C. For activities regulated by this Ordinance, the Municipal Engineer shall notify the Municipality in writing, within 14 calendar days, whether the Drainage Plan is consistent with the Stormwater Management Plan. Should the Drainage Plan be determined to be consistent with the Stormwater Management Plan, the Municipal Engineer will forward an approval letter to the Developer with a copy to the Municipal Secretary.
- D. Should the Drainage Plan be determined to be inconsistent with the Stormwater Management Plan, the Municipal Engineer will forward a disapproval letter to the Developer with a copy to the Municipal Secretary citing the reason(s) for the disapproval. Any disapproved Drainage Plans may be revised by the Developer and resubmitted consistent with this Ordinance.
- E. For Regulated Activities specified in Sections 104.C and 104.D of this Ordinance, the Municipal Engineer shall notify the Municipal Building Permit Officer in writing, within a time frame consistent with the Municipal Building Code and/or Municipal Subdivision Ordinance, whether the Drainage Plan is consistent with the Stormwater Management Plan and forward a copy of the approval/disapproval letter to the Developer. Any disapproved Drainage Plan may be revised by the Developer and resubmitted consistent with this Ordinance.
- F. For Regulated Activities requiring a PaDEP Joint Permit Application, the Municipal Engineer shall notify PaDEP whether the Drainage Plan is consistent with the Stormwater Management Plan and forward a copy of the review letter to the Municipality and the Developer. PaDEP may consider the Municipal Engineer's review comments in determining whether to issue a permit.
- G. The Municipality shall not approve any Subdivision or Land Development for Regulated Activities specified in Sections 104 of this Ordinance if the Drainage Plan has been found to be inconsistent with the Stormwater Management Plan, as determined by the Municipal Engineer. All required permits from PaDEP must be obtained prior to approval of any Subdivision or Land Development.
- H. The Municipal Building Permit Office shall not issue a building permit for any Regulated Activity specified in Section 104 of this Ordinance if the Drainage Plan has been found to be inconsistent with the Stormwater Management Plan, as determined by the Municipal Engineer, or without considering the comments of the Municipal Engineer. All required permits from PaDEP must be obtained prior to issuance of a building permit.

- I. The Developer shall be responsible for completing record drawings of all Stormwater Management Facilities included in the approved Drainage Plan. The record drawings and an explanation of any discrepancies with the design plans shall be submitted to the Municipal Engineer for final approval. In no case shall the Municipality approve the record drawings until the Municipality receives a copy of an approved Declaration of Adequacy, Highway Occupancy Permit from the PaDOT District Office, and any applicable permits from PaDEP.
- J. The issuance of a permit to construct the approved facilities shown on the Drainage Plan shall be valid for a period of five (5) years from the date of the Drainage Plan approval and/or the date of permit issuance, whichever is the latter. If Stormwater Management Facilities included in the approved Drainage Plan have not been satisfactorily constructed, or if constructed and record drawings of these facilities have not been approved within the five-year time period, the Municipality may consider the Drainage Plan disapproved and revoke any and all permits. Drainage Plans that are considered disapproved by the Municipality shall be resubmitted in accordance with Section 407 of this Ordinance.

Section 406. Modification of Plans

A modification to a submitted Drainage Plan for a Development Site that involves a change in Stormwater Management Facilities or techniques, or that involves the relocation or re-design of Stormwater Management Facilities, or that is necessary because soil or other conditions are not as stated on the Drainage Plan as determined by the Municipal Engineer, shall require a resubmission of the modified Drainage Plan consistent with Section 404 of this Ordinance and be subject to review as specified in Section 405 of this Ordinance.

A modification to an already approved or disapproved Drainage Plan shall be submitted to the Municipality, accompanied by the applicable review fee. A modification to a Drainage Plan for which a formal action has not been taken by the Municipality shall be submitted to the Municipality, accompanied by the applicable Municipality Review Fee.

Section 407. Resubmission of Disapproved Drainage Plans

A disapproved Drainage Plan may be resubmitted, with the revisions addressing the Municipal Engineer's concerns documented in writing addressed, to the Municipal Secretary in accordance with Section 404 of this Ordinance and distributed accordingly and be subject to review as specified in Section 405 of this Ordinance. The applicable Municipality Review Fee must accompany a resubmission of a disapproved Drainage Plan.

ARTICLE V-INSPECTIONS

Section 501. Schedule of Inspections

- A. The Municipal Engineer or his municipal assignee shall inspect all phases of the installation of the permanent Stormwater Management Facilities as deemed appropriate by the Municipal Engineer.

- B. During any stage of the work, if the Municipal Engineer determines that the permanent Stormwater Management Facilities are not being installed in accordance with the approved Stormwater Management Plan, the Municipality shall revoke any existing permits and issue a cease and desist stop work order until a revised Drainage Plan is submitted and approved, as specified in this Ordinance.

ARTICLE VI-FEES AND EXPENSES

Section 601. General

The fee required by this Ordinance is the Municipal Review Fee. The Municipal Review fee shall be established by the Municipality to defray review costs incurred by the Municipality and the Municipal Engineer. All fees shall be paid by the Applicant.

Section 602. Municipality Drainage Plan Review Fee

The Municipality shall establish a Review Fee Schedule by resolution of the municipal governing body based on the size of the Regulated Activity and based on the Municipality's costs for reviewing Drainage Plans. The Municipality shall periodically update the Review Fee Schedule to ensure that review costs are adequately reimbursed.

Section 603. Expenses Covered by Fees

The fees required by this Ordinance shall at a minimum cover:

- A. Administrative Costs.
- B. The review of the Drainage Plan by the Municipality and the Municipal Engineer.
- C. The site inspections.
- D. The inspection of Stormwater Management Facilities and drainage improvements during construction.
- E. The final inspection upon completion of the Stormwater Management Facilities and drainage improvements presented in the Drainage Plan.
- F. Any additional work required to enforce any permit provisions regulated by this Ordinance, correct violations, and assure proper completion of stipulated remedial actions.

ARTICLE VII-MAINTENANCE RESPONSIBILITIES

Section 701. Performance Guarantee

The Applicant should provide a financial guarantee to the Municipality for the timely installation and proper construction of all Stormwater management controls as required

by the approved Stormwater plan and this ordinance equal to the full construction cost of the required controls.

Section 702. Maintenance Responsibilities

- A. The Drainage Plan for the Development Site shall contain an operation and maintenance plan prepared by the Developer and approved by the municipal engineer. The operation and maintenance plan shall outline required routine maintenance actions and schedules necessary to insure proper operation of the facility(ies).
- B. The Drainage Plan for the Development Site shall establish responsibilities for the continuing operating and maintenance of all proposed Stormwater control facilities, consistent with the following principals:
 - 1. If a development consists of structures or lots which are to be separately owned and in which streets, sewers and other public improvements are to be dedicated to the municipality, Stormwater control facilities may also be dedicated to and maintained by the Municipality (the Municipality is not obligated to accept ownership).
 - 2. If a Development Site is to be maintained in a single ownership or if sewers and other public improvements are to be privately owned and maintained, then the ownership and maintenance of Stormwater control facilities shall be the responsibility of the owner or private management entity.
- C. The governing body, upon recommendation of the municipal engineer, shall make the final determination on the continuing maintenance responsibilities prior to final approval of the Stormwater Management Plan. The governing body reserves the right to accept the ownership and operating responsibility for any or all of the stormwater management controls.

Section 703. Maintenance Agreement for Privately Owned Stormwater Facilities

- A. Prior to final approval of the site's Stormwater Management Plan, the property owner shall sign and record the maintenance agreement contained in Appendix A which is attached and made part hereof, covering all Stormwater control facilities that are to be privately owned.
- B. Other items may be included in the agreement where determined necessary to guarantee the satisfactory maintenance of all facilities. The maintenance agreement shall be subject to the review and approval of the municipal solicitor and governing body.

Section 704. Municipal Stormwater Maintenance Fund

- A. Persons installing Stormwater storage facilities shall be required to pay a specified amount to the Municipal Stormwater Maintenance Fund to help defray costs of periodic inspections and maintenance expenses. The amount of the deposit shall be determined as follows:

1. If the storage facility is to be privately owned and maintained, the deposit shall cover the cost of periodic inspections performed by the municipality for a period of ten (10) years, as estimated by the municipal engineer. After that period of time, inspections will be performed at the expense of the municipality.
 2. If the storage facility is to be owned and maintained by the municipality, the deposit shall cover the estimated costs for maintenance and inspections for ten (10) years. The municipal engineer will establish the estimated costs utilizing information submitted by the Applicant.
 3. The amount of the deposit to the fund shall be converted to present worth of the annual series values. The municipal engineer shall determine the present worth equivalents, which shall be subject to the approval of the governing body.
- B. If a storage facility is proposed that also serves as a recreation facility (e.g., ballfield, lake), the municipality may reduce or waive the amount of the maintenance fund deposit based upon the value of the land for public recreation purpose.
- C. If at some future time a storage facility (whether publicly or privately owned) is eliminated due to the installation of storm sewers or other storage facility, the unused portion of the maintenance fund deposit will be applied to the cost of abandoning the facility and connecting to the storm sewer system or other facility. Any amount of the deposit remaining after the costs of abandonment are paid will be returned to the depositor.

ARTICLE VIII-ENFORCEMENT AND PENALTIES

Section 801. Right-of-Entry

Upon presentation of proper credentials, duly authorized representatives of the municipality may enter at reasonable times upon any property within the municipality to inspect the condition of the Stormwater structures and facilities in regard to any aspect regulated by this Ordinance.

Section 802. Notification

In the event that a person fails to comply with the requirements of this Ordinance, or fails to conform to the requirements of any permit issued hereunder, the municipality shall provide written notification of the violation. Such notification shall set forth the nature of the violation(s) and establish a time limit for correction of these violation(s). Failure to comply within the time specified shall subject such person to the penalty provisions of this Ordinance. All such penalties shall be deemed cumulative and resort by the municipality from pursuing any and all remedies. It shall be the responsibility of the Owner of the real property on which any Regulated Activity is proposed to occur, is occurring, or has occurred, to comply with the terms and conditions of this Ordinance.

Section 803. Enforcement

The governing body of the Municipality is hereby authorized and directed to enforce all of the provisions of this Ordinance. All inspections regarding compliance with the Drainage Plan shall be the responsibility of the municipal engineer or other consulting engineer as approved and designated by the Municipality.

A. A set of design plans approved by the municipality shall be on file at the site throughout the duration of the construction activity. Periodic inspections may be made by the municipality or designee during construction.

B. Adherence to Approved Plan

It shall be unlawful for any person, firm or corporation to undertake any Regulated Activity under Section 104 on any property except as provided for in the approved Drainage Plan and pursuant to the requirements of this ordinance. It shall be unlawful to alter or remove any control structure required by the Drainage Plan pursuant to this Ordinance or to allow the property to remain in a condition which does not conform to the approved Drainage Plan.

C. At the completion of the project, and as a prerequisite for the release of the performance guarantee, the owner or his representatives shall:

1. Provide a certification of completion from an engineer, architect, surveyor or other qualified person verifying that all permanent facilities have been constructed according to the plans and specifications and approved revisions thereto.

2. Provide a set of as-built (record) drawings.

D. After receipt of the certification by the Municipality, a final inspection shall be conducted by the municipal engineer or designated representative to certify compliance with this ordinance.

E. Prior to revocation or suspension of a permit, the governing body will schedule a hearing to discuss the non-compliance if there is no immediate danger to life, public health or property. The expense of a hearing shall be the owner's responsibility.

F. Suspension and Revocation of Permits

1. Any permit issued under this Ordinance may be suspended or revoked by the governing body for:

a. Non-compliance with or failure to implement any provision of the permit.

b. A violation of any provision of this Ordinance or any other applicable law, ordinance, rule or regulation relating to the project.

c. The creation of any condition or the commission of any act during construction or development which constitutes or creates a hazard or

nuisance, pollution or which endangers the life or property of others, or as outlined in this Ordinance.

2. A suspended permit shall be reinstated by the governing body when:
 - a. The municipal engineer or his designee has inspected and approved the corrections to the stormwater management and erosion and sediment pollution control measure(s), or the elimination of the hazard or nuisance, and/or;
 - b. The governing body is satisfied that the violation of the ordinance, law, or rule and regulation has been corrected.
3. A permit that has been revoked by the governing body cannot be reinstated. The applicant may apply for a new permit under the procedures outlined in this Ordinance.

G. **Occupancy Permit**

An occupancy permit shall not be issued unless the certification of completion pursuant to Section 803.C has been secured. The occupancy permit shall be required for each lot owner and/or Developer for all subdivisions and land development in the municipality.

Section 804. Public Nuisance

- A. The violation of any provision of this ordinance is hereby deemed a Public Nuisance.
- B. Each day that a violation continues shall constitute a separate violation.

Section 805. Penalties

- A. Anyone violating the provisions of this ordinance shall be guilty of a summary offense, and upon conviction shall be subject to a fine of not more than \$1,000.00 for each violation, recoverable with costs, or imprisonment to the extent allowed by law, or both. Each day that the violation continues shall be a separate offense.
- B. In addition, the Municipality, through its solicitor may institute injunctive, mandamus or any other appropriate action or proceeding at law or in equity for the enforcement of this Ordinance. Any court of competent jurisdiction shall have the right to issue restraining orders, temporary or permanent injunctions, mandamus or other appropriate forms of remedy or relief.

Section 806. Appeals

- A. Any person aggrieved by any action of the Municipality or its designee may appeal to the Municipality's governing body within thirty (30) days of that action.

