SUBDIVISION AND LAND DEVELOPMENT ORDINANCE (SALDO)

OF THE

BOROUGH OF FREEMANSBURG

NORTHAMPTON COUNTY, PENNSYLVANIA

SECTION I
PURPOSE, AUTHORITY, TITLE AND JURISDICTION

100 Purpose

101 The purpose of this Ordinance is to regulate subdivision and land development in the Borough of Freemansburg, Northampton County, Pennsylvania.

110 Authority and Title

111 This Ordinance is enacted pursuant to the Pennsylvania Municipalities Planning Code and may be cited as the Freemansburg Subdivision and Land Development Ordinance (S.A.L.DO.).

120 Jurisdiction

121 This Ordinance shall apply in the following circumstances:

1) To all subdivision and land development plans for property located in the Borough of Freemansburg submitted after the effective date of this Ordinance.

2) To all subdivision and land development plans for property located in the Borough of Freemansburg, previously approved in accordance with any law or regulation then applicable, the development of which has not been completed in accordance with the terms of such approval within three (3) years of such approval.

3) A modification to a submitted Drainage Plan for a proposed development site which involves a change in control methods or techniques, or which involves the relocation or redesign of control measures, or which is necessary because soil or other conditions are not as stated on the Drainage Plan (as determined by the Borough Engineer) shall require a resubmission of the modified Drainage Plan consistent with this Ordinance.

130 Application

131 No subdivision or land development of any lot, tract or parcel of land shall be made, and no street, sanitary sewer, water main, gas, or electric transmission line, 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 this Ordinance.

132 No lot in a proposed subdivision or land development may be sold, and no final permit to erect any building upon land in a subdivision or land development may be issued unless and until a final plan has been approved, recorded and required improvements have been assured by means of an Improvements Agreement acceptable to the Borough of Freemansburg Council that the improvements will subsequently be installed or the required improvements in connection therewith have been constructed.

133 Notwithstanding any provisions of this Ordinance, including waiver provisions, any landowner and any person engaged in the alteration or development of land which may affect storm water runoff characteristics shall implement such measures as are reasonably necessary to prevent injury to health, safety or other property. Such measures shall include such actions as are required to manage the rate, volume, quality and direction of resulting storm water runoff in a manner which otherwise adequately protects health and property from possible damages.

SECTION II
SUBMISSION PROCEDURES

210 Feasibility Review Submission

211 Feasibility review maps and materials may be submitted for any proposed subdivisions and land developments, for purposes of discussion between the Borough of Freemansburg Planning Commission and the developer. In addition, the developer shall provide sketches and other exhibits, as necessary, to fully explain the concept of the proposed development / subdivision.

212 Ten (10) copies of all feasibility review maps and materials, as set forth in *Section 300*, shall be submitted to the Borough of Freemansburg Planning Commission.

220 Feasibility Review

The purpose of the Feasibility Review Submission is to generate discussion and comment on a project prior to said project entering the engineering / design phase. In addition, such discussion may provide the applicant, and the applicant's engineer, information relating to historical, environmental and or other local concerns

221 Submission of plans for a feasibility review shall be made to the Borough of Freemansburg Planning Commission and include information for completeness in accordance with *Section III*.

222 When feasibility review maps, materials, application and fee have been submitted to the Borough of Freemansburg Planning Commission, the data presented will be reviewed by that body at its next regular meeting, provided that submission has occurred no less than twenty-one (21) days prior to such scheduled meeting.

223 The Borough of Freemansburg Planning Commission, based on recommendations from the Borough Engineer, shall conduct a feasibility review to determine the development potential of the site, as indicated by the natural features analysis presented. The general development concepts of the developer will be reviewed to determine their compatibility with the development potential of the site and with relevant plans and ordinances. Also, the feasibility review stage is designed to offer the developer an

opportunity to informally discuss his plans for the proposed site plan, subdivision or land development with the Borough of Freemansburg Planning Commission.

224 The Borough of Freemansburg Planning Commission, shall make recommendations to the developer which it deems necessary or advisable in the public interest in order to provide an acceptable subdivision or land development plan for the site.

230 Submission of the Preliminary Plan

231 Preliminary Plans and all required supplementary data for all proposed subdivisions and land developments shall be submitted to the Borough of Freemansburg Planning Commission at least twenty-one (21) days prior to the date of the next regularly scheduled meeting.

232 Official submission of a Preliminary Plan to the Borough of Freemansburg Planning Commission by a developer shall comprise of the following: (submissions which do not include the material specified in the following subsections shall not be accepted as an official submission.) Applications deemed incomplete in accordance with *Section III* shall be returned to the applicant within thirty (30) days of submission.

1) Ten (10) copies of a completed Application for Review of Preliminary Subdivision Plans;

2) Ten (10) black-on-white, blue-on-white or color prints on paper of the Preliminary Plan which shall fully comply with the provisions of this Ordinance as set forth in *Section III*;

3) Three (3) copies of all required supplemental information as set forth in *Section III*;

4) The review fee, escrow and escrow agreement shall be submitted as set forth in *Section 640*.

233 The Borough of Freemansburg Planning Commission shall refer preliminary plan submission materials to the various review bodies as follows:

1) One (1) application, one (1) plan print, and one (1) copy of the supplemental information to the Borough Engineer;

2) One (1) application, one (1) plan print, and one (1) copy of the supplemental information to the Freemansburg Planning Commission Attorney.

234 Additional copies of the Preliminary Plan materials shall be forwarded by the applicant to all applicable agencies that have jurisdiction with copies of the submission transmittal provided to the Freemansburg Planning Commission including but not limited to:

1) The Lehigh Valley Planning Commission;

2) Whenever the property being subdivided or developed abuts a State Legislative Route, the Pennsylvania Department of Transportation District Office;

3) Whenever the subdivision or land development requires a soil erosion and sedimentation control permit, as described in *Section 491* of this Ordinance, the Northampton County Conservation District.

4) Whenever a proposed subdivision or land development is located adjacent to another municipality, one (1) plan print shall be referred to that municipality.

235 Supplemental submissions are permitted subject to the following provisions:

1) The supplemental submission shall consist of ten (10) complete sets of the plans, three (3) copies of any revised supporting documentation, a completed and executed application form which notes the submission as a supplemental submission and a written summary of the changes made. The summary of the changes made shall refer to the Borough of Freemansburg Planning Commission and other reviews to which the changes are responding.

2) The submission shall be received at least twenty-one (21) days prior to the date of the next meeting of the Freemansburg Planning Commission at which the application is to be considered.

3) Supplemental submissions which do not comply with the requirements of *Section 235 (3)* shall not be accepted for review. The submission of a final plan application will not be considered as a supplemental submission.

240 Review of Preliminary Plan

241 By the Borough of Freemansburg Planning Commission

1) When a Preliminary Plan has been officially submitted, such plan shall be placed on the agenda of the Planning Commission for review at its next regular monthly meeting, provided that such official submission has occurred no less than twenty-one (21*)* calendar days prior to such regular meeting. The Planning Commission may hold a Public Hearing on the Preliminary Plan at this time.

2) Within fifteen (15) business days after such hearing, the Borough of Freemansburg Planning Commission shall send written notice of the Commission's recommendations to the following:

   a) The applicant;

   b) The Borough of Freemansburg Council;

   c) The Lehigh Valley Planning Commission.

   At least ten (10) business days prior to the next regularly scheduled Council meeting, the applicant must submit twelve (12) copies of all applicable information pertinent to the application to the Borough Manager for the review of Borough Council.

   Within thirty (30) days following the public hearing of the Planning Commission, the Freemansburg Borough Council shall, in accordance with the provisions of relevant ordinances, take action by approving, conditionally approving or disapproving the Preliminary Plan and document the findings upon which that action is based, in writing to:

   a) The applicant;

   b) The Borough of Freemansburg Planning Commission;

c) The Lehigh Valley Planning Commission;

d) The Borough Engineer.

3) In no case shall the decision be communicated to the applicant in more than fifteen (15) business days from the date that the decision has been made.

4) The applicant shall be provided with a form to indicate acceptance of the conditions of approval, if any were imposed. The form shall be signed and dated by the applicant and shall be returned to the Borough of Freemansburg Council. Unless the signed, dated form is received by the Borough of Freemansburg Council within ten (10) business days of the date that the form was sent to the applicant, the Borough of Freemansburg Council action shall be to deny the application for failure to comply with the ordinance requirements cited in the action for conditional approval.

250 Submission of the Final Plan

251 Within twelve (12) months after approval of the Preliminary Plan, a Final Subdivision or Land Development Plan and all required supplemental data shall be submitted to the Borough of Freemansburg Planning Commission. An extension of time may be granted by the Borough of Freemansburg Council upon written request. Otherwise, the plan submitted may be considered as a new Preliminary Plan.

252 The Final Plan shall conform in all significant respects to the Preliminary Plan as previously approved by the Borough of Freemansburg Council and shall incorporate all modifications required by the Borough of Freemansburg Council in its Preliminary Plan approval. The Borough of Freemansburg Planning Commission may, however, accept a Final Plan modified so as to reflect any substantial changes which have occurred on the site of the proposed subdivision, or its surroundings, since the time of the Preliminary Plan review.

253 The Final Plan may be submitted in sections, phases or stages, each covering a reasonable portion of the entire proposed subdivision as shown on the reviewed Preliminary Plan, in accordance with the regulations set forth in

Section 320. In the case of the Final Subdivision or Land Development Plan which is to be submitted in sections, phases or stages over a period of years, the time between submission of application for final approval of each stage or section shall be no greater than twelve (12) months.

254 Final plans and all required supplementary data set forth in *Section 320* for all proposed subdivisions and land developments shall be submitted to the Borough office staff.

255 Official submission of a Final Plan to the Borough of Freemansburg Planning Commission by a developer shall comprise of the following: (submissions which do not include the material specified in the following subsections shall not be accepted as an official submission.) Applications deemed incomplete in accordance with *Section III* shall be returned to the applicant within thirty (30) days of submission.

1) Ten (10) copies of a completed Application for Review of Final Subdivision Plan;

2) Ten (10) black-on-white, blue-on-white or color prints on paper of the Final Plan which shall fully comply with the provisions of this Ordinance as set forth in *Section 320*;

3) Three (3) copies of all required supplemental information as set forth in *Section 320*;

4) The review fee and escrow as set forth in *Section 640*.

256 The Borough of Freemansburg Planning Commission shall refer Final Plan submission materials to the various review bodies as follows:

1) One (1) application, one (1) plan print, and one (1) copy of the supplemental information to the Borough Engineer;

2) One (1) application, one (1) plan print, and one (1) copy of the supplemental information to the Freemansburg Planning Commission Attorney.

257 Additional copies of the Final Plan materials shall be forwarded by the applicant to all applicable agencies that have jurisdiction with copies of the

submission transmittal provided to the Freemansburg Planning Commission including but not limited to:

1) Whenever the property being subdivided or developed abuts a State Legislative Route and the plan differs from plans previously submitted to PennDOT with reference to access points, proposed external road improvements or traffic impact, the Pennsylvania Department of Transportation District Office.

2) The Lehigh Valley Planning Commission.

3) Whenever the subdivision or land development requires a soil erosion and sedimentation control permit, as described in *Section 491* of this Ordinance, the Northampton County Conservation District.

4) Whenever a proposed subdivision or land development is located adjacent to another municipality, one (1) application and one (1) plan print shall be referred to that municipality.

260 Review of Final Plan

261 By the Borough of Freemansburg Planning Commission

1) When a Final Plan has been officially submitted, such plan shall be placed on the agenda of the Planning Commission for review at its next regular monthly meeting, provided that such official submission has occurred no less than twenty-one (21) calendar days prior to such regular meeting. The Planning Commission may hold a Public Hearing on the Final Plan at this time.

2) Within fifteen (15) business days after such hearing, the Borough of Freemansburg Planning Commission shall send written notice of the Commission's recommendations to the following:

   a) The applicant;

   b) The Borough of Freemansburg Council;

   c) The Lehigh Valley Planning Commission.

Within thirty (30) days following the public hearing of the Planning Commission, the Freemansburg Borough Council shall, in accordance with the provisions of relevant ordinances, take action by approving, conditionally approving or disapproving the Final Plan and document the findings upon which that action is based, in writing to:

a) The applicant;

b) The Borough of Freemansburg Planning Commission;

c) The Lehigh Valley Planning Commission;

d) The Applicant's Engineer.

3) In no case shall the decision be communicated to the applicant in more than fifteen (15) business days from the date that the decision has been made.

4) The applicant shall be provided with a form to indicate acceptance of the conditions of approval, if any were imposed. The form shall be signed and dated by the applicant and shall be returned to the Freemansburg Borough Council. Unless the signed, dated form is received by the Freemansburg Borough Council within ten (10) business days of the date that the form was sent to the applicant, the Freemansburg Borough Council action shall be to deny the application for failure to comply with the ordinance requirements cited in the action for conditional approval.

270 Recording of the Final Plan

271 After the Final Plan is approved by the Freemansburg Borough Council, the applicant shall provide two (2) mylar reproducible prints and six (6) paper prints of the Final Plan to the Freemansburg Borough Council for endorsement. In addition, the applicant shall provide the borough engineer with an electronic copy of the said plan compatible with the latest version of AutoCAD as required by the Borough Engineer. The plan shall also include grading and utility information.

272 The Record Plan shall be a clear and legible print of a type and material required by the County Recorder of Deeds.

273 After the Freemansburg Borough Council has endorsed the record plan, the applicant shall file the plan with the Northampton County Recorder of Deeds within ninety (90) days of the approval. The applicant shall provide proof of the recording by providing the Freemansburg Borough Council with a receipt from the Recorder's office.

274 At the time the Record Plan is endorsed by the Freemansburg Borough Council, the applicant shall be responsible for providing any other agency that may require a copy of the approved Final Plan for their permanent files.

280 Minor Subdivision and Boundary Line Adjustments

281 Purpose: The purpose of this section is to permit applicants, and the Borough, the use of a simplified procedure for the review and approval of Minor Subdivision and Boundary Line adjustments. The plan shall be prepared in accordance with the Plan Requirements found in *Section III*; however, since the amount of information needed to review such a plan will vary, based upon what the applicant is proposing, all of these standards may not be necessary. The applicant should make arrangements to meet with the Borough Engineer to review the plan information required.

1) When a Minor Subdivision or Boundary Line Adjustment plan has been officially submitted, such plan shall be placed on the agenda of the Planning Commission for review at its next regular monthly meeting, provided that such official submission has occurred no less than twenty-one (21) calendar days prior to such regular meeting. The Planning Commission may hold a Public Hearing on the plan at this time.

2) Within fifteen (15) business days after such hearing, the Borough of Freemansburg Planning Commission shall send written notice of the Commission's recommendations to the following:

   a) The applicant;

   b) The Borough of Freemansburg Council;

   c) The Lehigh Valley Planning Commission.

   Within thirty (30) days following the public hearing of the Planning Commission, the Freemansburg Borough Council shall, in accordance

with the provisions of relevant ordinances, take action by approving, conditionally approving or disapproving the plan and document the findings upon which that action is based, in writing to:

a) The applicant;

b) The Borough of Freemansburg Planning Commission;

c) The Lehigh Valley Planning Commission;

d) The Applicant's Engineer.

3) In no case shall the decision be communicated to the applicant in more than fifteen (15) business days from the date that the decision has been made.

4) The applicant shall be provided with a form to indicate acceptance of the conditions of approval, if any were imposed. The form shall be signed and dated by the applicant and shall be returned to the Freemansburg Borough Council. Unless the signed, dated form is received by the Freemansburg Borough Council within ten (10) business days of the date that the form was sent to the applicant, the Freemansburg Borough Council action shall be to deny the application for failure to comply with the ordinance requirements cited in the action for conditional approval.

290 Site Plan Standards

291 The submission of a Site Plan is required for all permitted uses in non-residential districts. This Site Plan does not have to be prepared by a Professional Engineer and/or a Licensed Surveyor, unless certain information requires a professional certification, but must be prepared to an accurate scale. It is suggested that if a non-professional is preparing such plan that said plan be prepared on graph or grid paper. All plans shall be prepared on a sheet no smaller than 8-1/2" by 11" and no larger than 11" by 17", unless a large size sheet is pre-approved by the borough engineer. All plans shall contain, at a minimum, the following information:

1) Plan Notes.

a) List the appropriate Zoning District.

b) Address and tax parcel number.

c) Address of property.

d) Owners name and address.

e) Owners phone number, cell phone number and fax number, if applicable.

f) Name, address and phone number of occupant is different than owner.

g) List emergency phone numbers and contacts name (owner and tenant).

h) Size of property, in square feet if under an acre.

i) List required zoning district setbacks.

j) List approximate building height and maximum allowed by zoning.

k) Existing and Proposed Use(s).

l) List all and any utility easements.

m) List all and any cross property easements and/or other restrictive covenants.

n) List parking requirements. Indicate the number of existing parking spaces and the number of required parking spaces.

2) Plan Data.

a) Show all existing surface features such as buildings, walks, driveways, fences, etc.

b) Provide approximate dimensions to existing property lines and setback lines.

c) Show approximate location of underground utilities.

d) Show existing vegetation, grass, shrubs, trees.

e) Note adjacent street names and width of right-of-way.

f) Note adjacent properties, list addresses.

g) Provide a North arrow.

h) Provide a written and graphical scale of plan.

i) Show existing parking and driveways, dimension width.

j) Proposed features, if applicable.

1. List building materials.

2. Provide dimensions for location of improvements.

3. Proposed additional parking, if applicable.

k) Location of trash receptacle (dumpster).

l) Location of all and any utility easement noting width of said easement.

3) Building Floor Plan.

Provide a floor plan, to scale, showing all rooms, fixed appliances, windows, doors and the location of any emergency related improvements such as fire extinguishers, smoke alarms, etc.

4) Flood Hazard Areas.

a) If the property is located in an area subject to flooding, as depicted on the Flood Insurance Rate Map (FIRM), panel 264 or 327 of 355, prepared by the Federal Emergency Management Agency, with respect to the Borough of Freemansburg, then the property must also include the first floor elevation, as determined by a Professional

Engineer and/or a Licensed Surveyor, of the Commonwealth of Pennsylvania. Plan must be signed and sealed by said professional and the information used to establish said information must be listed on said plan.

b) Flood Hazard and finished floor elevations information may be available from existing borough records. The applicant should contact the Borough Manager to see if such information is available. If available, this information will be provided to the applicant to it can be listed on their plan.

Required copies: The applicant shall provide ten (10) original signed and sealed plans.

5) Subdivision and Review of Plan.

a) The "Site Plan" shall be submitted to the Borough along with all and any applicable fees, a completed application and any other required data.
b) The Borough Engineer shall review said plan and shall submit to the planning commission written comments for consideration.

c) A copy of said plan shall be forwarded to the borough's Fire Marshal for review and comment. The Fire Marshal shall conduct an inspection of said premises and shall provide the borough with a written report of said inspection listing all any and deficiencies noted during said inspection. The applicant shall correct all deficiencies noted. The borough shall not issue a Certificate of Occupancy until all deficiencies are corrected and the site plan is ultimately approved by borough council. The applicant may also be required to obtain a Certificate of Occupancy from the Building Code Official which required a separate application and inspection through the Codes Official's Office.

d) The Freemansburg Planning Commission shall review said plan and shall offer comments to the applicant. In addition, the planning commission may request that the property be inspected by an official from the borough fire department. Required plan changes, resulting from meeting with the planning commission, shall be incorporated into the plan and resubmitted.

e) Once the planning commission has completed their review of the plan the planning commission shall make a recommendation to borough council to approve, approve with conditions or deny said application.

6) Recording of Plan.

a) The applicant shall provide three (3) original signed and sealed plans for recording. The plans shall contain original signatures of the owner and a notary seal and signature.

b) The plans shall be taken by the borough solicitor's office and recorded at the Northampton County Courthouse.

c) Based upon the proposed use, the planning commission may determine that there is no need to record said plan.

SECTION III
PLAN REQUIREMENTS

300 Feasibility Review

301 The feasibility review submission shall include the following maps and materials.

1) A key map, for the purpose of locating the property being subdivided, drawn at a scale not smaller than one (1) inch equals two thousand (2,000) feet and showing the relation of the property, differentiated by tone or pattern, to adjoining property and to all streets, roads and municipal boundaries existing within one quarter (1/4) mile of any part of the property, unless otherwise approved by the borough engineer. The key map may be based on USGS quad sheet maps.

2) A map illustrating an analysis of natural drainage patterns and water resources within the proposed subdivision tract, including delineation of streams, natural drainage swales, ponds and lakes, wetlands, flood plains subject to a one hundred (100) year flood frequency, and permanent and seasonal high water table areas. The map shall be based on USGS quad sheets, County Soil Survey Maps, and the flood boundary and floodway map from the Municipal Flood Insurance Study, when available.

3) A topographic map of the site based on USGS quad sheets.

4) A map delineating additional significant physical features within the proposed subdivision tract, such as woodland areas, large trees, rock outcroppings and scenic views. The map may be based on USGS quad sheets and on-site survey work.

5) Where feasible and legible, the analysis involved in *Sections 301 (1) through 301 (4)* may be illustrated on one or a combination of composite maps. The combined impact of the natural characteristics upon the development potential of the tract shall be clearly illustrated on the map or maps.

6) A letter of intent and a sketch of the proposed subdivision or land development tract at a scale of one (1) inch equals fifty (50) feet, or appropriate scale as requested by the Borough Engineer, explaining and

illustrating the developer's general development concepts for the tract. The type of development, density of development, form of ownership, circulation patterns, and means of providing major utility service should be explained and illustrated. The sketch may be based on deed and tax map information.

310 Preliminary Plan

311 The Preliminary Plan of a proposed subdivision or land development shall be clearly and legibly drawn at one of the following scales:

1) One (1) inch equals fifty (50) feet;

2) One (1) inch equals forty (40) feet;

3) One (1) inch equals twenty (30) feet;

4) One (1) inch equals ten (20) feet; and

5) One (1) inch equals ten (10) feet.

6) Or other as pre-approved by the Borough Engineer

312 The original drawing and all submitted prints shall be made on sheets of one of the following sets of dimensions:

1) Eighteen (18) inches by twenty-four (24) inches;

2) Twenty-four (24) inches by thirty-six (36) inches. If the applicant is not the owner of record then the applicant must submit documentation to the Borough Solicitor showing that the applicant has authorization from the owner to present said plan;

313 If the Preliminary Plan requires more than one sheet, a key diagram illustrating relative location of the several sections shall be drawn on each sheet.

314 The Preliminary Plan shall indicate the following data:

1) Name and address of record owner;

2) Name of developer if different from owner;

3) Name of the proposed subdivision;

4) Name of the municipalities within which subdivision is proposed; if additional to the Borough of Freemansburg.

5) Names of all adjoining subdivisions, if any, and the names of owners of all adjacent unplatted land;

6) Name, address, license number, and seal of the professional engineer and/or registered surveyor responsible for the subdivision plan. All land surveys shall include a signed ~~a~~ statement, signed and sealed by the registered surveyor, attesting to the accuracy of the survey.

7) North point, graphic scale, written scale, and date including the month, day and year that the original drawing was completed, and the month, day and year that the original drawing was revised, for each revision;

8) A key map, for the purpose of locating the property being subdivided, drawn at a scale not smaller than one (1) inch equals two thousand (2,000) feet and showing the relationship of the property, differentiated by tone or pattern, to adjoining property and to all streets, roads, and municipal boundaries, within one quarter (1/4) mile of any part of the property, unless otherwise approved by the borough engineer;

9) Total tract boundaries of the property being subdivided showing bearings and distances, and a statement of total acreage of the property;

10) Tax map sheet, block and lot numbers within the proposed subdivision tract obtained from the county tax assessor's office;

11) The zoning district or districts within which the proposed subdivision is located and a table listing all required and proposed setbacks, lot area and other dimensional regulations;

12) All existing buildings or other structures within the proposed subdivision tract;

a) Any existing building which is encroaching upon a property line, easement and/or a required setback shall provide dimensions showing the extent of said encroachment;

13) All existing streets, including streets of record (recorded but not constructed), on or adjoining the tract, including names, right-of-way widths, and pavement widths;

14) All existing sewer lines, septic systems, storm sewers, water lines, wells, fire hydrants, utility transmission lines, culverts, bridges, railroads, other man-made features, watercourses and wetlands within the proposed subdivision tract and immediately adjacent to the subdivision tract;

15) Location, width, and purpose of existing easements and utility rights-of-way within the proposed subdivision tract;

16) Contour lines at vertical intervals of not more than two (2) feet for land with average natural slope of five percent (5%) or less, at intervals of not more than five (5) feet for land with average natural slope exceeding five percent (5%) and at intervals of not more than ten (10) feet for land with average natural slope exceeding twenty five percent (25%). Location and elevation of the data to which contour elevations refer shall be the closest United States Geologic Survey established benchmark, where available;

17) A signature block for the Borough of Freemansburg Planning Commission and Borough of Freemansburg Council approval of the subdivision, see *Section 540*;

18) A signature block for the Lehigh Valley Planning Commission approval of the subdivision, see *Section 540*;

19) The owner's statement, executed the statement before a notary public, shall acknowledge that the plat of land is in peaceful possession and there are no suits pending affecting title of same - see *Section 540*;

20) Proposed locations of wells (if any), proposed locations of subsurface disposal fields and alternate fields (if any), and the locations of percolation test holes and soil probe pits (if any);

21) A signature block, executed by the applicant, authorizing the Borough of Freemansburg staff and the Borough Engineer to enter upon and inspect the site for the purposes of conducting a review and determining consistency with the requirements of the Borough of Freemansburg shall be provided, see *Section 540*;

22) Significant natural features including but not limited to flood plains, ponds and lakes, wooded areas, trees greater than eight (8) inches in caliper and any existing or repaired sinkhole. Flood plain information shall delineate the bounds of the 100 year flood plain, floodway and flood fringe.

23) When a property is located within an existing flood plain the first floor elevation for all existing buildings shall be noted on the plan. In addition, a field benchmark shall be established on site and said benchmark shall be based upon the flood plain study benchmark used to establish these elevations.

315 The full plan of proposed development, including:

1) Location and width of all streets and rights-of-way, with a statement of any conditions governing their use;

2) Suggested street names;

3) Utility easement locations;

4) Building setback lines along each street;

5) Lot lines with approximate dimensions;

6) A statement of the intended use of all non-residential lots and parcels;

7) Lot numbers, a statement of total number of lots and parcels and the lot size in square feet or acres for each lot;

8) Sanitary and/or storm sewers (and other drainage facilities), with the size and material of each indicated, and any proposed connections with existing facilities;

9) Parks, playgrounds and other areas dedicated or reserved for public or common use, with any conditions governing such use;

10) Location, width, and purpose of proposed easements and utility rights-of-way;

11) Copies of the proposed deed restrictions and protective and restrictive covenants referenced to the Preliminary Plan;

12) A contour grading plan.

316 The Preliminary Plan shall be accompanied by the following supplementary data unless the Borough Engineer has determined that the submission of such data is not necessary:

1) Preliminary profiles, typical cross-sections and specifications for proposed street, sanitary sewer, water system improvements, and storm drainage in accordance to the design standards of Sections *430*, *440*, *450* and *460*, respectively.

2) A storm drainage plan for the proposed subdivision tract which includes the following in addition to the requirements of *Sections 314* and *315*:

a) A narrative with a general description of the proposed subdivision and/or land development and a general description of proposed permanent storm water controls.

b) Maps of the project area showing:

1. Soil types and boundaries based on the Northampton County Soil Survey.

2. Proposed structures, paved areas and buildings.

3. Storm Water Management District boundaries applicable to the site.

4. A schematic showing all tributaries contributing flow to the site and all existing man-made features beyond the property boundary that would be affected by the project.

c) Storm water management controls.

1. All storm water management controls must be shown on a map and described, including:

i. Groundwater recharge methods such as seepage pits, beds or trenches. When these structures are used, the locations of septic tank infiltration areas and wells must be shown.

ii. Other control devices or methods such as roof-top storage, semi-pervious paving materials, grass swales, parking lot ponding, vegetated strips, detention or retention ponds, storm sewer, etc.

iii. All calculations, assumptions and criteria used in the design of the control device or method must be shown.

3) A landscape plan, where applicable, according to the standards set forth in *Section 492 (4)*, Landscaping and Street Trees;

4) In the case of subdivisions or land development plans to be developed in stages or sections, over a period of time, a map delineating each stage or section of the proposed subdivision or land development consecutively numbered so as to illustrate phasing of development and a schedule indicating the approximate time for which application for final approval of each stage or section are intended to be filed;

5) Preliminary designs of any bridges or culverts which may be required. Such designs shall meet all applicable requirements of the Pennsylvania Department of Environmental Protection (PaDEP) - Division of Dams and Encroachments and/or the Pennsylvania Department of Transportation (PennDOT);

6) A map illustrating the entire contiguous holdings of the landowner indicating the area or scope of ultimate proposed subdivision and delineating the area which the Preliminary Plan encompasses;

7) A sketch map of the proposed road system for the remainder of the area not included in the Preliminary Plan;

8) When water service to the proposed subdivision is to be provided by an existing public system, the developer shall submit one (1) copy of a letter from the City of Bethlehem which agrees to extend water service, subject to the execution of a service agreement.

9) Certification of sewage disposal systems.

   a) When sewage disposal service to the proposed subdivision is to be provided by the existing public system, the developer shall obtain, from the City of Bethlehem, a letter stating that the existing facilities have adequate conveyance and treatment capacity and that the city agrees to provide sewer service subject to the execution of a service agreement.

   b) When sewage disposal service for the proposed subdivision is to be by individual on-lot sewage disposal systems, the applicant shall submit two (2) copies of the Municipal Sewage Enforcement Officer's (SEO) approval of the planning module.

10) The entire borough limits of the Borough of Freemansburg is located within Carbonate Geology. Therefore, the following provisions shall apply:

   a) A recognized professional with competence in the field shall review aerial photographs, soils, geologic and other related data available to him or her, as the data relates to the subject property. The professional shall also conduct a site inspection of the property.

   b) Based on the work required in *Section 316(10)(a)*, the professional shall prepare a map of the site showing all karst features or feature indicators. The mapping shall indicate, but shall not be limited to, the following features:

      1. Closed depressions;

      2. Open sinkholes;

      3. Seasonal high water table indicators;

      4. Outcrops of bedrock;

5. Unplowed areas in plowed fields;

6. Surface drainage into ground;

7. "Ghost Lakes" after rainfall and/or closed depressions.

c) Based upon the work performed in *Section 316(10)(a)* and *(b)*, the professional shall determine what further testing should be done by the applicant to ensure compliance with the performance standards set forth in *Section 494*. Testing methodology shall be reasonable under the circumstances, including (1) the scale of the proposed development, and (2) the hazards revealed by examination of available data and site inspection.

d) The applicant shall cause the additional testing established in *Section 316(10)(c)* to be done. The test results shall be included with the submission and shall be referred to the Borough of Freemansburg reviewer, who shall be a recognized professional with competence in the field.

e) The Borough of Freemansburg reviewer shall report to the Borough of Freemansburg with a copy to the landowner, his or her opinion as to the adequacy of the study and as to the capability of the site to support the proposed development in a manner in which the risks attendant to development in carbonate areas are either eliminated or minimized. Recommendations for site development including storm water management, the layout of utility lines, and building location may be included. Additional studies or testing as deemed necessary by the Borough of Freemansburg reviewer in order to produce an adequate study given the scale of the proposed development and the hazards revealed, may be required of the applicant.

11) If the subdivision or land development includes wetlands or hydric soils, the applicant shall submit either a written determination from the U.S. Army Corps of Engineers that the area does not contain wetlands, or copies of permits for the proposed activity from the U.S. Army Corps of Engineers pursuant to Sections 9 and 10 of the River and Harbor Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection Research and Sanctuaries Act and from the Pa. Department of

Environmental Protection pursuant to the Dam Safety and Encroachments Act. A copy of any wetlands study prepared for the property, including a study prepared for the use of the U.S. Army Corps of Engineers or the Pa. Department of Environmental Protection shall be submitted.

12) A traffic impact study and report shall be required for proposed developments that meet one or more of the following criteria:

Residential:	50 or more dwelling units
Commercial:	A commercial building or buildings consisting of 20,000 sq. ft. or more of total floor area
Office:	A development consisting of 50,000 sq. ft. or more of total floor area
Industrial:	A development consisting of 100,000 sq. ft. or more of total floor area
Other:	A use generating 500 or more trips per day as determined by generation rates published by the Institute of Transportation Engineers

Traffic Impact Study. The study will enable the Commission to assess the impact of a proposed development on the traffic system. Its purpose is to ensure that proposed developments do not adversely affect the traffic network and to identify any traffic problems associated with access from the site onto the existing roads. The study's purpose is also to delineate solutions to potential problems and to present improvements to be incorporated into the proposed development. Traffic impact reports shall be based on the following criteria:

a) General Site Description. The site description shall include the size, location, proposed land uses, construction, staging and completion date or types of dwelling units. A brief description of other major existing and proposed land developments within one-half mile of the proposal which shall constitute the study area.

b) Traffic Facilities Description. The description shall contain a full documentation of the proposed internal and existing highway system. The report shall describe the external roadway system within the area. Major intersections in the area shall be identified and diagrammed. All future highway improvements which are part of proposed surrounding developments shall be noted and included in the calculations.

c) Existing Traffic Conditions. Existing traffic conditions shall be measured and documented for all streets and intersections in the area. Existing traffic volumes for average daily traffic, peak highway hour(s) traffic and peak development-generated hour(s) traffic shall be recorded. Traffic counts at major intersections in the study area shall be included in the report. A volume/capacity analysis based upon existing volumes shall be performed during the peak highway hour(s) and the peak development-generated hour(s) for all streets and major intersections in the study area. Levels of service shall be determined for each major road segment and turning movement. Detailed traffic counts of existing local streets are not required, unless the Commission would so require. A tabulation of accident locations during the past 2-year period shall be shown.

d) Traffic Impact of the Development. Estimation of vehicular trips to result from the proposal shall be computed from the average daily peak highway hour(s). Vehicular trip generation rates to be used for this calculation shall be obtained from the Trip Generation Manual, published by the Institute of Transportation Engineers. These development-generated traffic volumes shall be provided for the inbound and outbound traffic movements as estimated, and the reference source(s) and methodology followed shall be documented. All turning movements shall be calculated. These generated volumes shall be distributed to the area and assigned to the existing streets and intersections throughout the area. Documentation of all assumptions used in the distribution and assignment phase shall be provided. Traffic volumes shall be assigned to individual access points. Any characteristics of the site that will cause particular trip generation problems shall be noted.

e) Analysis of Traffic Impact. The total future traffic demand shall be calculated. This demand shall consist of the combination of the

existing traffic expanded to the completion year (straight line projections based on historical data), the development-generated traffic and the traffic generated by other proposed development is anticipated, calculations for each stage of completion shall be made. This analysis shall be performed during the peak highway hour(s) for all roadways and major intersections in the study area. Volume/capacity calculations shall be completed for all major intersections.

All access points shall be examined as to the necessity of installing traffic signals. This evaluation shall compare the projected traffic to State warrant regulations for traffic signal installation.

f) Conclusions and Recommendations. Levels of service for all streets and intersections shall be listed. All streets and/or intersections showing a level of service below C shall be considered deficient, and specific recommendations for the elimination of these problems shall be listed. This listing of recommended improvements shall include, but not be limited to, the following elements: internal circulation design, site access location and design, external roadway and intersection design and improvements, traffic signal installation and operation including signal timing. All physical street improvements shall be shown in sketches.

g) Costs of Needed Projects. Approximate costs for all needed transportation improvements shall be developed within a defined impact area.

h) The project manager for any traffic impact report shall be a professional traffic engineer or transportation planner, who should be a member of the Institute for Transportation Engineering.

i) The Commission may combine contributions for traffic impact studies from more than one applicant to accomplish one major coordinated traffic study.

j) Applicant's Responsibilities. The applicant shall respond to the traffic impact report by stating to what degree he/she is willing to assist in funding any off-site improvements that are needed and to state what on-site improvements he/she proposes.

k) Future Stages of Development. The traffic study shall include not only an analysis of one individual project proposed at one point in time, but also the overall projected impacts of future development of all nearby lands owned by the applicant or that the applicant has an option to purchase. The study shall include a projection of the traffic expected from this development, using reasonable alternatives if no definite plans are available.

l) Other Proposed Development. The study should also take in account traffic that can be expected as a result of other development which has been approved or is being reviewed by the Commission and other development that might reasonably be expected to occur.

320 Final Plans

321 The final plans shall conform to the standards and data requirements set forth for Preliminary Plans in *Sections 311* through *315* of this Ordinance.

322 It shall not be necessary to resubmit supporting maps and data submitted with the Preliminary Plan, as set forth in *Section 316* of this Ordinance, provided that no change has occurred.

323 The following additional data shall be illustrated on the Final Plan:

1) The latest source of title to the land as shown by the deed, page number and book of the County Recorder of Deeds;

2) The total tract boundary lines of the area being subdivided with accurate distances to hundredths of a foot and bearing to fifteen (15) seconds. These boundaries shall be determined by accurate survey in the field, to an error of closure not to exceed one (1) foot in ten thousand (10,000) feet. The tract boundary shall be subsequently closed and balanced. The boundary(s) adjoining additional unplatted land of the subdivider (for example, between separately-submitted Final Plan sections), however, are not required to be based upon field survey, and may be calculated. The location of all boundary line (perimeter) monuments shall be indicated, along with a statement of the total area of the property being subdivided. In addition, the engineer or surveyor shall certify to the

accuracy of the survey, the drawn plan, and the placement of the monuments;

3) All lot lines shall be completely dimensioned in feet if straight, and by designating length of arc and radius (in feet) and central angle (in degrees, minutes, and seconds) if curved. All internal angles within the lots shall be designated to within fifteen (15) seconds;

4) The proposed building setback or the proposed placement of each building;

5) All easements or rights-of-way where provided for or owned by public services and any limitations on such easements or rights-of-way. Rights-of-way shall be shown and accurately identified on the plan. Easements shall either be shown or specifically described on the plan. Easements should be located in cooperation with the appropriate public utilities;

6) Such private deed restrictions as may be imposed upon the property as a condition to sale, together with a statement of any restrictions previously imposed which may affect the title to the land being subdivided;

7) Space shall be left along the lower edge of the sheet, in order that the County Recorder of Deeds may acknowledge receipt and recording of the plan when it is presented;

8) If the Final Plan requires more than one sheet, a key diagram showing the relative location of the several sections shall be drawn on each sheet.

324 The Final Plan shall be accompanied by the following:

1) Plans showing:

a) Location, size and invert elevation of all sanitary sewer, water distribution and storm drainage systems and the location of all manholes, inlets and culverts;

b) Final profiles, cross-sections, and specifications for proposed streets, sanitary sewers, water distribution systems, and storm drainage systems shall each be shown on one or more separate sheets.

2) Documentation from the Sewage Enforcement Officer that each lot has been approved for on-lot sewage systems (where applicable).

3) A copy of the Department of Environmental Protection acceptance or approval of the planning module (where applicable).

4) A copy of the permit granted by the Pennsylvania Department of Environmental Protection for a private centralized sanitary sewer system, where applicable.

5) A copy of the highway occupancy permit for any road or driveway requiring access to a State Legislative Route.

6) A copy of a permit granted by the Pennsylvania Department of Environmental Protection for a private centralized water system (where applicable).

7) Upon approval, a completed and executed copy of the Subdivision Improvements Agreement as agreed upon by the developer and the Borough of Freemansburg. The Borough of Freemansburg shall find, upon review of the executed improvements agreement that the agreement covers all public improvements specified on the subdivision plan, and that the agreement is enforceable. Should the improvements agreement not meet these criteria, this requirement shall be considered to be unmet.

8) A performance guarantee in the amount of one hundred ten (110) percent of the cost of all required improvements, as set forth in Section 520 as estimated in accordance with the provisions set forth in the Municipalities Planning Code as amended, in a form and with surety in accordance with the provisions set forth in the Municipalities Planning Code as amended and acceptable to the Borough of Freemansburg solicitor, guaranteeing the construction and installation of all such improvements within a stated period which shall not be longer than one (1) year from the date of the Final Subdivision Approval. Where the Final Plan is submitted in stages or sections, the amount of the guarantee may also be provided in stages if acceptable to the Borough of Freemansburg Council.

9) A maintenance guarantee in an amount of not less than fifteen (15) percent of the actual cost of the installation of the improvements as set forth in *Section 520*. This guarantee assures the structural integrity of the improvements as well as the functioning of said improvements in accordance with the design and specifications as depicted on the final plat for a period not to exceed eighteen (18) months after the acceptance of all such improvements by the Borough of Freemansburg.

10) An erosion and sedimentation control plan developed in accordance with the standards contained in the Erosion and Sediment Pollution Control Program Manual issued by the Department of Environmental Protection.

11) A legal description of all areas offered for dedication.

12) A copy of an opinion of title from a title insurance company or an attorney which sets forth the names of all owners of the property, and a list of all mortgages, judgments, liens, easements, contracts and agreements of record as filed in the Northampton County Recorder of Deeds Office, which affect the property being acted upon.

13) When public water is provided a letter, from the City of Bethlehem, must be submitted indicating that the design and installation are in accordance with city standards.

325 In the case of a subdivision or land development proposed to be developed in stages or sections over a period of years, Final Plan requirements as listed in *Section 321 through 324* shall apply only to the stage or section for which Final Approval is being sought. However, the Final Plan presented for the stage or section must be considered as it relates to information presented for the entire subdivision or land development in the application for Preliminary Approval.

SECTION IV
DESIGN STANDARDS

400 Application

401 The design standards and requirements outlined in this section will be utilized by the Borough of Freemansburg Planning Commission in determining the adequacy of all plans for proposed subdivisions and land developments.

402 Development shall be planned, reviewed and carried out in conformance with all municipal, state and other applicable laws and regulations.

403 Whenever provisions of this ordinance conflict with the provisions of other ordinances and regulations, the most restrictive provisions shall apply.

410 General Standards

411 Land shall be suited to the purpose for which it is to be subdivided. Land with unsafe or hazardous conditions such as open quarries, unconsolidated fill, steep slopes, or flood prone areas shall not be subdivided unless the subdivision plan provides for adequate safeguards which are approved by the Borough of Freemansburg.

412 Consideration shall be given to applicable provisions of the Borough of Freemansburg Comprehensive Plan and the LVPC's Comprehensive Plan for Lehigh and Northampton Counties, emphasizing future school sites, recreation sites, water supply and sewage treatment systems, highway alignments, and other public facilities. However, consideration must be given to the need for the facilities and utilities mentioned above whether or not they are proposed as part of a comprehensive plan.

413 The development of the proposed subdivision shall be coordinated with adjacent existing development so that the area, as a whole, may develop harmoniously.

414 These design standards and requirements may be altered by the Borough of Freemansburg for the purpose of achieving economy and ingenuity in design in accordance with modern and evolving principles of site planning and

development, upon presentation of evidence that the intent of such standards shall be substantially achieved.

415 All roadway repair and roadway improvements, including cart-way, curb and sidewalk, shall be installed in accordance with PennDOT 408 Standards and in accordance with the Construction Details, provided in Appendix D. These details include:

1) Driveway Access at Depressed Curbs;

2) Typical Roadway Cross-Section – Local Road;

3) Typical Roadway Cross-Section – Collector Road;

4) Typical Roadway Cross-Section – Arterial Road;

5) Bituminous Pavement Removal and Repair within Existing Municipal Streets;

6) Trench Backfill and Temporary Paving Detail;

7) Bituminous Driveway Pavement Repair;

8) Elevation View of Existing Curb Replacement for Driveway Crossover.

All roadway pavements shall be PennDOT Superpave Design mixes and shall include PG 64-22 Performance Graded Binders with EASL Design appropriate for the intended use. All proposed designs shall be submitted to the Borough Engineer for review and approval prior to installation.

416 Handicapped Access: Handicapped ramp access shall be provided at every street intersection in accordance with the latest Code of Federal Regulations, ADA Standards for Accessible Design. In addition to providing access at every street intersection access shall also be provided at mid-block in any block with a length exceeding 1000 feet, or at increments not exceeding 500 feet.

420 Block and Lot Design Standards

421 Block Layout

1) The length, width and shape of blocks shall be determined with due regard to:

   a) Provisions of adequate sites for buildings of the type proposed;

   b) Municipal zoning requirements;

   c) Topography;

   d) Requirements for safe and convenient vehicular and pedestrian circulation, including the reduction of intersections with arterial streets;

422 Block Length

1) Residential blocks shall ordinarily be no less than two hundred fifty (250) feet in length and no more than seven hundred fifty (750) feet in length.

2) In the design of blocks longer than five hundred (500) feet, special consideration shall be given to the requirements of satisfactory fire protection.

3) Where practicable, blocks along arterial and collector streets shall not be less than seven hundred fifty (750) feet in length.

423 Block Depth

1) Single family residential blocks shall be of sufficient depth to accommodate two tiers of lots; except the Borough of Freemansburg may approve a single tier of lots in the following cases:

   a) Where reverse frontage lots are required; or

   b) Where two tiers of lots are not possible due to the size, topographical conditions or other inherent conditions of the property.

424 Commercial and Industrial Blocks

1) Blocks in commercial, industrial, multi-family and planned residential developments 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 traffic and pedestrian circulation, off-street parking, and loading areas.

425 General Lot Design Standards

1) Within the requirements of the Borough of Freemansburg Zoning Ordinance, the size, shape and orientation of lots shall be appropriate for the type of development and use contemplated.

2) Insofar as practical, side lot lines shall be at right angles to straight street lines or radial to curved street lines.

3) Where feasible, lot lines shall follow municipal boundaries rather than cross them, in order to avoid jurisdictional problems.

4) Generally, the depth of single family detached residential lots shall be not less than one (1) nor more than three (3) times their width.

5) 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 and landscaping.

6) If, after subdividing, there exists remnants of land, they shall be either:

   a) Incorporated in existing or proposed lots; or

   b) Legally dedicated to public use, if acceptable to the Borough of Freemansburg.

7) The minimum lot size specified for that use in the appropriate district shall be provided in accordance with the Borough of Freemansburg Zoning Ordinance.

426 Lot Frontage

1) All proposed lots shall have frontage on an ordained public street, other than an alley. These requirements shall not apply to individual

condominium units when such units are contained in an approved condominium development.

2) Double or reverse frontage lots may be required to provide separation of residential development from arterial streets or to overcome specific disadvantages of topography or other natural features of the proposed subdivision tract.

3) All residential reverse frontage lots shall have a rear yard with a minimum depth of seventy-five (75) feet, measured along the shortest distance from the proposed dwelling unit to the ultimate right-of-way and shall, within such rear yard and immediately adjacent to the right-of-way, have a planting screen easement of at least ten (10) feet in width, across which there shall be no right of access.

427 Lot Access

1) Direct access onto arterial roads and numbered traffic routes shall be minimized.

a) Direct access onto an arterial road or a numbered traffic route shall be prohibited where adequate alternative access can be obtained from a collector road, local road or alley.

b) Access to two or more abutting residential properties by a shared driveway is prohibited. The minimum separation distance for residential driveways shall be ten (10) feet.

c) A maximum of one access point per property involving a left hand turn exiting a non-residential property onto an arterial road or a numbered traffic route shall be permitted. The minimum separation distance to an existing driveway shall be 300'.

d) Parking lots and internal driveways for non-residential development shall support access management objectives along arterial roads and numbered traffic routes.

1. Shared parking lots and driveways connecting adjacent parking lots for non-residential uses shall be used whenever practical.

2. The distance between the intersection of the access road with the arterial road or a numbered traffic route and the intersection of the access road with other internal access roads shall be maximized to the extent possible.

2) Where access is permitted to a state road or highway, authorization from the Pennsylvania Department of Transportation must be proven by the display of a valid highway occupancy permit. Driveways to single family residences shall intersect streets at angles of no less than sixty (60) degrees. All other driveways or access roads shall intersect streets at right angles, where practicable, and in no case less than seventy-five (75) degrees.

3) Widths of access roads or driveways shall be in accordance with the following standards:

a) Access roads for multi-family residential, mobile home parks and all non-residential subdivisions shall be no less than twenty-four (24) feet in width, shall not exceed thirty (30) feet in width at the street line, and shall be clearly defined by use of curbing;

b) Driveways for single family residential subdivisions shall be no less than ten (10) feet in width but shall not exceed twenty (20) feet in width at the street line.

4) To provide safe and convenient ingress and egress, access road and driveway entrances shall be rounded at the following minimum radii, except when a curb depression is provided in accordance with the Freemansburg Borough Construction Details, see appendix.

a) Access road entrances for multi-family residential developments, mobile home parks, and all non-residential subdivisions shall be rounded at a minimum radius of ten (10) feet;

b) Driveway entrances for single-family residences shall be in accordance with the Driveway Access at Depressed Curb Detail, see appendix, except along legislative routes where a five (5) foot radius is required.

5) Access road grades or driveway grades shall not exceed the following grades:

   a) Twelve (12) percent between the future street right-of-way line and any other point within the confines of the lot being served;

   b) Five (5) percent in a leveling area extending forty (40) feet from the intersection of the access road or driveway with the cartway of the street.

6) The centerline of an access road or driveway at the point of access to a street shall not be located closer to an intersection of street centerlines than the following distances:

   a) Fifty (50) feet for single-family residential units.

   b) For multi-family residential developments, mobile home parks, and all non-residential subdivisions:

   c) One hundred fifty (150) feet if either street is an arterial street;

   d) One hundred (100) feet if either street is a collector street;

   e) Fifty (50) feet if both streets are local streets.

7) Vehicular access shall be available to all lots directly from an ordained public street. This requirement shall not apply to individual condominium units where such units are contained in an approved condominium development.

8) Clear sight triangles shall be provided at all intersections of driveways with streets, except alleys. Clear sight triangles are not required for intersections of driveways with alleys. Within such triangles, no object greater than two and one-half (2½) feet in height and no other object that would obscure the vision of the motorist shall exist or be placed. The triangles shall be measured as follows:

   a) Along the centerline of the driveway from a point twenty (20) feet from where the driveway meets the cartway of the road, to points along the centerline of the road two hundred (200) feet on each side

from the intersecting centerlines of the driveway and road, if the road is classified as a local road.

b) Along the centerline of the driveway, from a point twenty (20) feet from where the driveway meets the cartway of the road, to points along the centerline of the road three hundred (300) feet on each side from the intersecting centerlines of the driveway and road, if the road is classified as a collector or arterial road.

428 Flag lots are not permitted.

430 Street Design Standards

431 General Requirements

1) Proposed streets shall be properly related to the road and highway plans of the state, county and municipality. Streets shall be designed to provide adequate vehicular access to all lots or parcels and with regard for topographic conditions, project volumes of traffic, and further subdivision possibilities in the area.

2) The street system of a proposed subdivision or land development shall be designed to create a hierarchy of street functions which includes collector and local streets.

3) The street system of a proposed subdivision or land development shall be designed so as to minimize street intersections and pedestrian-vehicular conflict points.

4) Proposed local streets shall be designed so as to discourage through traffic and excessive speeds. However, the developer shall provide for the extension and continuation of arterial and collector streets into and from adjoining properties.

5) Where, in the opinion of the Borough of Freemansburg, it is desirable to provide for street access to adjoining property, streets shall be extended by dedication to the boundary of such property. Distances between access points to adjoining property shall be based on block length standards set forth in *Section 422*.

6) Where a subdivision abuts or contains an existing or proposed arterial traffic street, the Borough of Freemansburg may require marginal access streets, reverse frontage lots, or other such treatment as will provide protection for abutting properties, reduction in the number of intersections with the Arterial Street, and separation of local and through traffic.

7) Private streets (streets not to be offered for dedication) may be approved by the Borough of Freemansburg only if they meet the street design and improvement standards set forth in this Ordinance and when they are part of an approved condominium development.

8) If the lots in the development are large enough for re-subdivision, or if a portion of the tract is not subdivided, suitable access and street openings for such an eventuality shall be provided.

432 Street Right-of-Way and Cartway Widths

1) The standards set forth in *Section 432(2)* may be modified by the Borough of Freemansburg when an analysis of proposed development densities, provisions for off-street parking, and projected traffic volumes indicate a need for such modifications. The burden of proof shall be upon the developer to justify the adequacy of rights-of-way or cartway widths which are less than those set forth in *Section 432(2)*.

2) Street right-of-way and cartway widths in proposed subdivisions shall conform to the standards on the following chart:

STREET DESIGN STANDARDS

	Street Classification		
	Local	Collector	Arterial
Right-of-Way Width	50 ft.	50 ft.	80 ft.
Pavement Width	34 ft.	36 ft.	24 - 48 ft.*
Traffic Lane Width	9 ft.	10 ft.	12 ft.
Parking Lane Width	8 ft. (when required)		
Sidewalk Width	4 ft. as per *Section 511.3*		
Curbing	Vertical curb, 18 inches in depth, See *Appendix D*		

* The width shall depend on whether 2 lanes or 4 lanes are provided for traffic.

433 Horizontal Curves

1) Whenever street centerlines are deflected more than five (5) degrees within five hundred (500) feet, connection shall be made by horizontal curves.

2) Horizontal curves shall be designed to produce the following minimum sight distances:

   a) Local streets - one hundred fifty (150) feet;

   b) Collector streets - three hundred (300) feet;

   c) Arterial streets - six hundred (600) feet.

3) A minimum tangent of one hundred (100) feet shall be required between reverse curves on a street and between a curve and a street intersection.

434 Street Grades

1) There shall be a minimum centerline grade on all streets of one percent (1%).

2) Unless approval is obtained from the Borough of Freemansburg upon recommendation from the Borough Engineer, centerline grades shall not exceed the following:

   a) Local streets - twelve (12) percent;

   b) Collector streets - eight (8) percent;

   c) Arterial streets - six (6) percent.

3) Intersections shall be approached on all sides by leveling areas. Such leveling areas shall have a minimum length of seventy-five (75) feet (measured from the edge of the cartway of the intersecting road), within which no grade shall exceed a maximum of four (4) percent.

435 Vertical Curves

1) Vertical curves shall be used in changes of grade exceeding one (1) percent. However, where the curve would be a sag curve, vertical curves shall be used in changes of grade exceeding two (2) percent.

2) Vertical curves shall be designed to meet minimum sight distances according to standards set forth by the American Association of State Highway Officials.

436 Street Intersections

1) Streets shall intersect at right angles whenever practicable. When local streets intersect collector or arterial streets, the angle of intersection at the street centerlines shall in no case be less than seventy-five (75) degrees. No two streets shall intersect with an angle of intersection at the centerlines of less than sixty (60) degrees.

2) Multiple intersections involving the junction of more than two streets shall be prohibited.

3) Two streets intersecting a third street from opposite sides shall either intersect with a common centerline or their centerlines shall be offset according to the following distances:

   a) The two streets shall be separated by a distance of one hundred fifty (150) feet between centerlines measured along the centerline of the street being intersected when all three streets involved are local streets;

   b) The two streets shall be separated by a distance of three hundred (300) feet between centerlines measured along the centerline of the street being intersected when one or more of the streets involved is a collector street;

   c) The two streets shall be separated by a distance of five hundred (500) feet between centerlines measured along the centerline of the street being intersected when one or more of the streets involved is an arterial street.

4) Street curb intersections shall be rounded by a tangential arc with a minimum radius of:

   a) Twenty (20) feet for intersections involving only local streets;

   b) Thirty (30) feet for all intersections involving a collector street;

   c) Forty (40) feet for all intersections involving an arterial street.

5) Street right-of-way lines shall be parallel to (or concentric with) curb arcs at intersections.

6) Clear sight triangles shall be provided at all street intersections. Within such triangles, no object greater than two and one-half (2½) feet in height and no other object that would obscure the vision of the motorist shall exist or be placed. Such triangles shall be established as follows:

   a) Seventy-five (75) feet from the point of intersection of the centerlines of the two streets, along the centerlines of all streets, where both

streets are local streets and the intersection is not controlled by a stop sign or a traffic light.

b) One hundred (100) feet from the point of intersection of the centerlines of the two streets, along the centerlines of all streets, where at least one road is collector road and the intersection is not controlled by a stop sign or a traffic light.

c) One hundred fifty (150) feet from the point of intersection of the centerlines of the two streets along the centerlines of all streets where at least one road is an arterial street and the intersection is not controlled by a stop sign or a traffic light.

d) Along the centerline of the street where movement is controlled by a stop sign, from a point twenty (20) feet from where the cartways of the two roads meet, to points two hundred (200) feet on each side from the point where the centerlines of the two roads meet along the other road, if both roads are classified as local roads.

e) Along the centerline of the street whose movement is controlled by a stop sign from a point twenty (20) feet from where the cartways of the two roads meet, to points three hundred (300) feet on each side from the point where the centerlines of the two roads meet along the other road, if at least one road is classified as a collector or arterial road.

7) Wherever a portion of the line of such triangles occurs within the proposed building setback line, such portion shall be shown on the Final Plan of the subdivision, and shall be considered a building setback line.

437 Cul-de-sacs

1) Dead-end streets are prohibited unless designed as cul-de-sac streets or designed for future access to adjoining properties.

2) Any dead-end street which is constructed for future access to an adjoining property or because of authorized stage development, and which is open to traffic and exceeds two hundred (200) feet in length, shall be provided with a temporary, all-weather turning circle or cul-de-sac. The turning circle or cul-de-sac shall be completely within the

boundaries of the subdivision and the use of the turnaround shall be guaranteed to the public until such time as the street is extended.

3) Cul-de-sac streets, permanently designed as such, shall not exceed seven-hundred fifty (750) feet in length and shall not furnish access to more than ten (10) dwelling units. In the case of industrial parks, a cul-de-sac shall not furnish access to more than one hundred (100) employees. Exemptions from these requirements may be granted where necessary due to unique characteristics of the site.

4) All cul-de-sac streets, whether permanently or temporarily designed as such, shall be provided at the closed end with a fully-paved turning circle. The turning circle may be offset to the left, but turnarounds offset to the right shall be discouraged.

   a) If parking will be prohibited on the turning circle, the minimum radius to the pavement edge or curb line shall be forty (40) feet and the minimum radius of the right-of-way shall be forty-eight (48) feet.

   b) If parking will be permitted on the turning circle, the minimum radius to the pavement edge or curb line shall be fifty (50) feet and the minimum radius of the right-of-way line shall be fifty-eight (58) feet.

5) The centerline grade on a cul-de-sac street shall not exceed twelve (12) percent, and the grade of the diameter of the turnaround shall not exceed five (5) percent.

438 Half Streets

1) The dedication of new half streets at the perimeter of a new subdivision is prohibited.

2) The subdivider shall provide the entire required right-of-way, or as much thereof as is possible, within his property, along all existing streets which traverse or abut the property.

439 Street Names and Street Signs

1) Proposed streets, which are in alignment with others already existing and named streets, shall bear the name of the existing streets.

2) In no case shall the name of a proposed street duplicate an existing street name in the municipality and in the postal district, irrespective of the use of the Suffix Street, road, avenue, boulevard, driveway, place, court or lane.

3) All street names shall be subject to the approval of the Freemansburg Borough Planning Commission and the Lehigh Valley Post Office.

4) Street signs shall be provided at the intersection of all streets. The type, height and design shall be according to the provisions of *Section 510(9)*.

440 Sanitary Sewage Disposal

441 The developer shall provide the most effective type of sanitary sewage disposal consistent with the Borough of Freemansburg's official plan for sewage facilities prepared in accordance with the Pennsylvania Sewage Facilities Act (Act 537) and Chapter 71 of the Pennsylvania Department of Environmental Protection Regulations.

442 Connection to a public sanitary sewer system shall be required where such a system is proposed by the Borough of Freemansburg's official plan for sewage facilities, can feasibly be provided to the proposed subdivision tract, and where such a system can adequately fulfill the sewage disposal needs of the subdivision or land development.

443 Where a public sanitary sewer system is not yet accessible to the site, but is planned for extension within a five (5) year period, the developer shall install sanitary sewer lines within the subdivision boundary to the point where the future connection to a public sewer system will be made. Lateral connections shall be constructed for all lots. Connections shall be available in the structures so as to allow the switch from the use of on-lot systems to the public system. Such sewer systems shall be capped until ready for use. On-lot disposal facilities shall be provided for interim use.

444 In subdivision/land developments where connection to a public sewage system is not possible, on-lot sewage disposal systems shall be provided in accordance with the Pennsylvania Sewage Facilities Act, Chapter 73 of DEP Regulations, and the requirements of the Municipal Sewage Enforcement Officer. Each lot shall be provided with a tested, approved primary and secondary absorption area.

445 Sanitary sewerage systems shall be located and designed to minimize or eliminate flood damage, infiltration of flood waters into the system, and discharges from the system into flood waters.

446 On-lot sewage disposal systems shall be located and designed to avoid impairment or contamination from flooding.

450 Water Supply and Distribution Systems

451 The developer shall provide a water supply and distribution system to service the proposed subdivision through one of the following methods:

1) Connection shall be made to a public water supply system where such a system can feasibly be provided to the proposed subdivision tract and where the capacity of such a system can adequately fulfill the water supply demands of the proposed subdivision. A distribution system shall be designed to furnish an adequate supply of water to each lot.

2) Where a public water supply system is planned to serve the proposed subdivision area within ten (10) years, a centralized water system will be provided by the developer if the subdivision involves five (5) or more dwelling units unless the average residential lot size is one acre or larger. Whenever such a system is provided, the water distribution lines shall be dedicated to the appropriate public authority and the authority will acquire other parts of the water supply system such as wells, pumps and storage tanks that can be integrated into the public water system. This will take place after the improvements are completed so that the system can be operated by the public authority. Also, such a system shall be designed and constructed in a manner that will permit adequate connection to a public water supply system in the future. The system shall meet the design and construction standards for the City of Bethlehem and centralized water systems set forth in Appendix A.

3) Where a public water supply is not proposed in the area of the proposed subdivision within ten (10) years, the developer shall provide a centralized water system if the subdivision involves five (5) or more lots and the average residential lot size is less than one (1) acre. The system shall meet the design and construction standards for the City of Bethlehem and centralized water systems set forth in Appendix A.

4) All centralized water systems that remain privately owned shall be organized in a manner as to fall within the jurisdiction of the Pennsylvania Public Utility Commission.

5) Water supply systems shall be located and designed to minimize or eliminate infiltration of flood waters so as to meet Federal Insurance Administration provisions.

460 Storm Drainage Systems

461 Storm drainage systems shall be provided in order to:

1) Ensure adequate drainage of all low points along the line of streets;

2) Intercept stormwater runoff along streets at intervals related to the extent and grade of the area drained;

3) Provide positive drainage away from on-site sewage disposal systems;

4) Take surface water from the bottom of vertical grades, lead water from springs, and avoid excessive use of cross-gutters at street intersections and elsewhere;

5) Prevent overloading of downstream drainage systems and watercourses as a result of increased rate of runoff caused by the proposed development. No stormwater runoff or natural drainage shall be so diverted as to overload existing drainage systems, or create flooding or the need for additional drainage structures on other private properties or public lands, without approved provisions being made by the developer for properly handling such conditions.

462 General Requirements

1) A site drainage plan for the proposed subdivision tract shall be prepared which illustrates the complete drainage systems for the subdivision. All existing drainage features which are to be incorporated in the design shall be so identified. If the subdivision is to be developed in stages, a general drainage plan for the entire subdivision shall be presented with the first

stage and appropriate development stages for the drainage system shall be indicated.

2) The site drainage plan for the proposed subdivision shall meet the requirements of the Act 167 Storm Water Management Ordinance as included in Appendix B.

3) Drainage facilities that are located on State highway rights-of-way shall be approved by the Pennsylvania Department of Transportation and a letter indicating such approval shall be directed to the Borough of Freemansburg.

4) All streets shall be designed so as to provide for the eventual discharge of surface water away from their rights-of-way.

5) Where detention facilities are included as part of the storm drainage system, the developer shall demonstrate that such ponds are designed, protected and located to assure that public safety is maximized and health problems are prevented;

6) Storm drainage systems shall be provided to permit unimpeded flow in natural watercourses except as modified by storm water detention facilities or open channels consistent with this Ordinance.

7) The existing points of concentrated drainage discharge onto adjacent property shall not be altered without written approval of the affected property owner(s).

8) Areas of existing diffused drainage discharge onto adjacent property shall be managed such that, at minimum, the peak diffused flow does not increase in the general direction of discharge, except as otherwise provided in this Ordinance. If diffused flow is proposed to be concentrated and discharged onto adjacent property, the developer must document that there are adequate downstream conveyance facilities to safely transport the concentrated discharge or otherwise prove that no harm will result from the concentrated discharge. Areas of existing diffused drainage discharge shall be subject to any applicable release rate criteria in the general direction of existing discharge whether they are proposed to be concentrated or maintained as diffused drainage areas.

9) Where a site is traversed by watercourses other than those for which a 100-year floodplain is defined by the municipality, there shall be provided drainage easements conforming substantially to the line of such watercourses. The width of any easement shall be adequate to provide for unimpeded flow of storm runoff based on calculations made in conformance with *Section 304* for the 100-year return period runoff and to provide a freeboard allowance of one-half (0.5) foot above the design water surface level. The terms of the easement shall prohibit excavation, the placing of fill or structures, and any alterations which may adversely affect the flow of storm water within any portion of the easement. Also, periodic maintenance of the easement to ensure proper runoff conveyance shall be required. Watercourses for which the 100-year floodplain is formally defined are subject to the applicable municipal floodplain regulations.

10) When it can be shown that, due to topographic conditions, natural drainage swales on the site cannot adequately provide for drainage, open channels may be constructed conforming substantially to the line and grade of such natural drainage swales. Capacities of open channels shall be calculated using the Manning equation.

11) Storm drainage facilities and appurtenances shall be so designed and provided as to minimize erosion in watercourse channels and at all points of discharge.

12) Consideration should be given to the design and use of volume controls for storm water management, where geology and soils permit. Areas of suitable geology for volume controls shall be determined by the Borough of Freemansburg. Documentation of the suitability of the soil for volume controls shall be provided by the applicant. Volume controls shall be acceptable in areas of suitable geology where the soils are designated as well drained in the County Soil Survey. Other soils may be acceptable for use of volume controls based on site-specific soils evaluations provided by the applicant.

13) Conveyance Swales shall be designed to the standards of Channel Design, as found in the Erosion and Sediment Pollution Control Program Manual with the exception that the design storm for the swale capacity shall be the 50 year storm. In addition, all Conveyance Swales shall be within an

easement of sufficient width to allow for maintenance access of twelve (12) feet on one side. Therefore, this access easement shall have an overall width of twelve (12) feet plus the top width of the swale.

463 Improvement Specifications

1) Inlets shall be designed and located to prevent hazardous conditions for vehicles, bicycles or pedestrians. All inlet grates shall be bicycle safe and all inlets shall be labeled with a "Rain Only – Drains to River" decal meeting the state's requirements for the MS4 program.

2) All inlets shall provide notification to the public that no liquids are to be poured down the inlet. This notification shall be provide by either a) having cast into the inlet grate the words, "Pour no liquids, drains to river"; or b) by providing a weather proof decal, attached to the curb face of the inlet top that states, "Pour no liquids, drains to river". Selected option shall be in accordance with the Borough's latest MS4 Ordinance requirements, and shall be presented to borough council for review and approval.

3) The minimum pipe size shall be eighteen (18) inches and all pipe shall be designed to have a pipe flowing full velocity (Mannings) not less than three (3) feet per second and not more than fifteen (15) feet per second.

4) All pipe shall be either Class III, or better, Reinforced Concrete Pipe (RCP) with a minimum cover as specified by the pipe manufacturer for the size of the pipe, or High Density Polyethylene Pipe (HDPE) Pipe with a minimum cover as specified by the pipe manufacturer for the size of the pipe. All measurements are from the top of the bell of a pipe to the top of the proposed surface and in accordance with the following table:

Pipe Material	Diameter of Pipe			
	18"	24"	36"	48"
Required Minimum Cover for Class III RCP	16"	15"	10"	6"
Required Minimum Cover for ADS N-12 HDPE *	12"	12"	12"	12"
* For installations under flexible pavements minimum cover must also include 6" of Structural Backfill (compacted Class I, II or III Material)				

5) Inlets designed at a street low point shall consist of double inlets. The maximum spacing along a street shall be four-hundred (400) feet and/or a maximum drainage area of one (1) acre. All inlets with a depth greater than four (4) feet shall be equipped with access rungs.

6) All stormwater headwalls shall be equipped with a safety grate consisting of horizontal bars spaced six (6) inches on center.

7) The Borough Engineer will supply additional specifications which may be necessary for spacing and type of inlets and manholes, minimum pipe sizes and materials and construction methods.

8) All pipes, roadside swales and inlet systems shall be designed to convey the 25 year storm. Culverts under bridges shall be designed to carry a 50 year storm. All conveyance swales shall be designed to convey the 100 year storm, with the flow of such a storm contained within the drainage easement lines.

464 Maintenance

1) If the lands of the proposed subdivision or land development will remain in common ownership, the developer will identify the proposed owner of the control facilities and provide written assurances that the control facilities will be properly maintained. The maintenance shall include, but not be limited to, grass mowing, sediment cleaning, repair of eroded areas, and repair of damaged structures.

2) If the lands of the proposed subdivision or land development will be conveyed to two or more separate owners, the developer shall either identify the proposed owner of the control facilities and provide written assurances that the control facilities will be properly maintained, or shall dedicate the land on which the control facilities are located to the municipality which shall then be responsible for maintaining the control facilities. The maintenance shall include, but not be limited to grass mowing, sediment cleaning, repair of eroded areas, and repair of damaged structures.

470 Underground Utilities and Utility Easements

471 In accordance with the Pennsylvania Public Utility Commission Investigation Docket No. 99, as amended from time to time, all electric utility distribution lines shall be installed underground in subdivisions or land developments. In addition, the following design requirements shall be observed:

1) Established public utility and state and Federal governmental agency design standards shall be observed in preparing the utility plan;

2) Utility lines to be installed within street rights-of-way shall be located according to municipal or municipal authority requirements;

3) Whenever practicable, telephone and cable TV utilities shall be installed underground in connection with the installation of electric utility distribution lines;

4) Street lighting, where required, shall be provided at each intersection of the development and at intervals not to exceed two hundred (200) feet between intersections;

5) Utility lines shall be installed at the rough grade phase of construction. Utility lines shall be installed according to their depth, with the utility line installed at the greatest depth being installed first.

472 Utility Easements

1) Utility easements shall be provided for all utility lines servicing the abutting lots when such utility lines are installed outside street rights-of-way. No structures or trees shall be placed within such easements. The location of utility easements shall be acceptable to the appropriate public utility or municipal authority.

2) Whenever practicable all utility lines to be installed outside street rights-of-way shall share a common utility easement.

3) Utility easements shall be located either:

a) Abutting the street right-of-way. In this case a minimum easement width of ten (10) feet shall be required;

b) Along rear or side lot lines. In this case a minimum easement width of twenty (20) feet, ten (10 feet on each side of the lot line, shall be provided. Where the lot line coincides with the subdivision boundary a minimum easement width of fifteen (15) feet may be required by the Borough of Freemansburg.

473 Petroleum and Natural Gas Transmission Lines

1) No company intending to install any petroleum, petroleum product or natural gas transmission line shall be allowed to construct the line on less than a fifty (50) foot right-of-way. Such lines are to be installed in the center of the right-of-way, and shall comply with the applicable standards imposed by State and Federal laws and regulations.

2) There shall be a minimum distance of twenty-five (25) feet, measured from the right-of-way line, between any proposed dwelling unit and any petroleum, petroleum products or natural gas transmission line which traverses the subdivision.

474 Flood proofing

1) Facilities for gas, electric and communication utilities shall be in compliance with the most current PA Statewide Building / Uniform Construction Code regulations to a level at least one (1) foot above the 100-year flood elevation, and in accordance with the most current Freemansburg Borough Flood Plain Ordinance.

480 Mobile Home Parks

481 Applicable Standards and Requirements

1) The design and development of mobile home parks shall conform to all the general standards and requirements set forth for subdivision and land developments in this Ordinance in addition to the specific design standards set forth herein (*Section 480*).

482 Permits

1) It shall be unlawful for any person to construct, alter, or extend any mobile home park or any of the facilities thereof within the limits of the

municipality unless such action has been approved by the Borough of Freemansburg.

2) Mobile home park expansions, constructions and alterations shall be approved by the Borough of Freemansburg only after all requirements of this Ordinance are met.

483 Off-Street Parking Areas

1) Off-street parking areas shall be provided in all mobile home parks for the use of park occupants and guests. A minimum of two-and one half (2-1/2) off-street parking places for each mobile home unit shall be required.

2) Required car parking spaces shall be so located as to provide convenient access to the mobile home, but shall not exceed a distance of two hundred (200) feet from the mobile home that they are intended to serve.

484 Pedestrian Walkways

1) All parks shall provide safe, convenient, all-season pedestrian access between individual mobile homes, the park streets, and all community facilities provided for park residents. Sudden changes in alignment and gradient shall be avoided.

2) Where a common walk system is provided and maintained between locations, and where pedestrian traffic is concentrated, such common walks shall have a minimum width of four (4) feet.

3) All mobile home stands shall be connected to common walks, streets, driveways or parking spaces connecting to a paved street. Such individual walks shall meet current ADA requirements.

485 Mobile Home Siting

1) Mobile Home Stand Construction

a) The area of the mobile home stand shall be improved to provide an adequate foundation for the placement of the mobile home.

b) The stand shall be constructed from either concrete, asphalt concrete or other material sufficient to adequately support the mobile home and to prevent abnormal settling or heaving under the weight of the home. The corners of the mobile home shall be anchored to prevent wind overturn and rocking with tie-downs such as concrete "dead men", screw augers, arrowhead anchors, or other devices suitable to withstand a tension of at least two thousand eight-hundred (2,800) pounds.

c) After a mobile home has been anchored to the mobile home stand, the hitch which is employed for the transportation of the unit shall be removed, and there shall be a decorative skirt installed around the base of the unit.

d) The area of the mobile home stand shall not be permitted in the 100-year flood plain.

486 Common Open Space

1) At least twenty (20) percent of the usable site area of the mobile home park must be in common open space. The usable site area is that area which is free of water surfaces, severe high water table, quarries, or slopes over twenty (20) percent.

2) Whenever possible, the common space shall be designed as a contiguous area with pedestrian and visual accessibility to all residents of the mobile home park.

3) Recreation areas and facilities shall be provided to meet the anticipated needs of the residents of the park. Not less than ten (10) percent of the usable site area shall be devoted to recreation. Recreation areas shall be of a size, shape and relief that is conducive to active play.

487 Utilities

1) Water Supply

a) All mobile home parks shall be connected to the public water supply and distribution system upon construction or expansion. The

availability of service shall be certified in accordance with the provisions of *Section 450*.

b) Individual Water Connections

1. Individual water-riser pipes shall be located within the confined area of the mobile home stand at a point where the water connection will approximate a vertical position, thereby insuring the shortest water connection possible and decreasing susceptibility to water pipe freezing.

2. The water-riser pipe shall have a minimum inside diameter of three-quarter (¾) inch and terminate at least four (4) inches above the ground surface. The water outlet shall be provided with a cap when the mobile home does not occupy the lot.

3. Adequate provisions shall be made to prevent freezing of service lines, valves and riser pipe and to protect risers from heaving and thawing actions of ground during freezing weather. Surface drainage shall be diverted from the location of the riser pipe.

4. A shut-off valve below the frost line shall be provided near the water-riser pipe on each mobile home lot. Underground stop-and-waste valves are prohibited unless the type of manufacture and method of installation are approved by the Building Code Inspector.

2) Sewage Disposal

a) All mobile home parks shall be connected to the public sanitary sewage disposal system upon construction or expansion. The availability of service shall be certified in accordance with the provisions of *Section 440*.

b) Individual Sewer Connections

1. Each mobile home stand shall be provided with at least a four (4) inch diameter sewer riser pipe. The sewer riser pipe shall be so located on each stand that the sewer connection to the mobile home drain outlet will approximate a vertical position.

2. The sewer connection shall have a nominal inside diameter of not less than four (4) inches, and the slope of any portion thereof shall be at least one-fourth (¼) inch per foot. All joints shall be watertight.

3. All materials used for sewer connections shall be semi-rigid, corrosion resistant, non-absorbent and durable. The inner surface shall be smooth.

4. Provision shall be made for plugging the sewer riser pipe when a mobile home does not occupy the site. Surface drainage shall be diverted away from the riser. The rim of the riser pipe shall extend at least one-half (½) inch above ground elevation.

3) Individual Electrical Connections

a) Each mobile home lot shall be provided with an approved disconnecting device and over-current protective equipment. The minimum service per outlet shall be 120/240 volts AC, 100 amperes.

b) The mobile home shall be connected to the outlet receptacle by an approved type of flexible cable with connectors and a male attachment plug.

c) Where the calculated load of the mobile home is more than one hundred (100) amperes either a second outlet receptacle shall be installed or electrical service shall be provided by means of permanently installed conductors.

4) Required Electrical Grounding

a) All exposed non-current carrying metal parts of mobile homes and all other equipment shall be grounded by means of an approved grounding conductor run with branch circuit conductors and other approved methods of grounded metallic wiring. The neutral conductor shall not be used as an equipment ground for mobile homes or other equipment.

5) Natural Gas Systems

a) Natural gas piping systems when installed in mobile home parks shall conform to the rules and regulations of the American Gas Association.

b) Each mobile home lot provided with piped gas shall have an approved shutoff valve installed upstream of the gas outlet. The outlet shall be equipped with a cap to prevent accidental discharge of gas when the outlet is not in use.

6) Liquefied Petroleum Gas Systems

a) Liquefied petroleum systems provided for mobile homes, service buildings or other structures shall be installed and maintained in conformity with the rules and regulations of the National Fire Prevention Association Standards NFPA Nos. 57 and 58.

b) Systems shall be provided with safety devices to relieve excessive pressures and shall be arranged so that the discharge terminates at a safe location.

c) Systems shall have at least one accessible means for shutting off gas. Such means shall be located outside the mobile home and shall be maintained in effective operating condition.

d) All liquefied petroleum gas piping outside of the mobile homes shall be well supported and protected against mechanical injury. Undiluted liquefied petroleum gas shall not be conveyed through piping equipment and systems in mobile homes.

e) Vessels of more than twelve (12) and less than sixty (60) U.S. gallons gross capacity may be installed on a mobile home lot and shall be securely, but not permanently, fastened to prevent accidental overturning.

f) No liquefied petroleum gas vessel shall be stored or located inside or beneath any storage cabinet, carport, mobile home or any other structure.

7) Fuel Oil Supply Systems

a) All fuel oil supply systems for mobile homes, service buildings, and other structures shall be installed and maintained in conformity with the rules and regulations of the National Fire Protection Association Standard NFPA No. 31.

b) All piping from outside fuel storage tanks or cylinders to mobile homes shall be securely, but not permanently, fastened in place.

c) All fuel oil supply systems provided for mobile homes, service buildings, and other structures shall have shutoff valves located within five (5) feet from any mobile home exit.

d) All fuel storage tanks or cylinders shall be a minimum of five (5) feet from any mobile home exit.

e) Storage tanks located in areas subject to traffic shall be protected against physical damage.

488 Roads

The private street system shall be designed and built to the specifications contained in this Ordinance.

1) The roads shall meet the design standards for local roads contained in *Section 430*.

2) The roads shall be built to the local road specifications set forth in this ordinance.

490 Environmental Protection and Open Space Preservation

491 Erosion and Sedimentation Control

1) All earth-moving activities shall be conducted in such a way as to prevent accelerated erosion and the resulting sedimentation. A written Erosion and Sediment Control Plan shall be prepared for any earth disturbance activity which will result in a disturbance of 5,000 square feet or more. Earth disturbances of 10,000 square feet or more shall require an approved plan from the Northampton County Conservation District.

2) All earth-moving or soil disturbances must be in accordance with all current local, state and federal erosion and sedimentation control standards. Such a plan is to be maintained on the construction site until all disturbed areas are finally stabilized.

3) The erosion and sedimentation control plan shall be developed in the form outlined in the most current Soil Erosion and Sedimentation Control Manual, issued by the Pennsylvania Department of Environmental Protection.

4) All erosion and sedimentation control plans shall be submitted with the final plan as set forth in *Section 324(10)* of this Ordinance.

5) When it has been determined that an earth-moving permit is required, the application for such a permit must be filed with the Northampton County Conservation District.

6) The Borough of Freemansburg may require the submission of the erosion and sedimentation control plan to the County Conservation District for review and recommendations, whether a permit for earth-moving is required or not.

7) All earth-moving shall be conducted in accordance with the current federal regulations relative to the NPDES.

492 Natural Feature Preservation

1) The design and development of all subdivisions and land developments shall preserve, whenever possible, natural features which will aid in providing adequate open space for recreation and conditions generally favorable to the health, safety, and welfare of the residents. Some of these natural features are the natural terrain of the site, woodland areas, large trees, natural watercourses and bodies of water, wetlands, rock outcroppings, and scenic views. More detailed standards concerning the preservation of specific natural features are set forth in the following sections.

2) Flood Plain Regulation

a) The flood elevation map shall be based on the municipal flood insurance rate map (FIRM). When not available, the map shall be

based on estimated 100-year flood elevations or estimated areas subject to flooding based on best available data.

b) No new buildings or structures shall be placed within the bounds of the 100-year flood plain except as *Section 492* provides and in compliance with the Statewide Uniform Construction Code, Borough Flood Ordinance and Zoning Ordinance.

c) The substantial improvement of an existing building or the redevelopment of a vacant but formerly developed parcel is permissible within the floodway fringe if said development is in accordance with the flood plain provisions of the borough zoning ordinance if one has been enacted or with the borough flood plain ordinance.

d) When a developer does not intend to develop the plat himself and the Borough of Freemansburg determines that additional controls are required to insure safe development, it may require the developer to impose appropriate deed restrictions on the land. Such deed restrictions shall be inserted in every deed and noted on every recorded plat.

e) The finished elevation of proposed streets shall not be more than the one (1) foot below the Regulatory Flood Elevation. The Borough of Freemansburg may require profiles and elevations of streets to determine compliance with the requirements. Drainage openings shall be sufficient to discharge flood flows without unduly increasing flood heights.

f) All sanitary sewer systems, whether public or private, shall be flood-proofed up to the Regulatory Flood Elevation.

g) The installation of sewage disposal facilities requiring soil absorption systems shall be prohibited within designated flood plain areas.

h) All water systems, whether public or private, shall be flood-proofed up to the Regulatory Flood Elevation.

i) All other public and private utilities and facilities including gas and electric shall be elevated or flood-proofed up to the Regulatory Flood Elevation.

3) Lake, Stream, Canal and River Frontage Preservation

a) Lake, stream, canal and river frontage shall be preserved as open space whenever possible. This area may be credited toward the open space requirement set forth in *Section 493*.

b) A minimum of ten (10) feet from the top of the embankment adjacent to the Delaware and Lehigh Canal shall be preserved as an access and maintenance easement for public use. Fee simple dedication of said land to the Borough of Freemansburg is subject to consideration by Borough Council.

4) Landscaping and Street Trees

a) General Conditions

1. Street trees and other required plant material shall not be planted until the finished grading of the subdivision or land development has been completed.

2. All required planting shall be guaranteed for a period of twelve (12) months from the date of planting and shall be alive and healthy as determined by the Borough at the end of the guaranteed period. Should a disagreement arise as to whether the planting is alive and healthy, a qualified nurseryman shall be retained by the Borough at the expense of the developer to make a final determination.

3. Where planting is required, it shall be assured by financial security posted with the Borough in an amount equal to the estimated cost of trees and shrubs and planting. Such guarantee shall be released only after passage of the second growing season following planting.

4. The developer shall be responsible for plant material provided for a period of twelve (12) months. Any such tree that dies within

the time period shall be removed including the stump and replaced by a tree or shrub, similar in size and species, at the expense of the developer.

5. All mechanical and electrical equipment not enclosed in a structure shall be fully and completely screened from view from any point in a manner compatible with the architectural and landscaping style of the remainder of the lot.

b) Existing Vegetation

1. In cases where natural features existing on the site duplicate or essentially duplicate the requirements of the street tree, or landscaping provisions of this Ordinance, these requirements may be waived.

2. All subdivisions and land developments shall be laid out in such manner as to preserve the healthy trees on the site. If trees greater than eight (8) inch in caliper are removed, they shall be replaced by trees of three and one-half (3½) inch minimum caliper which appear on the recommended plant list.

3. During the construction of any site, trees and shrubs, as defined herein, shall be protected by fencing to insure that there is no encroachment within the area of their dripline by changing grade, trenching, stockpiling of building materials or topsoil, or the compaction of the soil and roots by any motor vehicle unless the following regulations are met:

   i. The area of dripline of any tree or group of trees may be encroached up to a maximum of one-third (a) of the total area of the dripline provided that an equivalent proportion of the canopy is removed by pruning by a trained arborist.

   ii. The grade of land within the entire area of dripline shall not be raised more than six (6) inches unless tree wells are constructed around each trunk or group of trunks and aeration pipes are extended out to the edge of the dripline.

iii. Tree wells are to be constructed of uncemented stone, or any other suitable material. Such walls shall be a minimum of three (3) feet in diameter or one (1) foot in diameter for each inch in caliper measured twelve (12) inches above natural ground level, whichever is greater.

iv. Retaining walls are to be constructed around each tree or group of trees immediately after any grade is lowered within the area of the dripline.

4. If any plant material is to be moved, it must be done in accordance with the specifications set forth by the American Association of Nurserymen.

5. All diseased or dead trees shall be promptly removed from the site.

c) Detention Basin Plantings

As a general standard, one tree shall be planted per each forty-five (45) lineal feet of the perimeter. It is preferred, however, that this required number of trees be planted in an informal arrangement if possible. Approved trees for the perimeter of detention basins shall include the following:

- Acer Rubrum - Red Maple
- Liquidambar Styraciflua - Sweet Gum
- Nyssa Sylvatica - Black Gum
- Salix Species – Willow
- Any other trees subject to approval by the Borough of Freemansburg Council

d) Parking Facilities

1. Screen planting shall be provided along each perimeter of a parking area. No less than ten (10) percent of a proposed parking area must consist of buffer areas and islands and must be landscaped and continually maintained.

2. Any area for off-street parking or for display, storage, sale or movement of three (3) or more motor vehicles shall be enclosed, except at entrances or exits, by a compact evergreen hedge, not less than four (4) feet in height.

3. Where a planted screen is proposed, it shall incorporate the planting of staggered and overlapping evergreen and deciduous shrubs of such species and size as will produce within two (2) growing seasons (May through September) after planting a screen at least four (4) feet higher than the elevation of the adjacent parking area, and of such density as will obscure seventy-five (75) percent of the light emitted from automobile headlights on the premises throughout the full course of the year. Where the adjacent land elevation is higher than the parking area elevation, trees and shrubs shall be at least two (2) feet in height, satisfaction of the four (4) foot requirement notwithstanding. These provisions shall not, however, interfere with the maintenance of clear sight lines at intersections. Where such screening is required, it shall be assured by a performance guarantee posted with the governing body in an amount equal to twenty (20) percent of the estimated cost of the plantings. Such guarantee shall be released only after passage of the second growing season following planting.

4. Parking areas of a twenty (20) vehicle capacity shall be separated from one another by planting strips not less than ten (10) feet in width.

5. All parking areas shall have at least one (1) tree of two and one-half (2½) inch caliper minimum for every five (5) parking spaces in single bays and one (1) tree of 2½ inch caliper minimum for every ten (10) parking spaces in double bays. Trees shall be planted in such a manner to afford maximum protection from the sun for parked vehicles. A minimum of ten (10) percent of any parking lot facility over two thousand (2,000) square feet in gross area shall be devoted to landscaping, inclusive of required trees.

6. Plantings shall be able to survive soot and gas fumes. Trees which have low growing branches, gum or moisture, which may drop on vehicles, blossoms, thorns, seeds, or pods which may clog drainage facilities shall be avoided. The plantings chosen should be of sufficient size to be effective the first year they are planted.

7. For recommended plants see *Section 492(f)(5)*.

e) Multiple-Family Developments

For all multi-family developments, the following minimum landscaping shall be provided either on-lot or within the general open space in addition to all other required street tree and parking requirements.

Any combination of the following shall be required for each dwelling unit:
Either: One (1) 2" caliper shade tree, or

One (1) 4-5' evergreen tree, or

Two (2) flowering trees, or

Eight (8) 2-3' shrubs

f) Street Trees

1. General Requirements

i. Street trees and associated planting shall be required for any subdivision or land development as part of the design and construction of:

- New streets;
- New sidewalks or pedestrian ways;
- Existing streets, sidewalks, pedestrian ways, highways, bicycle or other trails or pathways when they abut or lie within the subdivision or land development; and

- Access driveways to residential developments serving greater than four (4) dwelling units.

ii. Trees shall be placed in such a position as to minimize conflict with overhead utilities.

iii. Plant material shall not at maturity obstruct the necessary visibility of traffic control signs or signals, nor obstruct visibility at street intersections or driveway entrances.

iv. Plant material shall be selected to minimize future maintenance costs, including, but not limited to, considerations of pruning, tree removal and sidewalk repair.

v. Plant material shall not interfere with underground utilities or storm water management facilities.

vi. Plant material shall be spaced to permit the healthy growth of each plant.

2. Quantity

Street trees generally shall be at intervals not to exceed twenty-five (25) feet along the street right-of-way as part of a residential or non-residential subdivision or land development, with trees alternating from side-to-side (fifty (50) foot maximum spacing on any one side). An equivalent number may be planted in an informal arrangement.

3. Location

i. At intersections, trees shall be located no closer than thirty (30) feet from the intersection of the curbs.

ii. Street trees shall be planted on lots rather than within the right-of-way, unless otherwise approved by the Borough of Freemansburg.

iii. Street trees shall not be closer than:

- Six (6) feet from the edge of any sidewalks or curb;
- Ten (10) feet from the edge of any uncurbed cartway or one story building; or
- Fifteen (15) feet from any overhead utility lines or two or more story building;
- A minimum of one (1) foot off a public street right-of-way or ten (10) feet off a public sewer or water line unless approved by the Borough of Freemansburg.

4. Size: Tree caliper at time of planting, as measured six (6) inches above ground level, shall be no less than two and one-half (2½) inches in both residential and non-residential areas.

5. Approved Plant Material: The following plant material is approved for use provided that the specific site is suitable:

   i. Large Trees

   - Acer Rebrum - Red Maple
   - Acer Saccharum - Sugar Maple
   - Fraxinus Americana - White Ash
   - Fraxinus Pennsylvania lanceolata - Green Ash
   - Gleditsia Tricanthos Inermis - Thornless Honey Locust
   - Liquidambr Styraciflua - Sweet Gum
   - Phellodendron Amurense - Amur Cork Tree
   - Plantanus Acerifolia - London Plane Tree
   - Quercus Alba - White Oak
   - Quercus Borealis - Red Oak
   - Quercus Coccinea - Scarlet Oak
   - Tilia-Linden - All species hardy to the area
   - Zelkova Serrata - Japanese Zelkova

ii. Small Trees

- Acer Ginnala - Amur Maple
- Cornus Florida - Flowering Dogwood
- Crataegus Phaenopyrum - Washington Hawthorn
- Prunus Kwanzan - Kwanzan Cherry
- Sophora Japonica - Japanese Pagodatree

*****Upon the approval of the Borough of Freemansburg, other species may be utilized.

The following are plant materials and sizes recommended for landscaping purposes. The Borough of Freemansburg may permit other planting types if they are hardy to the area, are not subject to blight or disease, and are of the same general character and growth habit as those listed below. All planting material shall meet the standards of the American Association of Nurserymen.

i. Canopy Tree (1½ inch caliper)

- Acer Ginnala - Amur Maple
- Acer Rubrum - Red Maple
- Acer Saccharum - Sugar Maple
- Fagus Grandifolia - American Beech
- Fagus Sylvatica - European Beech
- Fraxinus Americana - White Ash
- Fraxinus Pennsylvania lanceolata - Green Ash
- Gleditsia Triacanthos Inermis - Thornless Honey Locust
- Liquidamber Styraciflua - Sweet Gum
- Phellodendron Amurense - Amur Cork Tree
- Plantanus Acerifolia - London Plane Tree
- Quercus Alba - White Oak

- Quercus Borealis - Red Oak
- Quercus Coccinea - Scarlet Oak
- Quercus Palustris - Pine Oak
- Sophora Japonica - Japanese Pagodatree
- Tilia-Linden - all species hardy to the area
- Zelkova Serrata - Japanese Zelkova

ii. Flowering Trees

- Amelanchier Canadensis – Shadblow Serviceberry; 5-6 feet
- Cornus Florida - Flowering Dogwood; 5-6 feet
- Cornus Kousa - Kousa Dogwood; 5-6 feet
- Cornus mas - Cornelian Cherry; 5-6 feet
- Crataegus Phaenopyrum – Washington Hawthorn; 5-6 feet
- Magnolia Soulangeana - Saucer Magnolia; 5-6 feet
- Malus Baccata - Siberian Crab; 1¼-1½" caliper
- Malus Floribunda - Japanese Flowering Crab; 1¼-1½" caliper
- Malus Hopa - Hopa Red Flowering Crab; 1¼-1½" caliper
- Prunus Kwanzan - Kwanzan Cherry; 1¼-1½"caliper
- Prunus Yedoensis - Yoshino Cherry; 1¼-1½"caliper

iii. Evergreen (4-5 feet)

- Ilex Opaca - American Holly
- Picea Abies - Norway Spruce
- Picea Omorika - Serbian Spruce
- Picea Pungens - Colorado Spruce & Blue Spruce
- Pinus Nigra - Austrian Pine
- Pinus Strobus - White Pine
- Pseudotsuga Mensiesii - Douglas Fir
- Tsuga Canadensis - Canadian Hemlock

iv. Hedge

- Cragaegus Intricata - Thicket Hawthorn;
  3-4 feet
- Forsythia Intermedia - Border Forsythia;
  4-5 feet
- Ilex Glabra – Inkberry Holly;
  3-4 feet
- Rhamnus Frazula Columnaris - Tallhedge Buckthorn:
  3-4 feet
- Syringa Chinesis - Chinese Lilac;
  3-4 feet
- Syringa vulgaris - Common Lilac;
  4-5 feet

v. Hedgerow

- Crataegus Crus-Galli - Cockspur Thorn;
  3-4 feet
- Crataegus Phanenopyrun - Washington Hawthorn;
  3-4 feet

- Elaeagnus Angustifolia - Russian Olive;
  4-5 feet
- Ilex Glabra - Inkberry Holly;
  3-4 feet
- Viburnum Sieboldi - Siebold Viburnum;
  4-5 feet
- Viburnum Tomentosum - Doublefile Viburnum;
  4-5 feet

vi. Evergreen Shrubs

- Ilex Glabra – Inkberry Holly; 3-4 feet
- Juniperus Virginiana - Upright Juniper; 4-5 feet
- Pyracantha Laland - Laland Firethorn; 5-6 feet
- Taxus Capitata - Upright Yew; 2½-3 feet
- Taxus Hicksi - Hicks Yew; 2½-3 feet
- Thuja Occidentalis - American Arborvitae; 4-5 feet
- Viburnum Rhytidophyllum – Leatherleaf Viburnum 4-5 feet

vii. Deciduous Shrubs

- Hamamelis Vernalis - Vernal Witch Hazel;
  4-5 feet
- Hamamelis Virginiana - Common Witch Hazel;
  4-5 feet
- Ilex Verticillata - Winterberry; 4-5 feet
- Rhamnus Frangula - Glossy Buckthorn; 4-5 feet
- Viburnum Dentatutum - Arrowwood Viburnum;
  4-5 feet
- Viburnum Lantana - Wayfaring Tree Viburnum; 4-5 feet

5) Topography

a) The natural terrain of the proposed subdivision tract will be retained wherever possible with cut and fill operations being kept to a minimum. Subdivisions and land developments shall minimize the disturbance of steeply sloping areas that is areas with slopes in excess of fifteen (15) percent. Development shall be directed to the lesser sloping portions of the site to the greatest degree possible.

b) Finished slopes on all cuts and fills shall not exceed thirty-three (33) percent (3:1 Horizontal: Vertical).

6) Topsoil Protection

a) Topsoil shall not be removed from the development site or used as fill. Topsoil shall be removed from the areas of construction and stored separately. The topsoil shall be stabilized to minimize erosion during storage. Upon completion of the construction, topsoil must be uniformly redistributed on the site. Removal of topsoil from a project shall be considered a violation of the developer's agreement.

493 Open Space and Recreation Areas

Subject to the provisions and requirements of the Municipalities Planning Code, the open space and recreation needs of subdivisions and land developments shall be met as follows:

1) For subdivisions and land developments involving less than sixty (60) lots or dwelling units, cash in lieu of recreation space shall be provided as set forth in *Section 493(3)*.

2) For subdivisions and land developments involving sixty (60) or more lots or dwelling units, the recreation needs shall be met as follows:

a) Land may be offered for dedication to the municipality, subject to approval by the Borough of Freemansburg. A minimum of seven hundred fifty (750) square feet per lot or dwelling unit shall be provided. The land offered for dedication shall not (1) be subject to flooding, (2) have slopes in excess of fifteen (15) percent, (3) include stormwater management facilities, (4) include wetlands, or (5) include quarries and/or other dangerous features. The Borough of

Freemansburg shall consider the offer relative to the following factors:

1. The suitability of the size, shape and landform of the tract for appropriate recreational facilities;

2. Accessibility for future users;

3. Conformity with the Recreation Element of the Comprehensive Plan;

4. Availability of nearby recreation facilities for meeting the recreation needs; and

5. The ability to provide adequate security.

b) Cash in lieu of open space may be provided as set forth in *Section 493(3)*.

3) Cash in lieu of open space and recreation land dedication shall be provided to and used by the Borough of Freemansburg as follows:

a) See Borough Fee Schedule.

b) The use of the monies shall be restricted to the purchase of lands for recreation and open space areas, the improvement of said areas, or other capital purchases.

494 Carbonate Geology Area Development

All buildings, structures, impervious surfaces, and utilities shall be so situated, designed and constructed as to minimize the risk of structural damage from existing or future sinkholes.

1) Buildings, structures, impervious surfaces, and utilities shall not be located within one hundred (100) feet of the Karst features identified pursuant to *Section 316(1)(b)* unless (1) a recognized professional with competence in the field demonstrates that a minimal risk of structural damage due to sinkholes will exist, or (2) mitigating measures are taken

to minimize the risk of structural damage. These mitigating measures shall be designed by a recognized professional with competence in the field.

2) Storm water management facilities, including but not limited to, detention basins, shall not be located within one hundred (100) feet of the karst features identified pursuant to *Section 316 (1)(b)* unless (1) a recognized professional with competence in the field demonstrates that a minimal risk of damage due to sinkholes will exist, or (2) mitigating measures are taken to minimize the risk of structural damage. These mitigating measures shall be designed by a recognized professional with competence in the field.

3) Storm water shall not be redirected into a sinkhole.

SECTION V
IMPROVEMENT SPECIFICATIONS

500 General Requirements

501 Physical improvements to the subdivision/land development tract shall be provided, constructed and installed as shown on the Record Plan, in accordance with the requirements of this Ordinance.

502 As a condition to review of a Final Plan by the Borough of Freemansburg, the developer shall agree with the Borough of Freemansburg, as to installations of all improvements shown on the Plan and required by this Ordinance. Before the Record Plan may be endorsed by the Borough of Freemansburg, the developer shall submit a completed and executed original copy of the Subdivision Improvements Agreement and performance and maintenance guarantees in the amount required by *Section 520*.

503 All improvements installed by the developer shall be constructed in accordance with the design specifications of the Borough of Freemansburg. In cases where no applicable adopted municipal specifications exist, the required improvements shall be constructed to the specifications set forth in this Ordinance.

504 Inspection of the installation of those improvements required by *Section 510*, shall in all cases be the responsibility of the Borough of Freemansburg and the Borough Engineer.

510 Required Improvements

511 Improvements shall be provided, constructed and installed by the developer as stated in the Improvements Agreement, shown on the Record Plan, and in accordance with the design standards set forth in *Section IV* of this Ordinance. The following improvements will be required in all applicable cases:

1) Street excavating, grading, subgrade preparation, base course paving and surface course paving installed according to this ordinance's improvements specifications;

a) Subgrade shall be prepared and compacted to ensure a firm stable base.

b) Stone subgrade shall consist of AASHTO #3 (PennDOT 3A) material. All material shall consist of crushed angular stone and shall not contain any waste and or by-products.

c) Base Course pavement shall consist of PennDOT Superpave Mixture Design, 25 mm and / or 10 mm (as required for application) with PG Binder 64-22 and EASL's designed accordingly.

d) Wearing Course pavement shall consist of PennDOT Superpave Mixture Design, 9.5 mm with PG Binder 64-22 and EASL's designed accordingly.

2) Concrete curbing, of the vertical type, shall be installed according to this ordinance's *i*mprovements specifications. Concrete shall be PennDOT Class A Concrete (3,000 psi); Note: Concrete must be from a PennDOT approved supplier.

3) Concrete sidewalks, driveway aprons and / or interior walkways installed according to this ordinance's improvements specifications in connection with road construction pursuant to *Section 511.1* or when required by *Section 402*, shall be installed as follows:

a) Sidewalks and interior walkways shall be five (5) inches thick and placed on six (6) inches of AASHTO #57 clean stone. Concrete shall be PennDOT Class A Concrete (3,000 psi).

b) Driveway Aprons shall be six (6) inches think and placed on five (5) inches of AASHTO #57 clean stone. Concrete shall be PennDOT Class A Concrete (3,000 psi)

Note: Concrete must be from a PennDOT approved supplier.

4) Sanitary sewer system improvements installed according to the specifications of the Borough of Freemansburg and the Pa. Department of Environmental Protection;

5) Water supply and distribution system improvements installed according to the specifications contained herein, the City of Bethlehem and the Pa. Department of Environmental Protection;

6) Storm drainage system improvements installed according to this ordinance's improvements specifications and as noted below;

   a) All concrete pipe shall be ASTM Class III or better pipe.

   b) All plastic pipe shall be high density polyethylene (ADS N-12) with a smooth interior and annular exterior corrugations.

7) Monuments shall be installed:

   a) Permanent reference monuments shall be located at each intersection of rights-of-ways of street(s) constructed by the developer, at the beginning and ending of all street curves, and at exterior corners of the subdivision or land development unless an alternate arrangement is approved that still permits a surveyor to stake out accurately any building lot shown on the Record Plan.

   b) Monuments shall be made of PennDOT Class "A" concrete, shall be 4 inches x 4 inches square or 4 inches in diameter at the top, and shall taper from 4 inches at the top to 6 inches at the bottom. All monuments shall be a minimum of 30 inches in length and shall be marked with a round metal cap, re-bar or drilled hole. All monuments in developed areas shall be flush with finished grade and in undeveloped areas shall be set 2 inches to 3 inches above existing grade.

   c) All monuments shall be placed by a Registered Professional Engineer or Surveyor so that the scored point shall coincide exactly with the point of intersection of the line being monumented.

   d) Monuments shall be set with their top level with the finished grade of the surrounding ground, except:

      1. Monuments which are placed within the lines of existing or proposed sidewalks shall be so located (preferably beneath the

sidewalks) that their tops will not be affected by lateral movement of the sidewalks, and

2. Where monuments are located beneath a sidewalk, proper access shall be provided for their use.

3. Where sidewalks are existing, a stone point (a four (4) inch square chisel cut in the sidewalk with a drill hole in center) may be substituted for a monument.

e) Lot corner markers shall be provided at all lot corners. Lot corner markers shall be permanently located and shall be a #4 (½") or #5 (e") diameter re-bar a minimum length of thirty (30) inches. Lot corner markers shall be located in the ground flush to existing grade.

8) Fire hydrants installed according to the specifications of this ordinance's improvements and the appropriate authority;

9) Street signs shall be installed in accordance with Commonwealth of Pennsylvania Title 67, Transportation, Chapter 212, Official Traffic – Control Devices, as adopted February 3, 2006, or as amended / revised;

10) Shade trees shall be of nursery stock quality of a species grown under the same climatic condition as exist in the municipality. The trees shall be of symmetrical growth, free of insect pests and disease, suitable for street use, and durable under the maintenance contemplated.

520 Improvements Guarantee Procedure

521 Before the Borough of Freemansburg approves any Final Plan and as a prerequisite for approval, the developer shall deliver to the Borough of Freemansburg, a performance guarantee in the amount of one hundred ten (110) percent of the cost of all improvements required by this Ordinance, as determined in accordance with the procedures set forth in the Municipalities Planning Code as amended, in a form and with a surety as determined in accordance with the procedures set forth in the Municipalities Planning Code as amended, guaranteeing the construction and installation of all such improvements before the date fixed in the formal action of approval or accompanying agreement for completion of the improvements. Upon written application signed by both the obligor and surety of the performance

guarantee in a form approved by the Solicitor, the Borough of Freemansburg may, at their discretion, extend said period by not more than three (3) additional years. If the party posting the financial security requires more than one (1) 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 (10) percent for each one-year period beyond the first anniversary date from posting of financial security or to an amount not exceeding one hundred ten (110) percent of the cost of completing the required improvements as reestablished on or about the expiration of the preceding one-year period by using the above bidding procedure. In the event of default under a performance guarantee, the proceeds of the performance guarantee received by the municipality, public utility, or municipal authority shall be used to construct and install the improvements.

522 Before the Borough of Freemansburg approves any Final Plan and as a prerequisite for approval, the developer shall deliver to the, Borough of Freemansburg, a maintenance guarantee in an amount of not less than fifteen (15) percent of the actual cost of the installation of all improvements required by this ordinance, guaranteeing acceptance of all such improvements by the Borough of Freemansburg.

530 Approval of Improvements and Release of Performance Guarantee by the Municipal Governing Body, Public Utility or Municipal Authority

531 The approval of improvements and release of performance guarantee by the Borough of Freemansburg, and the inspection of the improvements shall occur in conformance with the procedures prescribed by the Municipalities Planning Code.

532 In the event that any improvements which may be required have not been installed as provided in this Ordinance or in accord with the approved Final Plan, the Borough of Freemansburg, is hereby granted the power to enforce any corporate bond, or other security by appropriate legal and equitable remedies. If 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 Borough of Freemansburg 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 monies 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, and not for any other municipal purpose.

540 Signature Blocks: Standard signature blocks are as follows:

ACCESS AUTHORIZATION: The OWNER / APPLICANT hereby authorizes representatives of the Borough of Freemansburg to enter upon and inspect the site for the purpose of conducting a review and determining consistency with the requirements of the Borough of Freemansburg Zoning Ordinance and any other applicable ordinances during the review of the proposed project and through the performance and maintenance periods of construction.

_____ _____ _____ _____
Date Owner Date Applicant

OWNER'S STATEMENT: We, the undersigned, as owners of this plot of land located in the Borough of Freemansburg, Northampton County, Commonwealth of Pennsylvania, being duly sworn according to law, depose and say that we are the sole owners of said property or are authorized officers of the corporation, and that we acknowledge the accompanying plan(s), that we are in peaceful possession of the same, that there are no lawsuits pending, affecting or relating to the title of said land and that the facts set forth are true and correct. All improvements identified as proposed public property are proposed for dedication to the borough for public use, and that we propose a record plan for recording, after the receipt of all necessary approvals.

_____ _____ _____ _____
Date Owner Date Applicant

Sworn and subscribed to me this _____ day of _____, 20__.

_____ _____
Date Notary Public Seal

PLAN PREPARER'S STATEMENT: I (we), being a registered surveyor, registered professional engineer or registered landscape architect licensed in the Commonwealth of Pennsylvania, do hereby certify that the accompanying

application, plans and supporting documentation have been prepared under my direct supervision and that said documents are true and correct, to the best of my knowledge.

_____ _____ _____ R.S.
Date Name Printed Signature

_____ _____ _____ P.E.
Date Name Printed Signature

_____ _____ _____ L.A.
Date Name Printed Signature

PLANNING COMMISSION APPROVAL: Approved on _____ day of _____, 20____, by the Borough of Freemansburg Planning Commission.

_____ _____ _____ _____
Date Chairman Date Secretary

BOROUGH COUNCIL APPROVAL: Approved on _____ day of _____, 20____, by the Borough of Freemansburg Council.

_____ _____ _____ _____
Date Council-President Date Secretary

BOROUGH ENGINEER APPROVAL: Approved on _____ day of _____, 20____, by _____ Engineering.

_____ _____
Date Engineer

L.V.P.C. APPROVAL: Approved on _____ day of _____, 20____, by the Lehigh Valley Planning Commission.

_____ _____
Date Signature

SECTION VI
ADMINISTRATION

600 Amendments

601 Amendments to the Subdivision and Land Development Ordinance shall become effective only after a public hearing held pursuant to public notice in the manner prescribed for enactment of a subdivision and land development ordinance by the Pennsylvania Municipalities Planning Code. In addition, in case of an amendment other than that prepared by the Borough of Freemansburg, the Borough Council shall submit each such amendment to the Borough of Freemansburg for recommendations at least thirty (30) days prior to the date fixed for the public hearing on such proposed amendment.

610 Appeals

611 The decisions of the Borough of Freemansburg with respect to the approval or disapproval of Subdivision or Land Development Plans may be appealed directly to court in the same manner and within the same time limitations as is provided for zoning appeals in Article X of the Pennsylvania Municipalities Planning Code.

620 Enforcement Remedies

621 Violations and Penalties

For any and every violation of the provisions of this Ordinance, the owner, agent, architect, contractor, engineer, or other person who commits a violation shall be liable on conviction to pay a fine or penalty not to exceed $500.00 per day per violation, and all court costs and Borough legal expenses, which shall be paid to the Borough of Freemansburg.

1) Such fines and penalties may be collected by suit or summary proceedings brought in the name of Borough of Freemansburg before any Magistrate.

2) Whenever any such person specified above shall have been notified by the Borough of Freemansburg or by the Borough of Freemansburg Solicitor, in writing, that there is a violation of this Ordinance, such person

shall commence correction of all violations within five (5) days after notice and correct all violations within thirty (30) days of notice. If corrections are not commenced within five (5) days or completed within thirty (30) days, each day that a violation continues shall be considered a separate offense punishable by the like fine.

630 Validity and Conflicts

631 Should any action or provisions of this Ordinance be declared by the courts to be invalid, such decision shall not affect the validity of the Ordinance as a whole, nor the validity of any other section or provision of the Ordinance than the one so declared.

632 Whenever there is a conflict between minimum standards or requirements set forth in this Ordinance and those contained in other municipal ordinances and regulations, or other applicable laws and regulations, the most stringent standard or requirement shall apply.

640 Fees

641 The Borough of Freemansburg Council shall delegate, by resolution, the right of the Borough of Freemansburg to establish, by resolution, a schedule of fees to be paid by the developer at the time of filing of the Feasibility, Preliminary and Final Plans, and Plans Exempt from Standard Procedures.

642 The applicant shall pay the subdivision fees charged according to the adopted fee schedule. At the time of the submission, the applicant shall deposit the amount of money specified by the fee schedule with the Borough of Freemansburg. No application will be accepted for consideration unless accompanied by the required deposit. Charges and expenses will be withdrawn from the account as they are incurred by the Borough of Freemansburg. If the charges and expenses attributable to the application exceed the amount deposited, the applicant shall be notified so that additional funds as are necessary to meet the charges and expenses are deposited with the Borough of Freemansburg. No plan shall be approved unless all fees are paid in full. Any amounts which were deposited in excess of the charges and expenses recorded shall be returned to the applicant following Borough of Freemansburg action on the proposal.

660 Modifications and Exceptions

The Borough of Freemansburg and staff may grant a modification to 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 modification will not be contrary to the public interest and that the purpose and intent of this ordinance is met. All requests for modifications shall be in writing and shall accompany and be a part of the application for development. The requests shall state in full, the grounds and facts of unreasonableness or hardship on which the request is based, the provision or provisions of the ordinance involved and the minimum modification necessary.

670 Effective Date of Ordinance

This Ordinance shall become effective _____.

680 Disclaimer

Whereas the exact occurrence of sinkholes is not predictable, the administration of these regulations shall create no liability on behalf of the Borough of Freemansburg reviewer, Borough of Freemansburg employees, or the Borough of Freemansburg as to damages which may be associated with sinkhole formation. That is, compliance with these regulations represents no warranty, finding, guarantee, or assurance that sinkhole will not occur on an approved property. Borough of Freemansburg consultants and employees assume no liability for any financial or other damages which may result from sinkhole activity.

690 Entry

Upon presentation of proper credentials, duly authorized representatives of the Borough of Freemansburg may enter at reasonable times upon any property to investigate or ascertain the condition of the subject property in regard to any aspect regulated by this Ordinance.

SECTION VII - DEFINITIONS

700 Unless otherwise expressly stated, the following terms shall, for the purpose of these regulations, have the meaning indicated:

701 Words in the singular include the plural and those in the plural include the singular.

702 Words in the present tense include the future tense.

703 The words “person”, “developer”, “subdivider”, and “owner” include a corporation, unincorporated association, a partnership, or other legal entity, as well as an individual.

704 The word “building” includes structure and shall be construed as if followed by the phrase “or part thereof”.

705 The words “should” and “may” are permissive; the words “shall” and “will” are mandatory and directive.

710 Other terms or words used herein shall be interpreted or defined as follows:

ACT 247. The Pennsylvania Municipalities Planning Code. Act 247 of 1968, as amended.

APPLICANT. A landowner or developer, as hereinafter defined, who has filed an application for development including his heirs, successors and assigns.

APPLICATION, COMPLETE. The submission of all applicable forms, plans and supportive data needed by the borough and its officials for a through and complete review, as required by this ordinance.

BLOCK. Property bounded on one side by a street, and other three sides, by a street, railroad right-of-way, waterway, unsubdivided area, or other definite barrier.

BOROUGH COUNCIL. The Freemansburg Borough Council.

BUILDING, ACCESSORY. A detached subordinate building, the use of which is customarily incidental and subordinate to that of the principal building, and which is located on the same lot as that occupied by the principal building.

BUILDING, PRINCIPAL. 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; main structure on a given lot.

BUILDING SETBACK LINE. The line within a property defining the minimum required front yard distance between any building to be erected, and an adjacent right-of-way.

CANAL. The Delaware and Lehigh Nation Heritage Corridor Canal

CARTWAY.

CISTERN. An underground reservoir or tank for storing rainwater.

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.

CLOSED DEPRESSION. In a karst area, a distinctive bowl-shaped depression in the land surface. It is characterized by internal drainage, varying magnitude, and an unbroken ground surface.

COMMON OPEN SPACE. A parcel or parcels of land, an area of water, or a combination of land and water within a development site designed and intended for the use of residents of the development, not including streets, off-street parking area, private yard space, and areas set aside for non-residential and public facilities. Common open space shall be substantially free of structures, but may contain such improvements as are appropriate for recreational use by the residents.

COMPREHENSIVE PLAN. The maps, charts, and textual material adopted by the Borough of Freemansburg in accordance with the Pennsylvania Municipalities Planning Code and designated, as a whole and in its several parts, as a Comprehensive Plan for the continuing development of Lehigh and Northampton Counties or the municipality.

CONVEYANCE SWALE. A swale with an up-stream drainage area of 25 acres or more and designed to convey off site surface flow through a site

COUNTY. The County of Northampton.

COUNTY CONSERVATION DISTRICT. The Northampton County Conservation District.

CULVERT. A pipe, conduit or similar structure including appurtenant works which carries surface water.

CUT. An excavation. The difference between a point on the original ground and a designated point of lower elevation on the final grade. Also, the material removed in excavation.

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.

DAY(S). Refers to calendar days unless otherwise specified.

DEP (PADEP). The Pennsylvania Department of Environmental Protection (formerly the Pennsylvania Department of Environmental Resources, DER).

DESIGN STORM. The magnitude of precipitation from a storm event measured in probability of occurrence (e.g. 50-yr. storm) and duration (e.g. 24-hour), and used in computing storm water management control systems.

DETENTION BASIN. A basin designed to retard storm water runoff by temporarily storing the runoff and releasing it at a predetermined rate.

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.

DOUBLE OR REVERSE FRONTAGE LOT. A lot extending between and having frontage on two generally parallel streets with vehicular access from only one street.

DRAINAGE EASEMENT. A right granted by a land owner to a grantee, allowing the use of private land for storm water management purposes.

DRAINAGE PLAN. The documentation of the proposed storm water management controls, if any, to be used for a given development site.

DWELLING UNIT. Any structure, or part thereof, designed to be occupied as living quarters as a single housekeeping unit.

EASEMENT. A right-of-way granted, but not dedicated, for limited use of private land and for a public or quasi-public purpose, and within which the owner of the property shall not erect any permanent structures, but shall have the right to make any other use of the land which is not inconsistent with the rights of the grantee.

ENGINEER. A professional engineer licensed as such in the Commonwealth of Pennsylvania.

EROSION. The removal of surface materials by the action of natural elements.

EROSION AND SEDIMENTATION CONTROL PLAN. A plan designed to prevent on-site accelerated erosion and off-site sedimentation through the use of vegetative or mechanical controls. Control measures must be designed to fit the topography, soils, rainfall and land use of the area they are to protect. The plan includes as a minimum: (a) a map or maps describing the topography of the area, the proposed alteration to the area and the specific erosion and sedimentation control measures and facilities; and (b) a narrative report describing the project and giving the purpose and the engineering assumptions and calculations for control measures and facilities.

FLAG LOT. A lot with direct frontage on a public road which does not meet the required lot width at the minimum required front yard setback line, which consists of an access lane with a minimum width of twenty-five (25) feet and a rectangular area, the dimensions of which exceed the minimum lot width requirement as established in the municipal zoning ordinance, if any.

FLOOD, ONE HUNDRED (100) YEAR. The flood having a one (1) percent chance of being equaled or exceeded in any given year.

FLOOD FRINGE. That portion of the flood plain which is outside the floodway.

FLOOD PLAIN. The area of normally dry land along a natural watercourse which is periodically inundated by water there from.

FLOODWAY, REGULATORY. The channel of a watercourse and the adjacent land areas that must be reserved in order to discharge the one hundred (100) year flood.

The regulatory floodway is designated on the flood boundary and floodway map of the municipality's flood insurance study prepared by the Federal Emergency Management Agency.

FREEBOARD. The incremental depth in a storm water management structure, provided as a safety factor of design, above that required to convey the design runoff event.

GROUNDWATER RECHARGE. Replenishment of existing natural underground water supplies.

IMPERVIOUS SURFACE. Any surface which prevents the percolation of water into the ground.

IMPROVEMENTS. Those physical additions and changes to the land that may be necessary to produce usable and desirable lots.

INFILTRATION STRUCTURE. A structure designed to direct runoff into the ground, e.g. french drain, seepage pit or seepage trench.

LAND DEVELOPMENT. Any of the following activities: (1) The improvement of one lot or two or more contiguous lots, tracts, or parcels of land for any purpose involving, (i) a group of two or more residential or nonresidential buildings, whether proposed initially or cumulatively, or a single nonresidential building on a lot or lots regardless of the number of occupants or tenure, or (ii) 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 the purpose of streets, common areas, leaseholds, condominiums, building groups or other features; (2) A subdivision of land.

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 having a remaining term of not less than forty (40) years, or other person having a proprietary interest in land, shall be deemed to be a landowner for the purpose of this Ordinance.

LEHIGH VALLEY PLANNING COMMISSION (LVPC). The Lehigh Valley Planning Commission, County planning agency for Lehigh and Northampton Counties, Pennsylvania.

LOCAL RUNOFF CONVEYANCE FACILITIES. Any natural channel or manmade conveyance system which has the purpose of transporting runoff from the site to the mainstream.

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.

LOT AREA. The area contained within the property line of a lot (as shown on the Plan), excluding space within all streets and within all permanent drainage easements, but including the areas of all other easements.

LOWEST FLOOR. The lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area, is not considered a building's lowest floor, provided that such enclosure is not built so as to render the structure in violation of the applicable non-elevation design requirements of this ordinance.

MAINSTEM (MAIN CHANNEL). Any stream segment or other conveyance used as a reach in the hydrologic model.

MAINTENANCE GUARANTEE. Security in a form in accord with the provisions set forth in the Municipalities Planning Code as amended, which insures the structural integrity of the improvements as well as the functioning of said improvements in accordance with the design and specifications as depicted on the final plat for a period not to exceed eighteen (18) months after the acceptance of said improvements by the Borough of Freemansburg. Said security shall not exceed fifteen (15%) of the cost of said improvements.

MANNING EQUATION (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.

MARKER. A metal pipe #4 (½") or #5 (e") re-bar at least thirty (30) inches in length.

MOBILE HOME PARK. A parcel or contiguous parcels of land which has been so designated and improved that it contains two or more mobile home lots for the placement thereon of mobile homes.

MOBILE HOME STAND. That part of an individual lot which has been reserved for the placement of the mobile home, appurtant structures or additions.

MONUMENT. A tapered concrete monument at least 4 inches by 4 inches square or 4 inches in diameter and at least 30 inches in length and marked with a round metal cap, re-bar or drilled hole.

MUNICIPALITIES PLANNING CODE. The Pennsylvania Municipalities Planning Code, Act 1988, P.L. 805, No. 247, as reenacted and amended.

MUNICIPALITY. The municipality in which the property proposed for subdivision or development is located.

NORTHAMPTON COUNTY IMPROVEMENTS SPECIFICATIONS. The specifications adopted by Northampton County by Ordinance 397-2003.
NPDES REGULATIONS. National Pollutant Discharge Elimination System Regulations.

NRCS - Natural Resource Conservation Service - U.S. Department of Agriculture. (Formerly the Soil Conservation Service).

NUMBERED TRAFFIC ROUTE. A highway that has been assigned an Interstate, United States, or Pennsylvania route number to aid motorists in their travels.

OFFICIAL MAP. The municipal map adopted by Ordinance showing exact locations of existing and proposed lines for public streets, watercourses and public grounds, including widenings, narrowing, extensions, diminutions, opening or closing of some for the entire municipality.

OFFICIAL PLAN - SEWAGE FACILITIES. A comprehensive plan for the provision of adequate sewage systems adopted by a municipality or municipalities possessing authority or jurisdiction over the provision of such systems and submitted to and approved by the State Department of Environmental Protection as provided by the Pennsylvania Sewage Facilities Act, and Chapter 71, Rules and Regulations promulgated thereunder.

PAVEMENT WIDTH (ROADWAY). The portion of a street right-of-way, generally paved, intended for vehicular use.

PEAK DISCHARGE. The maximum rate of flow of stream runoff at a given location and time resulting from a specified storm event.

PENN STATE RUNOFF MODEL (PSRM). The computer-based hydrologic modeling technique used in early Act 167 Plans. PSRM was also updated to include water quality modeling capabilities and renamed PSRM-QUAL. The PSRM and PSRM-QUAL calculation methodologies were used as the basis for writing the WATERSHED model.

PERFORMANCE GUARANTEE. Security in a form in accord with the provisions set forth in the Municipalities Planning Code as amended to guarantee that the proper construction of improvements be made by the developer as a condition for the approval of the Plan. The guarantee shall be in the amount of ten (10%) percent.

PLAN, FEASIBILITY REVIEW. An initial submission, by the developer, of maps and other materials analyzing the natural features of the site as they relate to its development potential. The proposed concept for development of the tract is included in the submission.

PLAN, PRELIMINARY. A tentative plan, in lesser detail than a Final Plan, showing proposed streets and lot layout and such other information as required by this Ordinance.

PLAN, FINAL. A complete and exact plan prepared for official recording as required by this Ordinance to define property rights, streets and other proposed improvements.

PLAN, RECORD. The copy of the Final Plan bearing the original endorsements of the Borough of Freemansburg, which is intended to be recorded with the County Recorder of Deeds.

PLANNING MODULE FOR LAND DEVELOPMENT. A document to be prepared by the developer or subdivider, accepted by the municipality, and submitted to the Pennsylvania Department of Environmental Protection to provide proposed development data in order to supplement or revise the municipality's Official Plan for sewage facilities.

RATIONAL METHOD. A method of peak runoff calculation using a standardized runoff coefficient (rational "c"), acreage of tract and rainfall intensity determined by return period and by the time necessary for the entire tract to contribute runoff. The rational formula is stated as follows: Q = ciA, where "Q" is the calculated peak flow rate in cubic feet per second, "c" is the dimensionless runoff coefficient (see

Attachment C), "i" is the rainfall intensity in inches per hour, and "A" is the area of the tract in acres.

REACH. Any of the natural or man-made runoff conveyance channels used for modeling purposes to connect the sub-areas and transport flows downstream.

RELEASE RATE. The percentage of the pre-development peak rate of runoff for a development site to which the post-development peak rate of runoff must be controlled to avoid peak flow increases throughout the watershed.

RESUBDIVISION. Any replatting or resubdivision of land, limited to changes in lot lines on approved Final Plans or Recorded Plans as specified in this Ordinance. Other replattings shall be considered as constituting a new subdivision of land. See also Subdivision.

REVERSE FRONTAGE. A lot which has road frontage along the front and rear lot lines. The lot shall front on the roadway which has the lowest roadway classification and alleys are not considered a roadway.

RETURN PERIOD. The average interval in years over which an event of a given magnitude can be expected to recur. For example, the twenty-five (25) year return period rainfall or runoff event would be expected to recur on the average once every twenty-five years.

RIGHT-OF-WAY. The total width of any land reserved or dedicated as a street, sidewalk, or for other public or quasi-public purposes.

RUNOFF. That part of precipitation which flows over land.

SANITARY SEWAGE DISPOSAL, 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 serving a major portion of a municipality or municipalities, and operated by a governmental agency, governmental authority, or public utility company.

SANITARY SEWAGE DISPOSAL, CENTRALIZED. 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, commonly called a "package treatment plant", generally serving a single land development, subdivision, or neighborhood, and

operated by a governmental agency, governmental authority, public utility Company, or a developer.

SANITARY SEWAGE DISPOSAL, ON-LOT. Any structure designed to treat sanitary sewage within the boundaries of an individual lot.

SEDIMENTATION. The process by which mineral or organic matter is accumulated or deposited by moving wind, water, or gravity. Once this matter is deposited (or remains suspended in water), it is usually referred to as "sediment".

SEEPAGE PIT/SEEPAGE TRENCH. An area of excavated earth filled with loose stone or similar material and into which surface water is directed for infiltration into the ground.

SEWAGE ENFORCEMENT OFFICER. The municipal official who issues and reviews permit applications and conducts investigations and inspections as are necessary to implement Act 537 and the rules and regulations thereunder.

SIGHT DISTANCE. The required length of roadway visible to the driver of a motor vehicle at any given point on the roadway when the view is unobstructed by traffic. Sight distance measurements shall be made from a point 3.75 feet above the centerline of the road surface to a point 0.5 feet above the centerline of the road surface.

SITE PLAN. Unless otherwise stated, a plan submitted under the requirements of the Freemansburg Borough Zoning Ordinance.

SLOPE. The face of an embankment or cut section; any ground whose surface makes an angle with the plane of the horizon. Slopes are usually expressed in a percentage based upon vertical difference in feet per one hundred (100) feet of horizontal distance.

SOIL-COVER-COMPLEX METHOD. A method of runoff computation developed by NRCS which is based upon relating soil type and land use/cover to a runoff parameter called a Curve Number.

STORAGE INDICATION METHOD. A reservoir routing procedure based on solution of the continuity equation (inflow minus outflow equals the change in storage for a given time interval) and based on outflow being a unique function of storage volume.

STORM DRAINAGE PROBLEM AREAS. Areas which lack adequate storm water collection and/or conveyance facilities and which present a hazard to persons or property. These areas are either documented in Attachment B of this ordinance or identified by the municipality or municipal engineer.

STORM SEWER. A system of pipes or other conduits which carries intercepted surface runoff, street water and other wash waters, or drainage, but excludes domestic sewage and industrial wastes.

STORMWATER DETENTION FACILITIES. Basins, ponds, ponding areas, depressions or other structures or features used to temporarily store rainfall and release it at a controlled rate.

STORM DRAINAGE SYSTEMS. All facilities and features, such as pipes, culverts, open channels, ditches, swales, and storm water detention facilities, used to transmit or temporarily store surface water runoff.

STORM WATER MANAGEMENT PLAN. The plan for managing storm water runoff adopted by Northampton County, for each watershed as required by the Act of October 4, 1978, P.L. 864, (Act 167), as amended, and known as the Storm Water Management Act.

STREAM. A watercourse.

STREET. A strip of land, including the entire right-of-way (i.e., not limited to the cartway) intended for use as a means of vehicular and pedestrian circulation to provide access to more than one (1) lot. The word "street" includes street, avenue, boulevard, road, highway, freeway, parkway, alley, viaduct, and any other ways used or intended to be used by vehicular traffic or pedestrians whether public or private. Streets are further classified according to the functions they perform:

Arterial Street. A street serving a large volume of comparatively high-speed and long distance traffic, including all facilities classified as main and secondary highways by the Pennsylvania Department of Transportation.

Collector Street. A street which, in addition to providing access to abutting properties, intercepts local streets to provide a route giving access to community facilities and/or other collector and arterial streets (streets in

industrial and commercial subdivisions shall generally be considered collector streets);

Local Street. A Street used primarily to provide access to abutting properties;

Cul-de-Sac Street. A local street intersecting another street at one end, and terminating in a vehicular turn-around at the other;

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;

Marginal Access Street. A local street, parallel and adjacent to a major street (but separated from it by a reserve strip) which provides access to abutting properties and control of intersections with the major street;

Alley. A minor right-of-way providing secondary vehicular access to the side or rear of two or more properties. All streets with a right-of-way width of less than thirty (30) feet are alleys.

STRUCTURE. Any man-made object having an ascertainable stationary location on or in land or water, whether or not affixed to the land.

SUBAREA. The smallest unit of watershed breakdown for hydrologic modeling purposes for which the runoff control criteria have been established in each Storm Water Management Plan.

SUBDIVISION. The division or redivision of a lot, tract or parcel of land by any means into two or more lots, tracts, or 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 division of land for agricultural purposes into parcels of more than ten (10) acres, not involving any new street, easement of access, or residence, shall be exempted.

Minor Subdivision. A residential subdivision which does not and will not in the future involve more than a total of three (3) lots, including the residue parcel, and does not involve the provision of any new street or easement for access, and does not involve the extension of public utilities. Such subdivision applications shall be processed in accordance with the provisions of *Section 280*.

SUBSTANTIAL IMPROVEMENT. Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty (50%) percent of the market value of the structure before the "start of construction" of the improvement.

SURVEYOR. A licensed surveyor registered by the Commonwealth of Pennsylvania.

SWALE. A low lying stretch of natural or man-made land which gathers or carries surface water runoff.

TESTING ON-LOT SANITARY SEWER SYSTEMS. Soil tests and percolation tests conducted by the Municipal Sewage Enforcement Officer in compliance with Chapter 73 of PA. Department of Environmental Protection Regulations in order to determine whether a permit may be issued for installation of on-lot sewage disposal systems.

TOPSOIL. Surface soils and subsurface soils which presumably are fertile soils and soil material. Ordinarily rich in organic matter or humus debris. Topsoil is usually found in the uppermost soil layer called the A Horizon.

WATERCOURSE. Any channel or conveyance of surface water having defined bed and banks, whether natural or artificial, with perennial or intermittent flow.

WATERSHED. The computer-based hydrologic modeling technique adapted to the Little Lehigh Creek Watershed for the Act 167 Plan Update. This model was written by Tarsi Software Laboratories and uses the same algorithms found in the Penn State Runoff Quality Model (PSRM-QUAL). The model has been calibrated to reflect actual flow values by adjusting key model input parameters.

WATER SUPPLY AND DISTRIBUTION SYSTEM, PUBLIC. A system for supplying and distributing water from a common source to dwellings and other buildings, generally serving a major portion of a municipality or municipalities, and operated by a governmental agency, governmental authority, or a public utility company.

WATER SUPPLY AND DISTRIBUTION SYSTEM, CENTRALIZED. A system for supplying and distributing water from a common source to two or more dwellings and/or other buildings, generally serving a single land development, subdivision, or neighborhood, and operated by a governmental agency, governmental authority, public utility company or a developer.

WATER SUPPLY AND DISTRIBUTION SYSTEM, ON-LOT. A system for supplying and distributing water to a single dwelling or other building from a source located on the same lot.

APPENDIX A
DESIGN AND CONSTRUCTION STANDARDS FOR CENTRALIZED WATER SYSTEMS

I. GENERAL REQUIREMENTS

A. Centralized water systems shall be developed and maintained so as to meet the standards of the Pennsylvania Department of Environmental Protection under Chapter 109 - Waterworks of its rules and regulations and the Public Water Supply Manual - Bureau of Water Quality Management Publication No. 15, 2nd edition.

B. Where a centralized water system is contemplated in a new subdivision or land development, a feasible water supply and distribution system shall be proposed before preliminary approval of the subdivision or land development. Detailed plans and specifications for the water system shall be submitted to and be approved by the Borough of Freemansburg's engineer before final approval. A permit for the system must be granted by Pa. DEP before final approval.

II. WATER SUPPLY

A. Quantity

1. The water supply shall be drawn from an adequate and reliable source which can supply in combination with storage facilities the water demands of the proposed service area, at all times. The water source in combination with storage facilities shall be capable of meeting fire flow demands according to *Section II-C* of this Appendix as well as average daily consumption except that in systems not required to provide fire flow the source in combination with storage facilities shall be capable of meeting the peak hour demand.

2. The water source shall be capable of supplying 110 gallons per day per person (GPCD) and/or 400 GPD per dwelling unit, for the design population of the development or the service area. Testing procedures to determine the reliable capacity of the water source are set forth in *Section VI* of this Appendix.

3. Water service to commercial or industrial developments shall demonstrate adequacy to meet projected demand from the specific project.

B. Quality

Source shall conform to the water quality requirements of the PA DEP as set forth in their Public Water Supply Manual Bureau of Water Quality Management Publication No. 15 - Section 2.2. Treatment of the water supply shall be done in accordance with requirements set forth in the Public Water Supply Manual, Parts 4 through 12.

C. Reliability Criteria

All Utilities shall have a standby pump or pumps adequate to insure that the system can operate normally with the largest pump out of service. In addition, the following storage and equipment requirements shall be met by centralized water supply systems according to the size of the system.

1. Small Utilities servicing less than fifty (50) customers shall have sufficient storage facilities to supply demand for a twenty-four (24) time period with the source cut off.

2. Utilities serving greater than fifty (50) but less than one hundred (100) customers shall maintain a minimum distribution storage capability of one hundred (100) percent of the maximum twenty-four hour demand.

3. Utilities serving greater than one hundred (100) but less than two hundred (200) customers shall maintain a minimum distribution storage capacity of one hundred (100) percent of the maximum twenty-four (24) hour demand and an auxiliary power generation source.

4. Utilities servicing greater than two hundred customers shall provide elevated storage facilities of sufficient capacity to meet National Insurance Services Office recommendations for fire protection, shall provide fire hydrants, and shall meet design standards of the American Water Work Association.

The NISO minimum requirements for low or medium value residential and commercial areas are indicated in the table below.

Zone	Rated Capacity GPM	Time Duration (Hours)	Residual Pressure at Rated Capacity
Residential	500	2	20 PSI
Commercial	1,000	2	20 PSI

III. DISTRIBUTION SYSTEMS

A. Acceptable Pipe Materials

Pipe selected for distribution systems shall have been manufactured in conformance with the latest standard specifications issued by the American Water Works Association. The following are generally acceptable materials for water main use:

1. Cast iron pipe (cement lined)
2. Ductile iron pipe (cement lined)
3. Steel pipe (for large size mains)
4. Reinforced concrete pipe (for large size mains)

B. Main Sizes

Water distribution mains shall be a minimum of six (6) inches inside diameter laid out in a well-gridded system. Whenever fire protection capability is provided, main sizes shall be adequate so the system can meet the water quantity and pressure standards in *Sections II-A* and *II-C* of this Appendix. Supply mains not adequate for fire-fighting shall not be connected to fire hydrants and can only be considered for use as special water service lines.

C. Water Pressure

A minimum static pressure during peak hourly flow of fifty (50) pounds per square inch is desirable, but the minimum static pressure during peak hourly flow shall not be less than thirty (30) pounds per square inch. A minimum of twenty (20) pounds per square inch should exist at any point in the system during periods of fire flow.

D. Customer Connections

1. All service connections from the main to a single dwelling unit shall be a minimum of one inch ID. The diameter of service connections to multiple units shall meet the approval of the Borough of Freemansburg engineer.

2. Customer service connections shall be one of the approved materials for mains. Heavy wall copper may be used for service connections where soils are not permeated or subject to acidic ground discharge waters.

3. A curb stop shall be furnished for each customer service connection.

4. Cross connections - A cross connection is any physical connection, direct or indirect, which provides a potential opportunity for nonpotable water to enter a conduit, pipe or receptacle containing potable water. Such cross connections are prohibited.

E. Leakage Test

1. No installation shall be approved until the leakage is less than the number of gallons per hour as determined by the formula:

$$L = \frac{ND \quad \pi \quad P}{3700}$$

Where: L = allowable leakage in gallons per hour
N = number of joints in the length of pipe tested
D = nominal diameter of the pipe in inches
P = the average test pressure during test

2. Leakage tests are conducted by measuring the amount of water which enters the test section under normal working pressures for a period of at least two hours.

IV. WATER STORAGE AND PUMPING STATIONS

A. Storage for finished water should be provided as an integral part of each water supply system. Standards set forth in Part 14 of the Public Water Supply Manual - Tanks, Standpipes and Pressure Tanks, shall be used in designing water storage systems. Equipment selected shall have been manufactured in conformance with the latest standards and specifications issued by the American Water Works Association.

B. Pumping stations within centralized water systems shall comply with standards and specifications set forth in Part 13 of Pa. DEP Public Water Supply Manual.

V. WELL CONSTRUCTION AND LOCATION

A. When public water is available, within two-hundred fifty (250) feet of the subject property, the property shall be connected to the public water supply.

B. Well construction shall take place according to the standards set forth in Part 3 of the Pa. DEP Public Water Supply Manual.

C. The centralized water system well source shall be centrally located within an open space water protection zone a minimum of one acre in size. No structures other than water system pumping stations, standpipes, etc. shall be located within the protected zone. No on-lot sewage disposal system shall be constructed within two hundred (200) feet of the water source well.

VI. WELL CAPACITY TESTING PROCEDURES

A. A dynamic recovery rate and draw-down test shall be conducted to determine the capacity and safe daily yield of the well source. The test procedures shall be conducted as follows:

1. A water pump, capable of variable output, having sufficient capacity to exceed the Dynamic Recovery Rate of the water source shall be employed for said test. It is recommended that the capacity of the source pump be such that draw-down to within twenty (20) feet of the source pump be achieved in a maximum of three hours.

2. A suitable calibrated water meter capable of measuring the water output shall be connected to the water source pump outlet.

3. The exact location of the water source pump with respect to the bottom of the well shall be recorded and maintained constant for the duration of the test.

4. The water source pump shall be operated at maximum capacity and output for the first six (6) hours of the test or until the water level in the source well reaches a point twenty (20) feet above the water source pump. The elapsed time and rate of pumping shall be recorded at sixty (60) minute intervals on the log data sheet form supplied.

5. Draw-down of the source well in feet shall be recorded at sixty (60) minute intervals as well as the water drawn-down of any required peripheral test hole wells* on the log data form.

6. Reduce the maximum rate of pumping by ten (10) gallons per minute (GPM) and continue pumping for the next two (2) hours of test or until the water level reaches a point twenty (20) feet above the water source pumps. The elapsed time, rate of pumping and draw-down of the source well and, where required, the peripheral test hole wells* shall be recorded on the log data forms at sixty (60) minute intervals.

7. Continue the above procedure using the two (2) hour time periods or the criteria of water level above the source pump until the conditions are such that the Dynamic Recovery Rate of the water source equals the pumping rate (dynamic equilibrium). The Borough of Freemansburg Engineer may increase the increment of GPM reduction where on-site review of the data warrants such action. Note, as the Dynamic Recovery Rate is approached, the increment of GPM reduction will need to be reduced from 10 GPM to 8 GPM to 5 GPM - to n GPM □ 0. At this point, no detectable change in draw-down will occur. If any change in draw-down is detected, either plus or minus, dynamic equilibrium has not been achieved.

8. When said Dynamic Recovery Rate is reached, record elapsed time, pumping rate and draw-down on log data sheet and continue pumping at this rate for the remainder of the seventy-two (72) hour test time or a minimum of twenty-four (24) hours, whichever is the

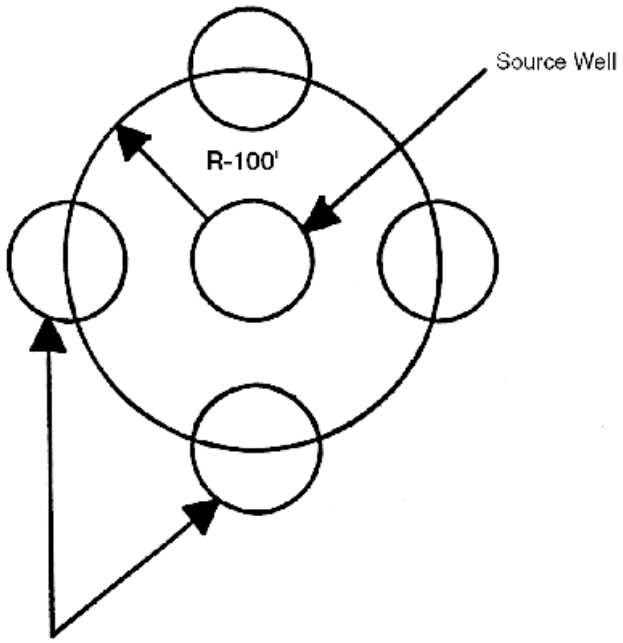
greater time. Elapsed time, pumping rate and draw-down of the source well, and where required, the peripheral test wells*, shall be recorded hourly.

9. Measurements of static water level recovery shall be made on the source well and peripheral test hole wells*, where required. Measurements shall be taken hourly and the data recorded for a minimum time period of twenty-four hours upon cessation of the dynamic recovery rate test.

10. Calculations of Specific Capacity and safe daily yield of the source well shall be submitted to the Borough of Freemansburg Engineer and DEP by the registered professional engineer employed by the Utility or developer for review and analysis.

*Peripheral test hole wells may be required in order to determine the area of influence of the source well and the capacity of the source well aquifer. Peripheral test hole wells will generally be required in geological areas with slate and shale formations. The test hole wells shall be situated according to Figure 1 and have a minimum diameter of six (6) inches.

Figure 1



Peripheral Test Hole Wells

VII. IMPROVEMENTS REQUIREMENTS

A. Where a centralized water system is to be installed within a proposed subdivision or land development, the improvement procedures and requirements set forth within *Section 450* shall be followed.

B. Final specifications for the design and installation of the centralized water system shall be included as part of the improvements agreement between the developer and the municipal governing body. Final approval of the subdivision or land development plan shall not take place until such specifications are finalized within the improvements agreement and until the necessary improvements and maintenance guarantees are posted. Engineering review of the specifications shall take place before signing of the improvements agreement and before approval of the final development plan.

APPENDIX B
STORMWATER MANAGEMENT DISTRICTS
STORM WATER DISTRICT IMPLEMENTATION PROVISIONS AND CALCULATION METHODOLOGY

101 STORM WATER MANAGEMENT DISTRICTS

(1) Mapping of Storm Water Management Districts - To implement the provisions of the Storm Water Management Plans, the municipalities are hereby divided into Storm Water Management Districts consistent with the Release Rate Maps presented in each Plan. The boundaries of the Storm Water Management Districts are shown on the maps contained in the relevant Act 167 Storm Water Management Plans. The applicable Act 167 Storm Water Management Plans for the Borough of Freemansburg are:

(a) Catasauqua Creek Watershed and Lehigh River Sub-Basin 4, ACT 167, Storm Water Management Plan.

(b) The Nancy Run Watershed, ACT 167, Storm Water Management Plan.

(2) Description of Storm Water Management Districts - Four types of Storm Water Management Districts may be applicable to the municipality, as described below.

(a) Conditional No Detention I Districts/Provisional No Detention Districts - Within these districts, the capacity of the local runoff conveyance facilities (as defined in *Section 710*) must be calculated to determine if adequate capacity exists. For this determination, the developer must calculate peak flows assuming that the site is developed as proposed and that the remainder of the local watershed is in the existing condition. The developer must also calculate peak flows assuming that the entire local watershed is developed per current zoning and that all new development would use the runoff controls specified by this Ordinance. The larger of the two peak flows calculated will be used in determining if adequate capacity exists. If adequate capacity exists to safely transport runoff from the site to the main channel, these watershed areas may discharge post-development peak runoff without detention facilities. If the capacity calculations show that the local runoff conveyance facilities lack

adequate capacity, the developer shall either use a 100% release rate control or provide increased capacity of downstream elements to convey increased peak flows consistent with *Section 102.13* of this Appendix. Any capacity improvements must be designed to convey runoff from development of all areas tributary to the improvement consistent with the capacity criteria specified in *Section 102.03* of this Appendix. By definition, a storm drainage problem area associated with the local runoff conveyance facilities indicates that adequate capacity does not exist.

(b) Conditional No Detention II Districts - Within these districts, the capacity of the local runoff conveyance facilities must be calculated in the same manner as the Conditional No Detention I Districts. In this case, however, adequate capacity must be demonstrated from the site to the Delaware or Lehigh River, as applicable. After determining if adequate capacity exists, the developer shall use either no detention, a 100% release rate or provide capacity improvements as detailed in *Section 101.21* of this Appendix. - Conditional No Detention I Districts/Provisional No Detention Districts.

(c) Dual Release Rate Districts - Within this district, the 2-year post-development peak runoff must be controlled to 30% of the predevelopment 2-year runoff peak. Further, the 10-year, 25-year and 100-year post-development peak runoff must be controlled to the stated percentage of the pre-development peak. Release Rates associated with the 10- through 100-year events vary from 50% to 100% depending upon location in the watershed.

(d) Single Release Rate Districts - Within this district, the 2-year, 10-year, 25-year and 100-year post-development peak runoff must be controlled to the stated percentage of the pre-development peak. Release Rates vary from 50% to 100% depending upon location in the watershed.

102 STORM WATER MANAGEMENT DISTRICT IMPLEMENTATION PROVISIONS

(1) Any storm water management controls required by this Ordinance and subject to a single or dual release rate criteria shall meet the applicable release rate criteria for each of the 2-, 10-, 25- and 100-year return period runoff events

consistent with the calculation methodology specified in *Section 103* of this Appendix.

(2) The exact location of the Storm Water Management District boundaries as they apply to a given development site shall be determined by mapping the boundaries using the two-foot topographic contours provided as part of the Drainage Plan. The District boundaries as originally drawn coincide with topographic divides or, in certain instances, are drawn from the intersection of the watercourse and a physical feature such as the confluence with another watercourse or a potential flow obstruction (e.g. road, culvert, bridge, etc.). The physical feature is the downstream limit of the sub-area and the sub-area boundary is drawn from that point up slope to each topographic divide along the path perpendicular to the contour lines.

(3) Any downstream capacity analysis conducted in accordance with this Ordinance shall use the following criteria for determining adequacy for accepting increased peak flow rates:

(a) 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* (April 1990). Permissible velocities from the DEP manual for selected channels are presented in Attachment A of this Ordinance.

(b) Natural or man-made channels or swales must be able to convey the increased 25-year return period runoff without creating any hazard to persons or property.

(c) 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.

(4) For a proposed development site located within one release rate category sub-area, the total runoff from the site shall meet the applicable release rate criteria. For development sites with multiple directions of runoff discharge, individual drainage directions may be designed for up to a 100% release rate

so long as the total runoff from the site is controlled to the applicable release rate.

(5) For a proposed development site located within two or more release category sub-areas, the peak discharge rate from any sub-area shall be the pre-development peak discharge for that sub-area multiplied by the applicable release rate. The calculated peak discharges shall apply regardless of whether the grading plan changes the drainage area by sub-area. An exception to the above may be granted if discharges from multiple sub-areas re-combine 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.

(6) For a proposed development site located partially within a release rate category sub-area and partially within a conditional or provisional no detention sub-area, a significant portion of the site area subject to the release rate control may not be drained to the discharge point(s) located in the no detention sub-area except as part of a No Harm or hardship waiver procedure.

(7) Within a release rate category area, for a proposed development site which has significant areas which drain to a closed depression(s), the design release from the site will be the lesser of (a) the applicable release rate flow assuming no closed depression(s) or (b) the existing peak flow actually leaving the site. In cases where (b) would result in an unreasonably small design release, the design discharge of less than or equal to the release rate will be determined by the available downstream conveyance capacity to the main channel calculated using *Section 102.03* and the minimum orifice criteria.

(8) Off-site areas which 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 using the capacity criteria in *Section 102.03* of this Appendix and the detention criteria in *Section 103* of this Appendix.

(9) For development sites proposed to take place in phases, all detention ponds shall be designed to meet the applicable release rate(s) applied to all site areas tributary to the proposed pond discharge direction. All site tributary areas will be assumed as developed, regardless of whether all site tributary acres are proposed for development at that time. An exception shall be sites with

multiple detention ponds in series where only the downstream pond must be designed to the stated release rate.

(10) Where the site area to be impacted by a proposed development activity differs significantly from the total site area, only the proposed impact area shall be subject to the release rate criteria. The impact area includes any proposed cover or grading changes.

(11) Development proposals which, through groundwater recharge or other means, do not increase the rate and volume of runoff discharged from the site compared to pre-development are not subject to the release rate provisions of the Ordinance.

(12) No Harm Option - For any proposed development site not located in a conditional/provisional no detention district, the developer has the option of using a less restrictive runoff control (including no detention) if the developer can prove that special circumstances exist for the proposed development site and that "no harm" would be caused by discharging at a higher runoff rate than that specified by the Plan. Special circumstances are defined as any hydrologic or hydraulic aspects of the development itself not specifically considered in the development of the Plan runoff control strategy. Proof of no harm would have to be shown from the development site through the remainder of the downstream drainage network to the confluence of the creek with the Delaware or Lehigh River, as appropriate. Proof of "no harm" must be shown using the capacity criteria specified in *Section 102.03* of this Appendix if downstream capacity analysis is a part of the "no harm" justification.

Attempts to prove no harm based upon downstream peak flow versus capacity analysis shall be governed by the following provisions:

(a) The peak flow values to be used for downstream areas for the design return period storms (2-, 10-, 25- and 100-year) shall be the values from the calibrated hydrologic model for each watershed. These flow values would be supplied to the developer by the Borough of Freemansburg engineer upon request.

(b) Any available capacity in the downstream conveyance system as documented by a developer may be used by the developer only in proportion to his development site acreage relative to the total

upstream undeveloped acreage from the identified capacity (i.e. if his site is 10% of the upstream undeveloped acreage, he may use up to 10% of the documented downstream available capacity).

(c) 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 102.14* of this Appendix.

Any no harm justifications shall be submitted by the developer as part of the Drainage Plan submission.

(13) 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.

(14) Capacity Improvements - In certain instances, primarily within the conditional no detention/provisional no detention areas, local drainage conditions may dictate more stringent levels of runoff control than those based upon protection of the entire watershed. In these instances, if the developer could prove that it would be feasible to provide capacity improvements to relieve the capacity deficiency in the local drainage network, then the capacity improvements could be provided by the developer in lieu of runoff controls on the development site. Peak flow calculations are to be done assuming that the local watershed is in the existing condition and then assuming that the local watershed is developed per current zoning and using the specified runoff controls. Any capacity improvements would be designed using the larger of the above peak flows and the capacity criteria specified in *Section 102.03* of this Appendix. All new development in the entire sub-area(s) within which the proposed development site is located shall be assumed to implement the developer's proposed discharge control, if any. Capacity improvements may also be provided as necessary to implement any regional detention alternatives or to implement a modified no harm option which proposes

specific capacity improvements to provide that a less stringent discharge control would not create any harm downstream.

(15) Compatibility with NPDES Requirements - Any proposed Regulated Activity for which a permanent storm water quality control detention basin is required under the NPDES regulations shall use the more stringent runoff control criteria between this Ordinance and the NPDES requirements.

103 CALCULATION METHODOLOGY

(1) Storm water runoff from all development sites shall be calculated using either the rational method or the soil-cover-complex methodology.

(2) The design of any detention basin intended to meet the requirements of this Ordinance shall be verified by routing the design storm hydrograph through the proposed basin using the storage indication method. For basins designed using the rational method technique, the design hydrograph for routing shall be either the Universal Rational Hydrograph or the modified rational method trapezoidal hydrograph which maximizes detention volume.

(3) All storm water detention facilities shall provide a minimum 1.0 foot freeboard above the maximum pool elevation associated with the 2- through 25-year runoff events. A 0.5 foot freeboard shall be provided above the maximum pool elevation of the 100-year runoff event. The freeboard shall be measured from the maximum pool elevation to the invert of the emergency spillway. The 2- through 100-year storm events shall be controlled by the primary outlet structure. An emergency spillway for each basin shall be designed to pass the 100-year return frequency storm peak basin inflow rate with a minimum 0.5 foot freeboard measured to the top of basin. The freeboard criteria shall be met considering any offsite areas tributary to the basin as developed, as applicable. If this detention facility is considered to be a dam as per DEP Chapter 105, the design of the facility must be consistent with the Chapter 105 regulations, and may be required to pass a storm greater than the 100-year event.

(4) The minimum circular orifice diameter for controlling discharge rates from detention facilities shall be three (3) inches provided that as much of the site runoff as practical is directed to the detention facilities.

(5) All calculations using the soil-cover-complex method shall use the Natural Resources Conservation Service Type II 24-hour rainfall distribution. The 24-hour rainfall depths for the various return periods to be used consistent with this Ordinance are taken from the PennDOT Intensity - Duration - Frequency Field Manual (May 1986*)* for Region 4:

Return Period	24-Hour Rainfall Depth
1 Year	2.40 inches
2 Year	3.00 inches
5 Year	3.60 inches
10 Year	4.56 inches
25 Year	5.52 inches
50 Year	6.48 inches
100 Year	7.44 inches

A graphical and tabular presentation of the Type II-24 hour distribution is included in Attachment A.

(6) All calculations using the Rational Method shall use rainfall intensities consistent with appropriate times of concentration and return periods and the Intensity-Duration-Frequency Curves as presented in Attachment A.

(7) Runoff Curve Numbers (CN's) to be used in the soil-cover-complex method shall be based upon the matrix presented in Attachment A.

(8) Runoff coefficients for use in the Rational Method shall be based upon the table presented in Attachment A.

(9) Proposed volume controls shall be designed with sufficient storage volume for a 100-year return period event unless proposed in combination with rate controls to achieve the required performance standard across all return periods. For the return period(s) to be solely controlled by the volume control, the storage volume shall equal or exceed the volume of the Universal Rational Hydrograph for the drainage area to the volume control.

(10) All time of concentration calculations shall use a segmental approach which may include one or all of the flow types below:

(a) Overland Flow (sheet flow) calculations shall use either the NRCS average velocity chart (Figure 3-1, Technical Release-55, 1975) or the

modified kinematic wave travel time equation (equation 3-3, NRCS TR-55, June 1986). If using the modified kinematic wave travel time equation, the overland flow length shall be limited to 50 feet for designs using the Rational Method and limited to 150 feet for designs using the soil-cover-complex method.

(b) Shallow Concentrated Flow travel times shall be determined from the watercourse slope, type of surface and the velocity from Figure 3-1 of TR-55, June 1986.

(c) Open Channel Flow travel times shall be determined from velocities calculated by the Manning equation. Bank full flows shall be used for determining velocities. Manning "n" values shall be based on the table presented in Attachment A.

(d) Pipe Flow travel times shall be determined from velocities calculated using the Manning equation assuming full flow and the Manning "n" values from Attachment A.

(11) All pre-development calculations for a given discharge direction shall be based on a common time of concentration considering both on-site and any off-site drainage areas. All post-development calculations for a given discharge direction shall be based on a common time of concentration considering both on-site and any off-site drainage areas.

(12) The Manning equation shall be used to calculate the capacity of watercourses. Manning "n" values used in the calculations shall be consistent with the table presented in Attachment A. Pipe capacities shall be determined by methods acceptable to the LVPC engineer.

(13) The Pennsylvania DEP, Chapter 105, Rules and Regulations, apply to the construction, modification, operation or maintenance of both existing and proposed dams, water obstructions and encroachments throughout the watershed. Criteria for design and construction of storm water management facilities according to this Ordinance may not be the same criteria that are used in the permitting of dams under the Dam Safety Program.

Appendix B Attachments

B-1 NRCS Type II 24-Hour Rainfall Distribution (Graphic & Tabular)

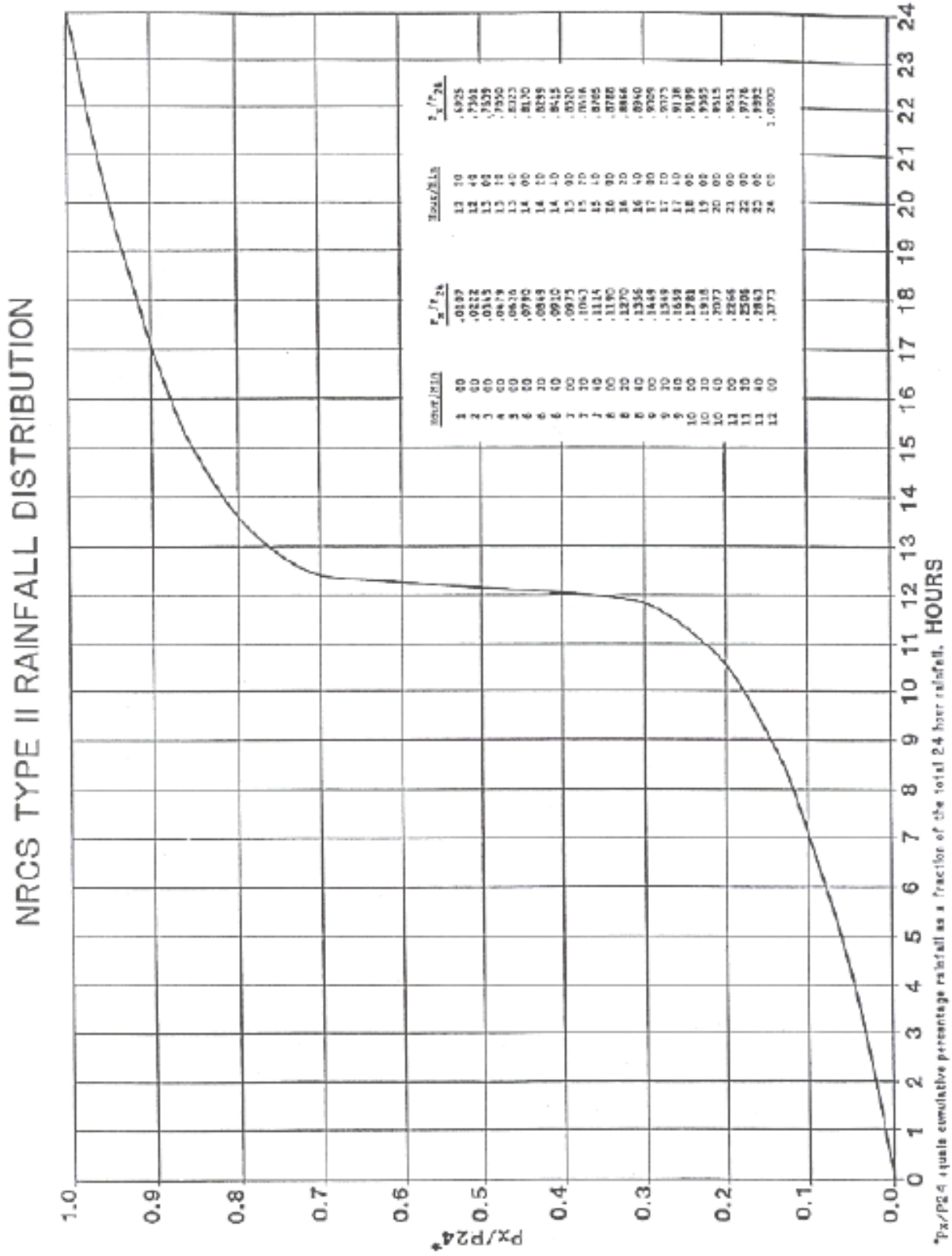
B-2 Intensity-Duration-Frequency Curves

B-3 Runoff Curve Numbers and Percent Imperviousness Values

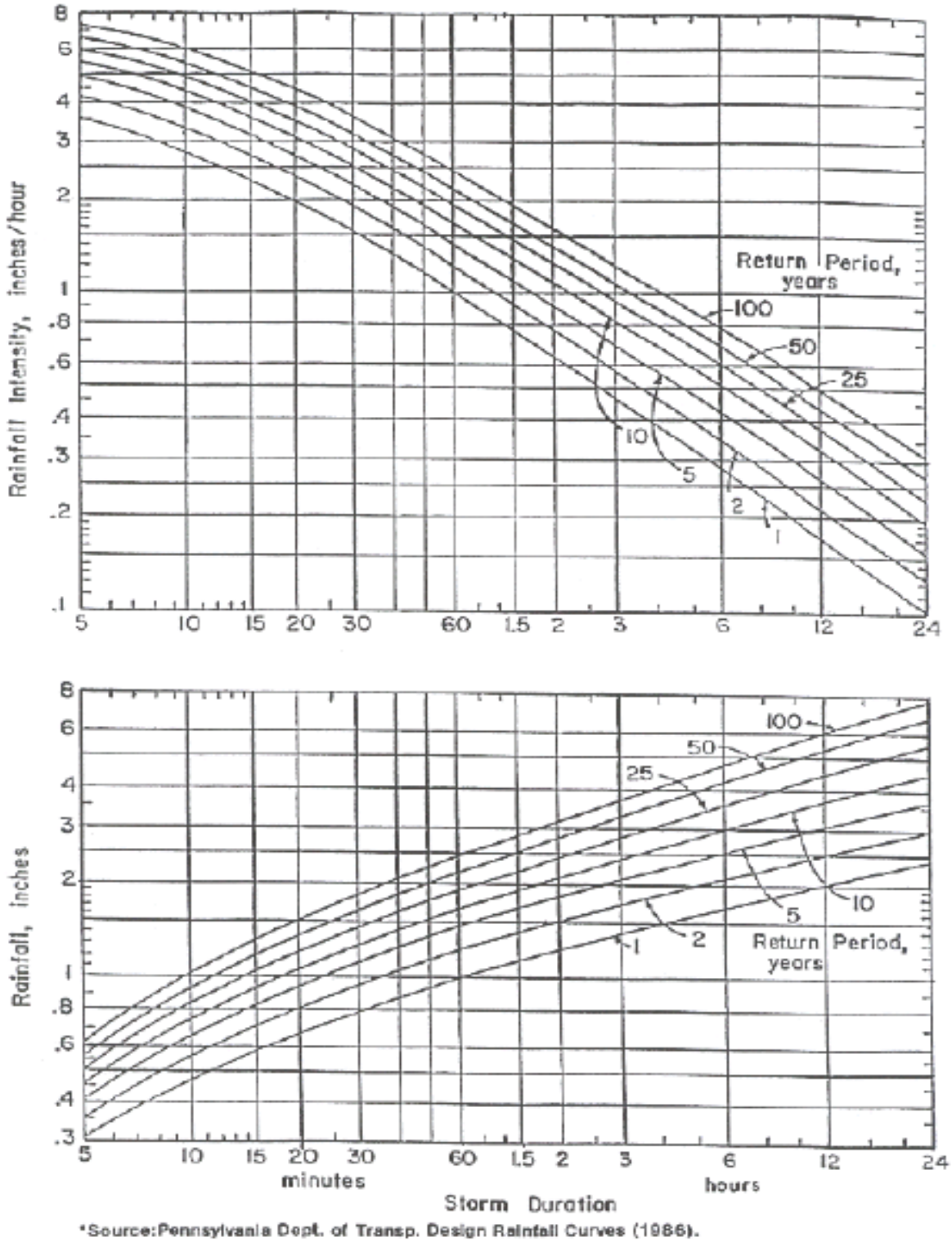
B-4 Runoff Coefficients for the Rational Method

B-5 Manning 'n' Values

B-6 Permissible Velocities for Channels


NRCS TYPE II RAINFALL DISTRIBUTION
Px/P24*
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
HOURS
*Px/P24 equals cumulative percentage rainfall as a fraction of the total 24 hour rainfall.

INTENSITY–DURATION–FREQUENCY CURVES*



*Source: Pennsylvania Dept. of Transp. Design Rainfall Curves (1986).

RUNOFF CURVE NUMBERS AND PERCENT IMPERVIOUSNESS VALUES*

Cover Description		Curve numbers for hydrologic soil group**			
Land Use/Cover Type	Average percent impervious area	A	B	C	D
Open space (lawns, parks, golf courses, cemeteries, etc.):					
Good condition (grass cover greater than 75%) . .		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way) .		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Urban districts:					
Commercial and business . . .	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
⅛ acre or less (townhouses)	65	77	85	90	92
¼ acre	38	61	75	83	87
⅓ acre	30	57	72	81	86
½ acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Woods		30	55	70	77
Agriculture		Refer to Table 2-2b in source document (TR55) by crop type and treatment.			

*Source: Natural Resources Conservation Service Technical Release No. 55, Second Edition, June 1986.

**Hydrologic Soil Group based on the County Soil Survey latest edition.

RUNOFF COEFFICIENTS FOR THE RATIONAL METHOD*

HYDROLOGIC SOIL GROUP AND SLOPE RANGE**

LAND USE	A			B			C			D		
	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+	0-2%	2-6%	6%+
Cultivated[A]	[a]0.18 [b]0.23	0.23 0.29	0.28 0.34	0.24 0.30	0.29 0.36	0.33 0.40	0.30 0.36	0.34 0.41	0.38 0.45	0.33 0.39	0.37 0.44	0.41 0.48
Pasture[B]	0.09 0.12	0.13 0.17	0.17 0.23	0.19 0.24	0.24 0.30	0.29 0.36	0.27 0.33	0.31 0.38	0.36 0.43	0.31 0.37	0.35 0.42	0.39 0.46
Meadow, Lawn[C]	0.05 0.07	0.08 0.12	0.12 0.17	0.15 0.19	0.20 0.25	0.24 0.30	0.23 0.28	0.28 0.34	0.32 0.39	0.28 0.33	0.32 0.39	0.36 0.43
Forest, Woods	0.03 0.04	0.05 0.08	0.08 0.12	0.11 0.15	0.16 0.21	0.20 0.26	0.20 0.25	0.25 0.31	0.29 0.36	0.25 0.31	0.30 0.37	0.34 0.41
Gravel	0.24 0.30	0.29 0.36	0.33 0.40	0.32 0.38	0.36 0.43	0.40 0.47	0.35 0.42	0.39 0.46	0.43 0.50	0.37 0.44	0.41 0.48	0.44 0.51
Parking, Other Impervious	0.72 0.84	0.76 0.88	0.80 0.92	0.72 0.84	0.76 0.88	0.80 0.92	0.72 0.84	0.76 0.88	0.80 0.92	0.72 0.84	0.76 0.88	0.80 0.92
Residential, Commercial, Industrial And Other "Developed"	Runoff coefficients should be calculated based upon weighted average of impervious area coefficients and pervious area coefficients from above based upon soil type, slope and the particular development proposal.											

*Based on Rossmiller Equation for translating NRCS curve numbers into Rational Method 'c' values.
**Hydrologic Soil Group based on the county soil survey latest edition.

a—Runoff coefficients for storm recurrence intervals less than 25 years.
b—Runoff coefficients for storm recurrence intervals of 25 years or more.

[A]Represents average of cultivated land with and without conservation treatment from TR-55, January 1975. These values are consistent with several categories of cultivated lands from TR-55, June 1986.
[B]Represents grasslands in fair condition with 50% to 75% grass cover.
[C]Represents grasslands in good condition with greater than 75% grass cover.

B - 5

MANNING 'n' VALUES BY TYPICAL REACH DESCRIPTION

Reach Description	Manning 'n'
Natural stream, clean, straight, no rifts or pools	0.030
Natural stream, clean, winding, some pools and shoals	0.040
Natural stream, winding, pools, shoals, stony with some weeds	0.050
Natural stream, sluggish with deep pools and weeds	0.070
Natural stream or swale, very weedy or with timber under brush	0.100
Concrete pipe, culvert or channel	0.012
Corrugated metal pipe	0.012–0.027*

*Depending upon type and diameter.

ROUGHNESS COEFFICIENTS (MANNING 'n1') FOR SHEET FLOW

Surface Description	Manning 'n' [1]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.050
Cultivated soils:	
Residue cover ≤ 20%	0.060
Residue cover > 20%	0.170
Grass:	
Short grass prairie	0.150
Dense grasses[2]	0.240
Bermuda grass	0.410
Range (natural):	0.130
Woods:	
Light underbrush	0.400
Dense underbrush	0.800

[1] The n values are a composite of information compiled by Engman (1986).

[2] Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.

[3] When selecting 'n', consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

PERMISSIBLE VELOCITIES FOR SELECTED CHANNELS

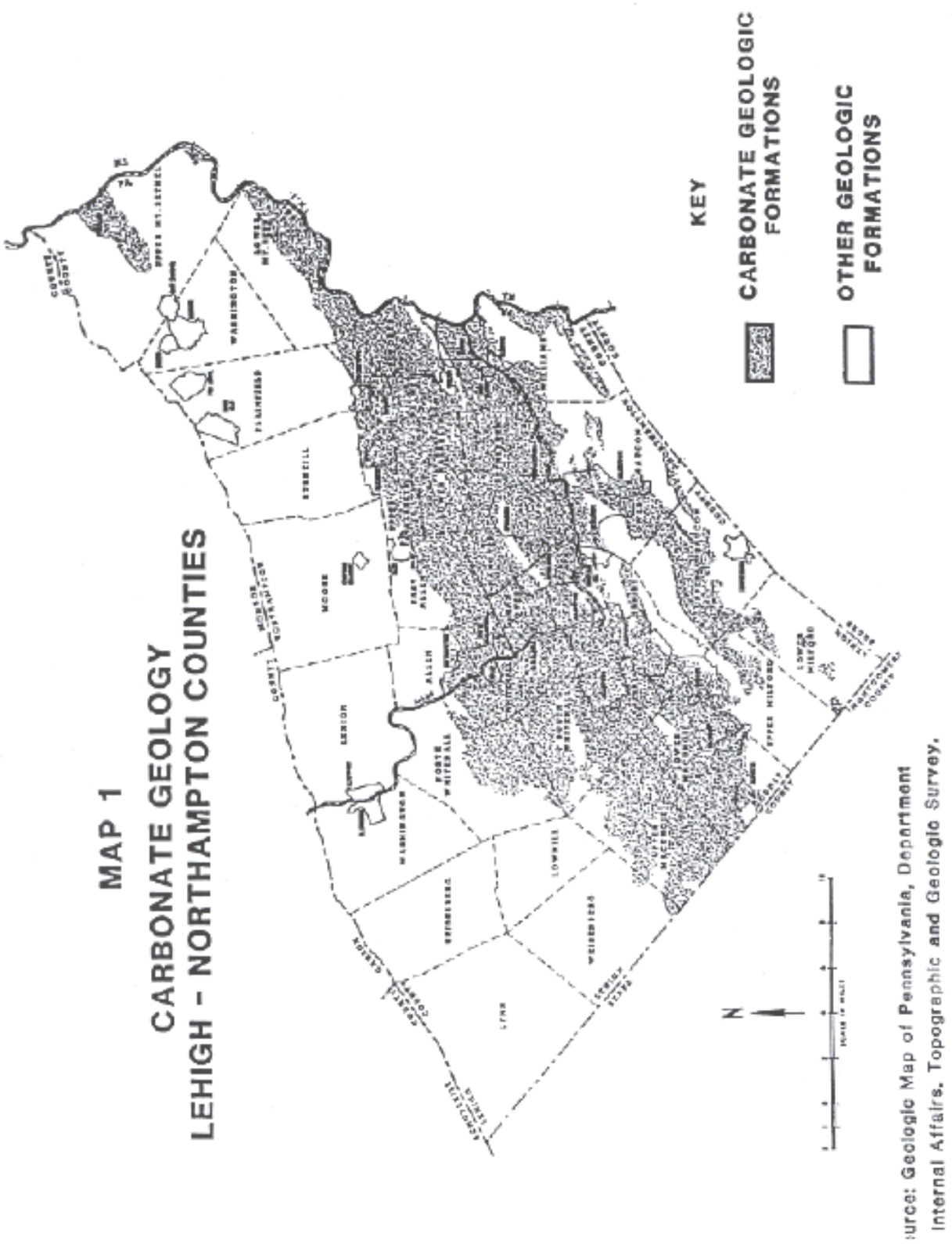
CHANNEL LINING	PERMISSIBLE CHANNEL VELOCITY (FEET PER SECOND)		
Vegetation[1]			
Grass Mixture	4.0	-	5.0
Kentucky Bluegrass	5.0	-	7.0
Kentucky 31 Tall Fescue	3.0	-	6.0
Red Clover or Red Fescue	2.5	-	3.5
Red Top	2.5	-	3.5
Red Canarygrass	3.0	-	4.0
Sericea Lespedeza	2.5	-	3.5
Sudan Grass	2.5	-	3.5
Weeping Lovegrass	2.5	-	3.5
Bare Earth, Easily Eroded[2]			
Fine Sand	1.5		
Sand Loam	1.75		
Silt Loam or Alluvial Silts, Loose	2.0		
Firm Loam	2.50		
Bare Earth, Erosion Resistant[2]			
Fine Gravel	2.5		
Stiff Clay or Alluvial Silts, Firm	3.75		
Loam to Cobbles (Graded)	3.75		
Silt to Cobbles (Graded or Course Gravel)	4.0		
Cobbles and Stones or Shales and Hardpans	6.0		
Rock Lined			
6" Rip Rap	9.0		
9" Rip Rap	11.5		
12" Rip Rap	13.0		

[1] Maximum permissible velocities dependent on soil erodibility and slope.

[2] Maximum permissible velocities in bare earth channels - for straight channels where slopes <0.02 ft./ft.

Source: Department of Environmental Protection, *Erosion and Sediment Pollution Control Program Manual*, April 1990.

Appendix C - Map 1



Appendix D - Construction Details

D-1 Curb Detail – Driveway at Depressed Curb

D-2 Typical Roadway Cross Section - Local Road

D-3 Typical Roadway Cross Section - Collector Road

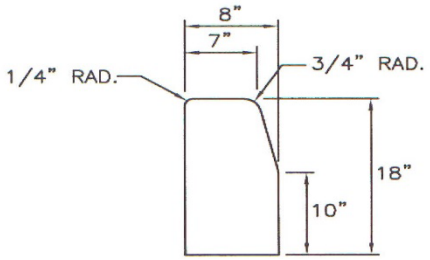
D-4 Typical Roadway Cross Section – Arterial Road

D-5 Bituminous Pavement Removal and Repair within Existing Municipal Streets

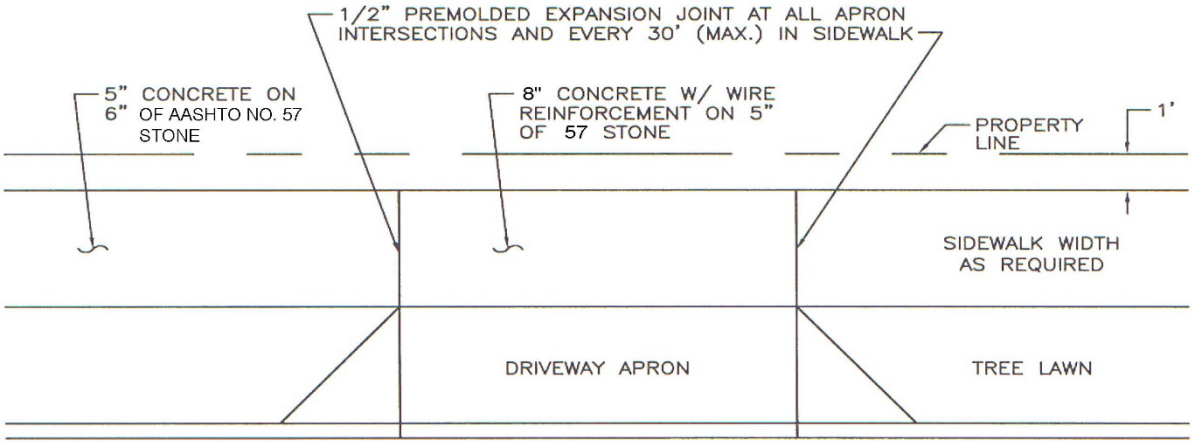
D-6 Trench Backfill and Temporary Paving Detail

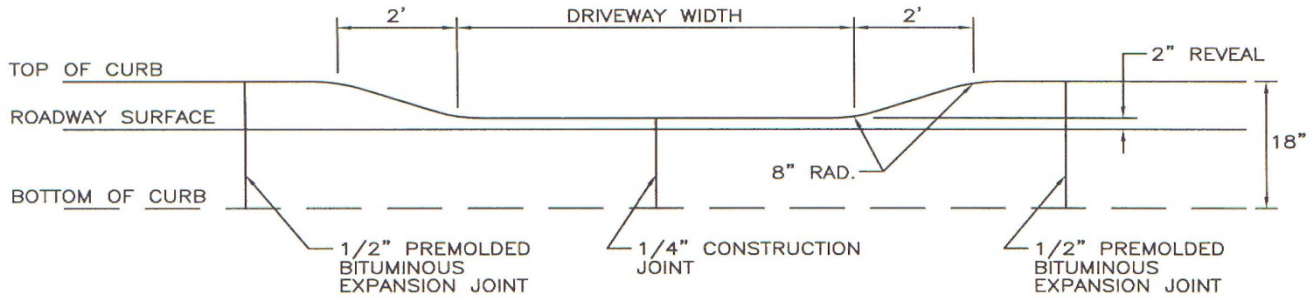
D-7 Bituminous Driveway Pavement Repair

D-8 Elevation View of Existing Curb Replacement for Driveway Crossover



CURB DETAIL





DRIVEWAY AT DEPRESSED CURB

NOTE: FACE FORMING IS NOT PERMITTED.

Carroll Engineering Corporation
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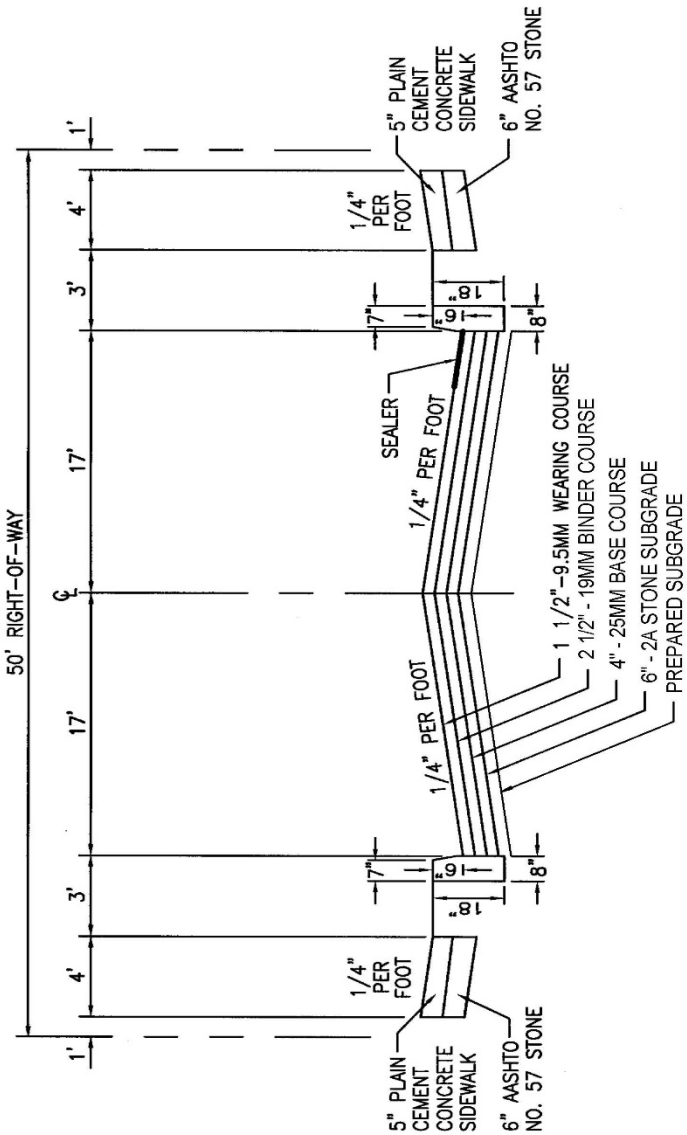
PREPARED FOR
BOROUGH OF FREEMANSBURG
SITUATED IN
NORTHAMPTON COUNTY, PA

DATE 06-05-2025
JOB NO.
SCALE NTS
DWG. NO.



TYPICAL ROADWAY CROSS-SECTION
LOCAL ROAD

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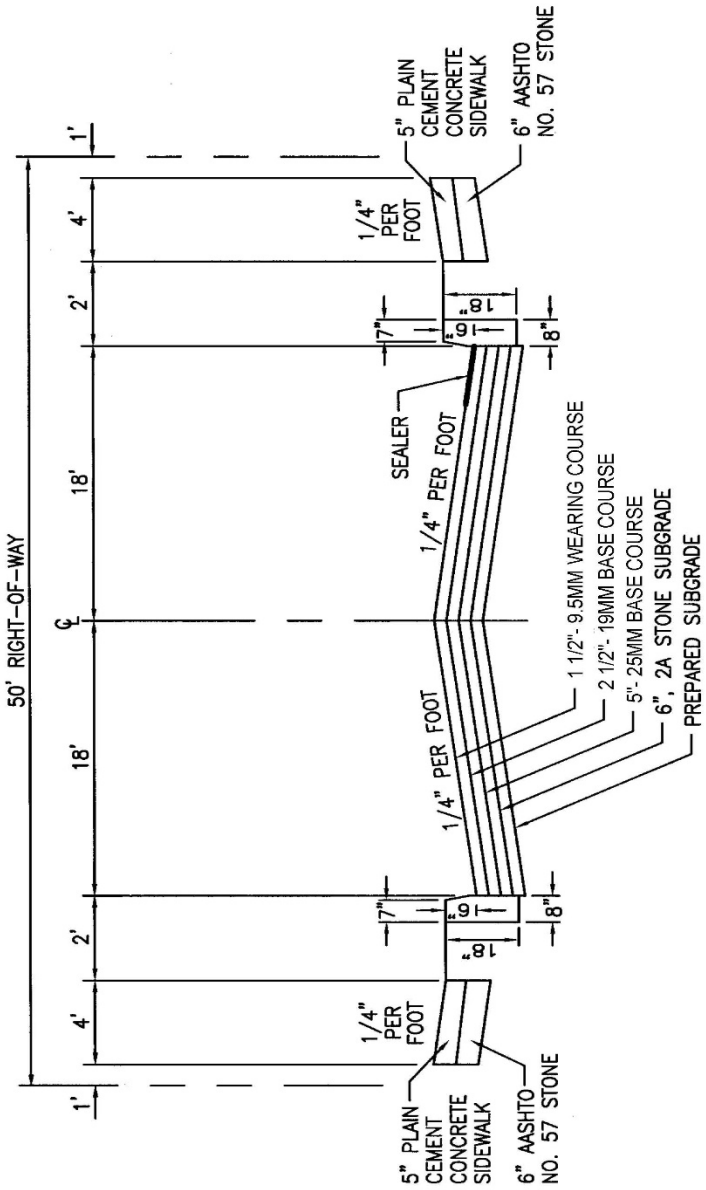
PREPARED FOR
BOROUGH OF FREEMANSBURG
SITUATED IN
NORTHAMPTON COUNTY, PA

DATE 06-05-2025
JOB NO.
SCALE NTS
DWG. NO.



TYPICAL ROADWAY CROSS-SECTION
COLLECTOR ROAD

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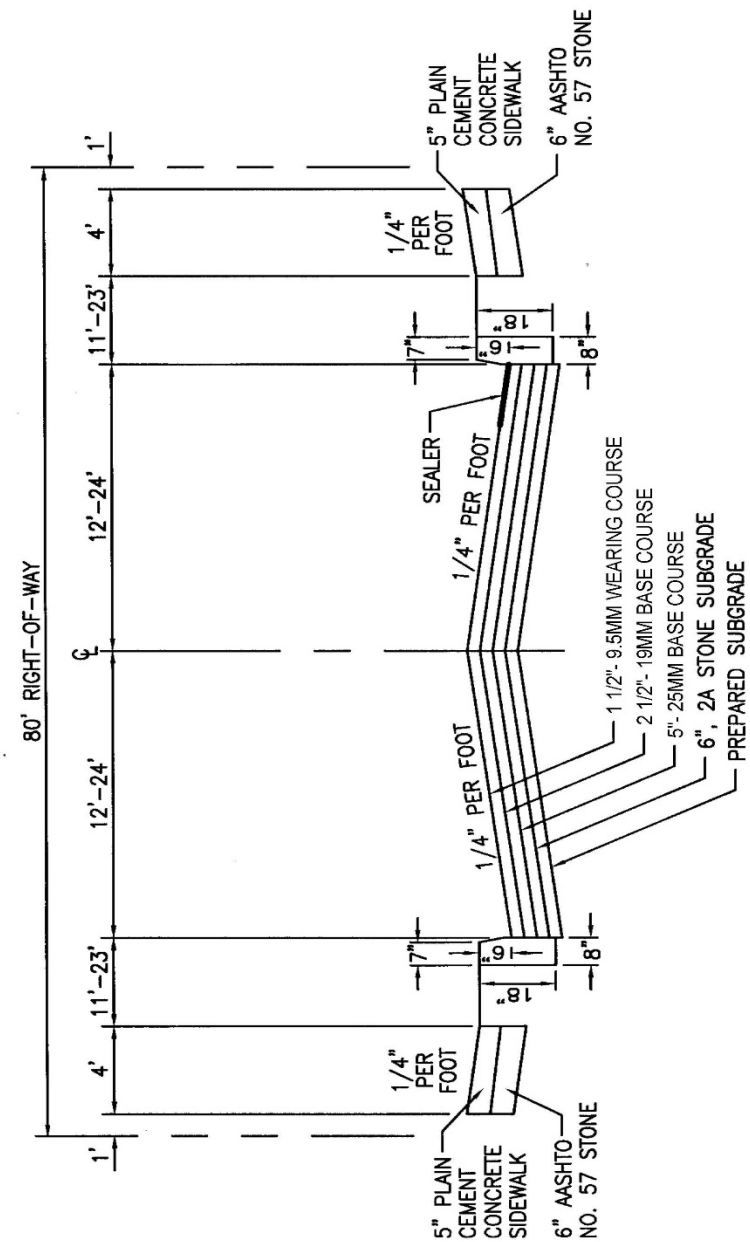
PREPARED FOR
BOROUGH OF FREEMANSBURG
SITUATED IN
NORTHAMPTON COUNTY, PA

DATE 06-05-2025
JOB NO.
SCALE NTS
DWG. NO.



TYPICAL ROADWAY CROSS-SECTION
ARTERIAL ROAD

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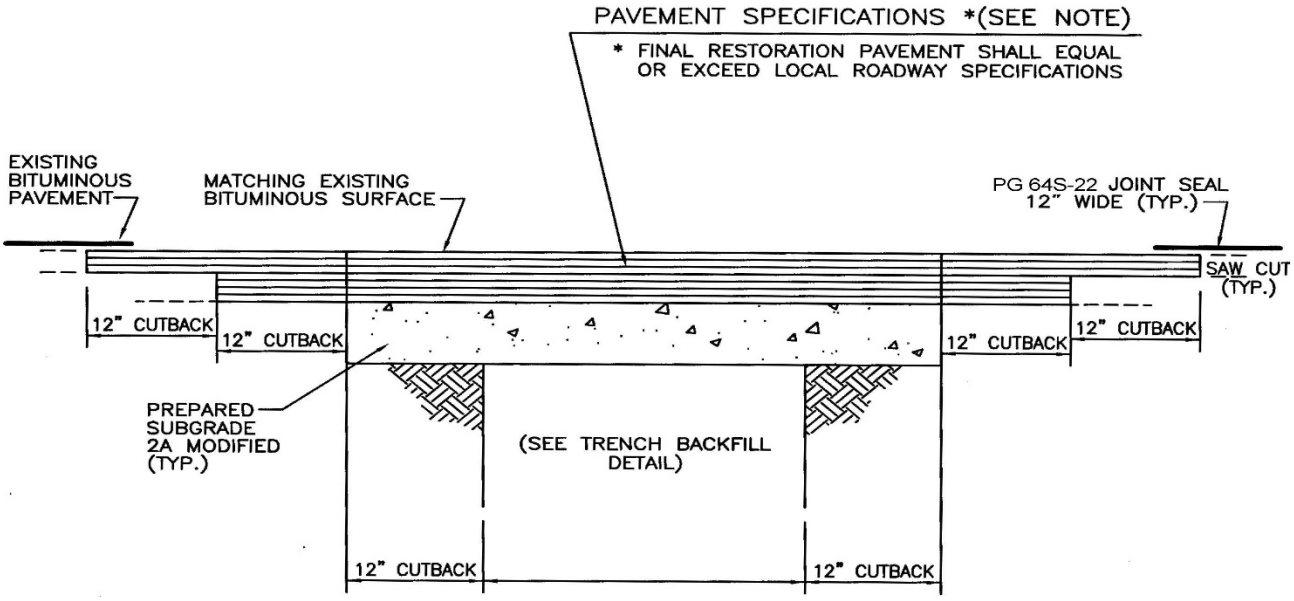
PREPARED FOR
BOROUGH OF FREEMANSBURG
SITUATED IN
NORTHAMPTON COUNTY, PA

DATE 06-05-2025
JOB NO.
SCALE NTS
DWG. NO.

ROADWAY CLASSIFICATION	9.5MM WEARING	19MM BINDER	25MM BASE COURSE	2A STONE SUBBASE
LOCAL	1 1/2"	2 1/2"	4"	6"
COLLECTOR	1 1/2"	2 1/2"	5"	6"
ARTERIAL	1 1/2"	2 1/2"	5"	6"
INDUSTRIAL	MATCH ARTERIAL SPECIFICATION AS MIN. OR MEET EXISTING PAVEMENT DESIGN			



BITUMINOUS PAVEMENT REMOVAL AND REPAIR WITHIN EXISTING MUNICIPAL STREETS

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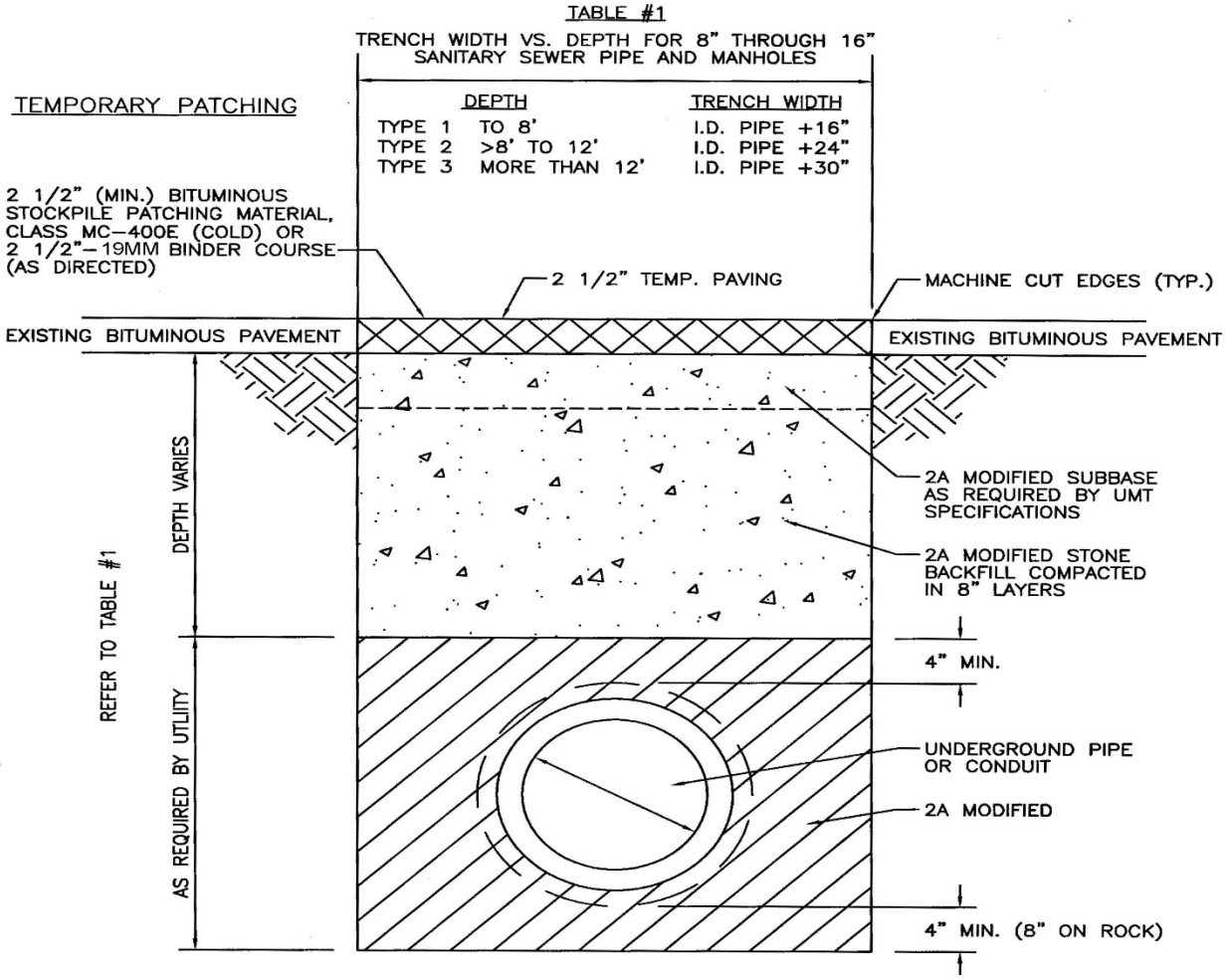
NOTE: NEWLY PAVED ROADWAYS MAY REQUIRE BORING IN LIEU OF OPEN TRENCHING

TABLE #1

TRENCH WIDTH VS. DEPTH FOR 8" THROUGH 16" SANITARY SEWER PIPE AND MANHOLES

DEPTH		TRENCH WIDTH
TYPE 1	TO 8'	I.D. PIPE +16"
TYPE 2	>8' TO 12'	I.D. PIPE +24"
TYPE 3	MORE THAN 12'	I.D. PIPE +30"



TRENCH BACKFILL AND TEMPORARY PAVING DETAIL

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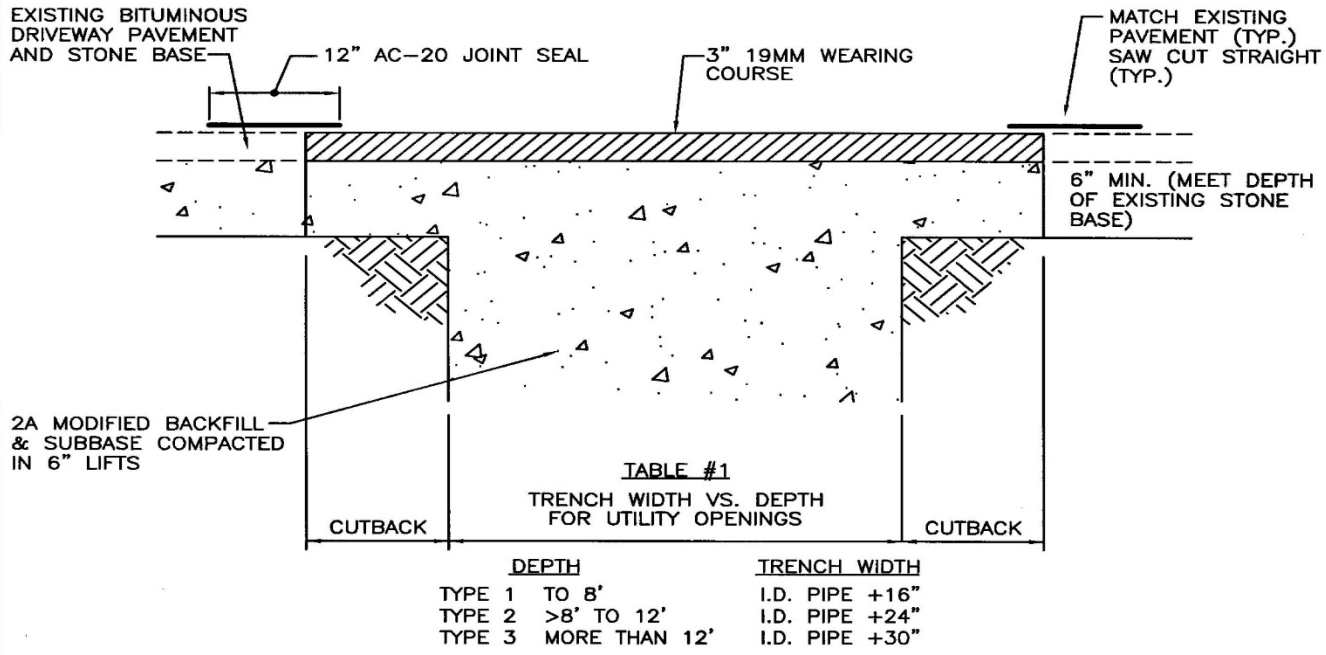

TABLE #1

TRENCH WIDTH VS. DEPTH FOR UTILITY OPENINGS

DEPTH	TRENCH WIDTH
TYPE 1 TO 8'	I.D. PIPE +16"
TYPE 2 >8' TO 12'	I.D. PIPE +24"
TYPE 3 MORE THAN 12'	I.D. PIPE +30"

BITUMINOUS DRIVEWAY PAVEMENT REPAIR

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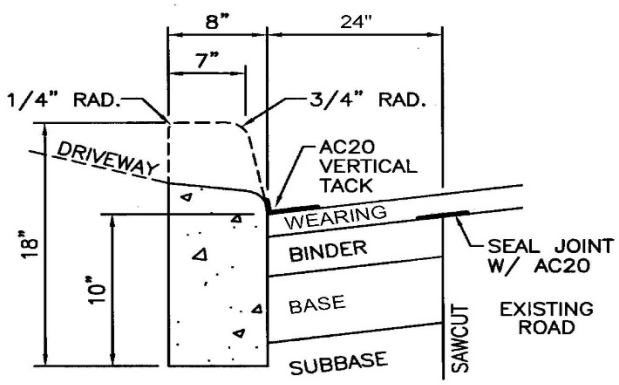
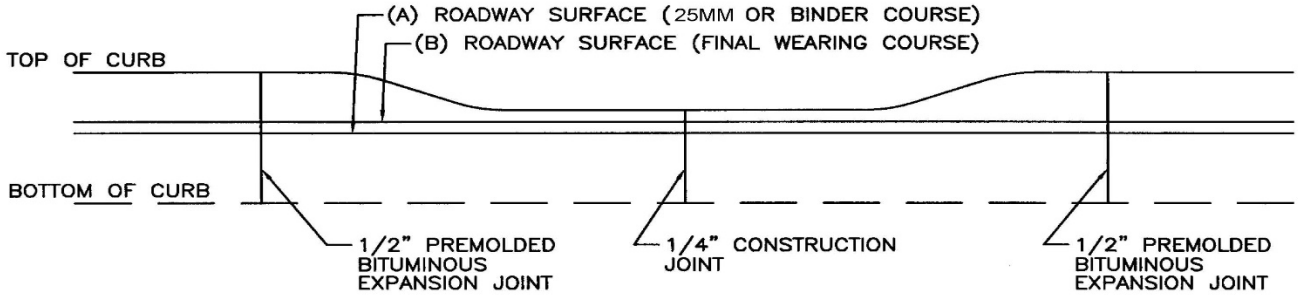


CONDITION A
ROADWAY WITH BASE OR BINDER:

TYPICAL SECTION



NOTE:
ROADWAY MUST BE SAWCUT BACK FROM THE FACE OF THE EXISTING CURB A MINIMUM OF 24 INCHES.
NEW CURB TO BE CONSTRUCTED USING DOUBLE FACE FORMS. RESTORATION OF ROADWAY MUST INCLUDE SUBBASE, BASE, BINDER AND WEARING.

ELEVATION VIEW OF EXISTING CURB REPLACEMENT FOR DRIVEWAY CROSSOVER

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