# ENGINEERING PLAN REQUIREMENTS

| Village  | Present | Description  |
|----------|---------|--|
| Code     |         |  |
| Section  |         |  |
| 11-5-1   |         | All utilities, including those on the perimeter of the development         |
| 44.5.0   |         | must be installed underground.   |
| 11-5-2   |         | All roadways, sidewalks and other surface improvements shall               |
|          |         | the Illinois Department of Transportation's "Standard                      |
|          |         | Specifications for Road and Bridge Construction" and "Highway              |
|          |         | Design Manual and the requirements of this Title whichever are             |
|          |         | more restrictive. All sanitary sewers, storm sewers, and water             |
|          |         | mains shall be constructed in accordance with the then current             |
|          |         | edition of "Standard Specifications for Water and Sewer Main               |
|          |         | Construction in Illinois" and the requirements of this Title,              |
|          |         | whichever are more restrictive.  |
| 11-5-3   |         | Whenever it is deemed to be in the best interest of the Village,           |
|          |         | the Village may require certain improvements be made of a                  |
|          |         | greater size than is necessary to serve that particular                    |
|          |         | subdivision. Such improvements may include but are not limited             |
|          |         | to: sewer and water pumps, mains, lines, storage or distribution           |
| 11-7-101 |         | Where appropriate to the design proposed streets shall be                  |
|          |         | continuous and in alignment with existing planned or platted               |
|          |         | streets with which they are to connect.                                    |
| 11-7-1D2 |         | Unless the village determines to the contrary, proposed streets            |
|          |         | shall be extended to the boundary lines of the tract to be                 |
|          |         | subdivided.  |
| 11-7-1D3 |         | Cul-de-sac (dead end) streets shall not exceed five hundred feet           |
|          |         | (500') in length, with not more than fifteen (15) single-family            |
|          |         | residential lots fronting the street.                                      |
| 11-7-1E  |         | Proposed streets shall intersect one another as nearly at right            |
|          |         | angles as topography and other limiting factors of good design             |
|          |         | permit.<br>Wherever a common low dedicated or platted half width street or |
|          |         | alley exists adjacent to the tract to be subdivided, such street or        |
|          |         | alley must be constructed and completed with the full width and            |
|          |         | in conformance with village ordinances. If any existing payement           |
|          |         | is to remain, the entire width shall be overlaid. The subdivider           |
|          |         | shall pay for such improvement.  |
| 11-7-1G  |         | At a minimum the rear ten (10) feet of all lots shall be reserved          |
|          |         | as a public utility and drainage easement. Easements for                   |
|          |         | utilities or drainage also shall be provided at such other locations       |
|          |         | required by the Village or its franchised utilities.                       |
| 11-7-1G  |         | Easements for major open drainage channels shall include the               |
|          |         | channel and shall include an additional thirty foot (30) wide              |
|          |         | easement from the top of the channel bank on at least one side             |
| 11-7-10  |         | The width of economic for water mains, capitory and storm                  |
| 11-7-1G  | 1       | i me woun of easements for water mains, sanitary and storm                 |

|         | sewers shall be as follows:   |
|---------|---|
|         | • Pipes of twenty four inches (24") or less: Ten feet (10').  |
|         | • Pipes in excess of twenty four inches (24"): Four (4)   |
|         | times the nominal pipe diameter of the largest pipe size.   |
| 11-7-H1 | Lots abutting railroads, major arterials, and major collector   |
|         | be at least ten feet (10') greater in depth or width (the dimension   |
|         | normal to such traffic way or zoning district) than otherwise   |
|         | required.   |
| 11-7-H2 | No lot shall front on a major arterial or major collector street.   |
|         | Lots may front on a parallel local street where the front of the lot  |
|         | least one hundred fifty feet (150') between the major street and  |
|         | the local street. All homes shall be oriented to a local street.  |
| 11-7-I  | Blocks shall have sufficient width to provide for two (2) tiers of  |
|         | <br>lots of appropriate depth.  |
| 11-7-11 | The lengths of blocks shall be such as, in the opinion of the   |
|         | development contemplated but shall not exceed one thousand  |
|         | five hundred feet (1.500') where the average size of lots does  |
|         | not exceed two (2) acres in area.   |
| 11-7-l2 | The number of intersecting streets with a major street shall be   |
|         | held to a minimum. Whenever practicable, blocks along such  |
|         | feet (1,200') in length.  |
| 11-7-J1 | The size, shape and orientation of lots shall be appropriate for  |
|         | the location of the proposed subdivision and for the type of development contemplated, provided that no residential lat shall |
|         | contain less than the minimum square footage as required by   |
|         | village zoning ordinance.   |
| 11-7-J2 | Excessive depth in relation to width shall be avoided, with a two   |
|         | to one (2:1) ratio as a general guideline.  |
| 11-7-J3 | Every lot shall abut a street and shall conform to minimum  |
| 44 7 14 | required zoning width at the minimum building setback line.   |
| 11-7-J4 | zoning ordinance requirements, except that the cul-de-sac lots  |
|         | may be seventy five percent (75%) of the normal lot width   |
|         | requirement at the street right of way line.  |
| 11-7-J5 | Double frontage lots shall not be platted, except as permitted in   |
|         | subsection H of this section.   |
| 11-7-J6 | Side lot lines shall be approximately at right angles to the right of   |
|         | way of the street on which the lot abuts.   |
| 11-/-J/ | for a thirty foot (30) corper side or front yord abutting the street  |
|         | in lieu of the normal required side vard  |
| 11-7-J8 | Residential lots abutting on major streets shall have a minimum   |
|         | setback distance of at least ten feet (10') greater than otherwise  |

|   | required for the yard abutting the thoroughtare or major street.  |
|---|---|
| 11-8  | All streets shall be constructed in accordance with Exhibit E,  |
|   | Table of Minimum Design Standards for Streets and the Village   |
|   | Standard Details.   |
| 11-8-1B   | All changes in street grades in excess of one and one-fourth  |
|   | percent (1.25%) shall be connected by vertical curves. Minimum  |
|   | length in feet of these curves shall provide a sight distance of  |
|   | not less than three hundred feet (300') measured from an eye  |
|   | level four feet (4') high, with a clear view of an obstacle not over  |
|   | two feet (2') high. The minimum length of a vertical curve shall  |
|   | be as required by the village engineer.   |
| 11-8-2A   | Street curb intersections shall be rounded by radii of at least   |
|   | twenty feet (20') where local streets intersect with other local  |
|   | streets in residential districts and shall be at least twenty five  |
|   | feet (25') at any intersection with any other street of higher  |
|   | classification or in any nonresidential zoning district.  |
| 11-8-2B   | The above minimum radii shall be increased when the smallest  |
|   | angle of intersection is less than sixty degrees (60°).   |
| 11-8-7  | Sidewalks shall be constructed on both sides of every street,   |
|   | including cul-de-sac streets. Sidewalks shall have a minimum  |
|   | thickness of five inches (5") and shall be five feet (5') wide.   |
| 11-8-8A   | A complete street lighting system shall be installed in all   |
|   | subdivisions, including the necessary service connections made  |
|   | by Commonwealth Edison Company, at the developer's  |
|   | expense.  |
| 11-8-8B   | Streetlights shall be installed at all street intersections, at the   |
|   | end of cul-de-sac streets and at a maximum spacing of two   |
|   | hundred fifty feet (250') between lights on local streets.  |
|   | Streetlights on minor collectors shall be installed at a maximum  |
|   | spacing of one hundred ninety five feet (195'). Streetlights on   |
|   | major collectors shall be installed at a maximum spacing of one   |
|   |   |
|   | hundred eighty five feet (185), and should be located on only   |
|   | one side of the road. Streetlight spacing on major arterials shall  |
|   | one side of the road. Streetlight spacing on major arterials shall<br>be reviewed by the village and the governmental authority   |
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| 11-8-8C   | <ul> <li>hundred eighty five feet (185'), and should be located on only one side of the road. Streetlight spacing on major arterials shall be reviewed by the village and the governmental authority having jurisdiction thereof.</li> <li>Streetlight locations shall be shown on the construction plans</li> </ul>  |
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| 11-8-8C<br>11-8-8D<br>11-8-9<br>11-8-10                         | <ul> <li>hundred eighty five feet (185'), and should be located on only one side of the road. Streetlight spacing on major arterials shall be reviewed by the village and the governmental authority having jurisdiction thereof.</li> <li>Streetlight locations shall be shown on the construction plans and are subject to review and approval by the village engineer.</li> <li>All streetlights and appurtenances thereto shall be in accordance with the standard construction details.</li> <li>Trees shall be installed and preserved as required under Village Code Section 4-7-7.</li> <li>The developer shall submit a striping and signage plan for</li> </ul>   |
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| 11-8-8C<br>11-8-8D<br>11-8-9<br>11-8-10<br>11-8-11A<br>11-8-11B | <ul> <li>hundred eighty five feet (185'), and should be located on only one side of the road. Streetlight spacing on major arterials shall be reviewed by the village and the governmental authority having jurisdiction thereof.</li> <li>Streetlight locations shall be shown on the construction plans and are subject to review and approval by the village engineer.</li> <li>All streetlights and appurtenances thereto shall be in accordance with the standard construction details.</li> <li>Trees shall be installed and preserved as required under Village Code Section 4-7-7.</li> <li>The developer shall submit a striping and signage plan for review and approval by the village. All such striping and signage shall be installed or furnished by the developer. Street signs shall be in accordance with the standard construction details.</li> <li>Mailboxes shall be freestanding or paired. The grouping of three (3) or more mailboxes is prohibited.</li> <li>All mailboxes shall be placed at the curb on the right of way in the standard construction of the standard construction details.</li> </ul>    |
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| 11-9-1A | Village Utilities: Water, sanitary sewers and storm drains and       |
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|         | lines shall be located within the street right of way in locations   |
|         | determined by the Village Engineer.                                  |
| 11-9-1B | Underground Franchise Utilities: Underground conduits for            |
|         | electric, cable TV, gas or telephone lines shall be located in       |
|         | easements along rear or side lot lines, with the right of the        |
|         | utilities and services concerned to install, lay, construct, renew,  |
|         | operate and maintain conduits, cables and pipes with all             |
|         | necessary normal equipment or appurtenances for the purpose          |
|         | of providing the subdivision with adequate gas, cable TV,            |
|         | electric or telephone service. No permanent buildings shall be       |
|         | placed on an easement provided for utilities.                        |
| 11-9-2  | The minimum size water main shall be six inch (6") internal          |
|         | diameter. Larger water mains will be required where necessary        |
|         | for fire flow or for continuity of the system. All water mains shall |
|         | be sized to meet the fire protection requirements of the then        |
|         | current edition of the fire rating manual or as otherwise required   |
|         | by the village. The sizing of the water mains shall be subject to    |
|         | approval of the village.   |
| 11-9-2  | No valves shall be located in sidewalk or driveway approach. All     |
|         | buffalo boxes shall be within the parkway and not more than          |
|         | eight feet (8') off the street line opposite the center of the       |
|         | proposed building pad.   |
| 11-9-3A | Every subdivision shall be provided with a storm water or            |
|         | surface drainage system adequate to facilitate a 10-year flood in    |
|         | the area, being platted and in conformance with a master storm       |
|         | drainage plan of the watershed of which it is a part. All            |
|         | subdivisions should comply with the village's storm water            |
|         | management ordinance and filoodplain ordinance together with         |
| 44.0.20 | Other regulations and policy as applicable.                          |
| 11-9-3B | All existing field tiles must be identified on the preliminary plat  |
| 11.0.20 | And on the development grading plan.                                 |
| 11-9-30 | two feet (2') and the side slopes shall not exceed a slope of        |
|         | areater than four to one $(\Lambda \cdot 1)$                         |
| 11-0-30 | The mainline storm sewers shall be not less than twelve inches       |
| 11-3-30 | (12") in diameter and adequately sized to accent the storm water     |
|         | discharge from any attached storm sewer service line in addition     |
|         | to the ten (10) year design storm                                    |
| 11-9-3F | A four inch (4") PVC SDR 35 ASTM D3034 storm sewer service           |
|         | line shall be provided for each lot within the subdivision unless it |
|         | can be demonstrated that the building will not have a sump           |
|         | pump. All storm water sump discharge lines shall be attached to      |
|         | this service line, which shall be connected to a storm drainage      |
|         | structure. At locations where it is not practical to connect the     |
|         | storm sewer service lines directly to a storm drainage structure     |
|         | in a rear yard, storm sewer service laterals (minimum diameter       |
|         | of 6 inches) shall be placed in a five foot (5') easement parallel   |
|         | to and behind the sidewalk. Said laterals shall be connected to      |
|         | the storm sewer system at drainage structures, and shall be          |

| increased in size if more than four (4) houses are connected.   |
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| The maximum number of houses connected to a lateral shall be eight (8).   |
| For all new subdivisions, a minimum of one drainage structure<br>(inlet or manhole) shall be furnished along the rear lot line<br>unless otherwise approved by the village engineer based on<br>sound engineering practices. A "new subdivision" shall mean all<br>property, which has not secured preliminary plat approval before<br>December 31, 2001.   |
| No manholes shall be located in a sidewalk and no manhole or<br>storm sewer inlet shall be located in a crosswalk or sidewalk and<br>should be avoided in the driveway approach.  |
| Parcels smaller than ten (10) acres shall submit only the basic<br>drainage plan called for in subsection C of this section. Parcels<br>larger than ten (10) acres shall comply with the submittal<br>requirements of both the basic drainage plan and the advanced<br>drainage plan of subsection D of this section. For excavation<br>below final grade for the basement and footings of a single-<br>family or two-family residence and appurtenant structures on<br>parcels zoned single-family and two-family residential which do<br>not contain a "stream" as defined by this chapter, designated<br>wetlands or special flood hazard areas, the building official may<br>waive the requirements for a detailed drainage plan submittal.   |
| Existing topography at one foot (1') contour intervals of the site<br>and adjacent land within approximately one hundred feet (100')<br>of the boundaries and areas upstream and downstream<br>necessary to determine off site impacts of the proposed<br>drainage plan. The map shall be keyed to MSL, 1929 adjusted<br>datum or NGVD.   |
| <ul> <li>Locations and descriptions, where relevant, of existing drainage system features of the site and adjacent land within approximately one hundred feet (100') of the boundaries including:</li> <li>a. The banks and centerline of streams and channels.</li> <li>b. Shoreline of lakes, ponds and detention basins.</li> <li>c. Farm drains and tiles.</li> <li>d. Sub-watershed boundaries within the site.</li> <li>e. Watershed soils classifications.</li> <li>f. The site's location within the larger watershed.</li> <li>g. Location, size and slope of storm water conduits and drainage swales.</li> <li>h. Sanitary sewers, water mains and other utilities.</li> <li>i. Depressional storage areas.</li> <li>j. Delineation of upstream and downstream features and watersheds which might be affected by the development.</li> <li>k. Detention facilities.</li> <li>l. Roads and streets and other paved areas and associated storm water inlets.</li> </ul> |
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|          | identified, for the site as defined by the village floodplain  |
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|          | ordinance.   |
|          | n. Basis of design for the final drainage network  |
|          | components.  |
|          | o. Other significant natural or manmade features.  |
|          |  |
| 12-2-5C3 | A depiction of environmental features of the site and immediate vicinity including the following:  |
|          | <ul> <li>a. The limits of wetland areas.</li> <li>b. Areas designated as natural by the state, county or village.</li> <li>c. Any proposed environmental mitigation features.</li> <li>d. A general description of the predominant soil types on the site, their location and their limitations for the proposed use.</li> </ul>   |
| 12-2-5C4 | The Basic Drainage Plan shall show the proposed use of the<br>site, including present development and planned utilization;<br>areas of clearing, stripping, grading, excavation and filling;<br>proposed contours, finished grades and street profiles;<br>provisions for storm drainage, including storm sewers, swales,<br>energy dissipaters, detention basins and any other measures to<br>control the rate of runoff, with a drainage area map, indications<br>of flow directions and computations; kinds and locations of<br>utilities, material stockpiles free of contamination and vehicle<br>washing and fluid disposal areas; and areas and acreages<br>proposed to be paved, covered, sodded or seeded, vegetatively<br>stabilized or left undisturbed.  |
| 12-2-C5  | An erosion and sediment control plan showing all measures<br>necessary to meet the objectives of this chapter throughout all<br>phases of construction and permanently, after completion of<br>development of the site, including:   |
|          | <ul> <li>a. Location and description, including standard details, of all sediment control measures and design specifics of sediment basins and traps, including outlet details.</li> <li>b. Location and description of all soil stabilization and erosion control measures, including seeding mixtures and rates, types of sod, method of seedbed preparation, expected seeding dates, type and rate of lime and fertilizer application, kind and quantity of mulching for both temporary and permanent vegetative control measures and types of non-vegetative stabilization measures.</li> <li>c. Location and description of all runoff control measures, including diversions, waterways and outlets.</li> <li>d. Location and description of methods to prevent tracking of sediment off site, including construction entrance details, as appropriate.</li> <li>e. Description of dust and traffic control measures.</li> </ul> |

|          | <ul> <li>f. Locations of stockpiles and description of stabilization methods. Stockpiles cannot be located on any land that eventually be turned over to the Village.</li> <li>g. Provisions for maintenance of control measures, including type and frequency of maintenance, easements and estimates of the cost of maintenance.</li> <li>h. The proposed phasing of development of the site, including stripping and clearing, rough grading and construction and final grading and landscaping. Phasing should identify the expected date on which clearing will begin, the estimated duration of exposure of cleared areas and the sequence of installation of temporary sediment control measures (including perimeter controls), clearing and grading, installation of detention basins, installation of storm drainage, paving streets and parking areas, final grading and the removal of temporary measures. It shall be the responsibility of the applicant to notify the Building Official of any significant changes which occur in the site development schedule after the initial erosion and sediment control plan has been approved.</li> </ul> |
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| 12-2-5C6 | Identification (name, address and telephone) of the person(s) or<br>entity which will have legal responsibility for maintenance of<br>runoff and erosion control structures and measures during<br>development and after development is completed.   |
| 12-2-5D  | Advanced Drainage Plan: The same information as required in<br>subsection C of this Section is required for parcels larger<br>than ten (10) acres along with the following additional<br>information for the minor drainage system's design runoff<br>event and the 100-year runoff event of critical duration:  |
|          | <ol> <li>Elevations and maps of 100-year flooding.</li> <li>Cross section data for open channel flow paths and<br/>designated overland flow paths.</li> <li>Direction of storm flows.</li> <li>Flow rates and velocities at representative points in the</li> </ol>  |
|          | <ol> <li>A statement by the design engineer of the drainage<br/>system's provisions for handling events greater than the<br/>100-year runoff.</li> </ol>   |
|          | <ol> <li>A vicinity map in sufficient detail to enable easy location<br/>in the field of the site for which the permit is sought and<br/>including the boundary line and approximate acreage of<br/>the site, existing reping and a lagged and apple.</li> </ol>   |
|          | <ul> <li>7. The erosion and sediment control plan shall also include<br/>a description of off-site fill or borrow volumes, locations<br/>and methods of stabilization. All borrow or disposal sites<br/>shall meet the requirements of the jurisdiction of their</li> </ul>  |

|                        | locale.  |
|------------------------|--|
| 12-2-6B                | Soil Erosion and Sedimentation Control Plan shall be submitted<br>for a proposed development. The measures taken to control soil<br>erosion and off-site sediment run off should be adequate to<br>assure that sediment is not transported for the site by a storm<br>event of 10-year frequency or less.  |
| 12-2-7A3a              | If streets are to be used as part of the minor or major drainage<br>system, ponding and flow depths shall not exceed the lesser of<br>six inches (6") over the crown of the street or the elevation of the<br>public sidewalk. Streets shall not remain flooded for more than<br>eight (8) hours for any event less than or equal to the 100-year<br>event. In no event shall a flooded area cross the sidewalk except<br>at nearly right angles as part of the major drainage system. On<br>collector and major streets at least the driving lane shall be free<br>of ponding and flow for any event less than or equal to the 50-<br>year event. |
| 12-2-7A3b              | The maximum Stormwater ponding depth in any parking area shall not exceed six inches (6") for more than four (4) hours and more than twelve inches (12") at any time.  |
| 12-2-7B4a              | Wet basins shall be at least three feet (3') deep, excluding near<br>shore banks and safety ledges. If fish habitat is to be provided<br>they shall be at least ten feet (10') deep over twenty five percent<br>(25%) of the bottom area to prevent winter freeze out.   |
| 12-2-7B4b<br>12-2-7B5b | Velocity dissipation measures shall be incorporated into basin<br>design to minimize erosion at inlets and outlets and to minimize<br>the re-suspension of pollutants.   |
| 12-2-7B4c              | The side slopes of wet basins at and above the normal pool<br>elevation shall not be steeper than five to one (5:1) (horizontal to<br>vertical). Aquatic vegetation shall be established around the<br>shoreline of a wet basin to provide protection from shoreline<br>erosions.  |
| 12-2-7B4e<br>12-2-7B5d | To the extent feasible, the distance between detention inlets and<br>outlets shall be maximized. If possible, they should be at<br>opposite ends of the basin. If it is impractical to do so, short-<br>circuiting can also be avoided by the use of baffles or berms in<br>the basin bottom.  |
| 12-2-7B5c              | The side slopes of dry basins shall not be steeper than five to one (5:1) (horizontal to vertical).  |
| 12-2-7B5e              | For sites greater than one acre and, whenever practicable, for<br>areas up to one acre, the lowest forty percent (40%) of the<br>bottom area shall be a vegetated pervious surface to promote<br>infiltration and filtering of Stormwater.   |
| 12-2-7B5f              | For detention facilities intended for multiple uses, wherever practicable, the usable open space of the bottom area shall be maximized and undivided.  |
| 12-2-7B6               | Where a single pipe outlet or orifice plate is to be used to control discharge, it shall have a minimum area of four (4) square inches. If this minimum orifice size permits release rates greater than those specified in this Section, and regional detention is not   |

|           | a practical alternative, alternative outlet designs shall be utilized |
|-----------|---|
|           | which incorporate self-cleaning flow restrictors.                     |
| 12-2-7C1a | Detention In Wetlands: Existing wetlands shall not be modified        |
|           | for the purposes of storm water detention unless it is                |
|           | demonstrated that the existing wetland is low in quality and the      |
|           | proposed modifications will maintain or improve its habitat and       |
|           | ability to perform beneficial functions. Existing depressional        |
|           | storage in wetlands shall be maintained and additional volume of      |
|           | detention storage shall be provided to meet the requirements of       |
|           | subsection B8 of this section.  |
| 12-2-7C1b | Any existing wetland shall be protected during construction by        |
|           | appropriate soil erosion and sediment control measures and            |
|           | shall not be temporarily filled by construction activities.           |
| 12-2-7C1c | Site drainage patterns shall not be altered to substantially          |
|           | decrease or increase the existing area tributary to the wetland.      |
| 12-2-7C1d | All runoff from the development shall be routed through a             |
|           | preliminary detention/sedimentation basin designed to capture         |
|           | the 2-year, twenty four (24) hour event and hold it for at least      |
|           | twenty four (24) hours, before being discharged to the wetland.       |
|           | This basin shall be constructed before site grading begins. In        |
|           | addition, the drainage hierarchy defined in section 12-2-6 of this    |
|           | chapter should be followed to minimize runoff volumes and rates       |
| 10.0.704  | being discharged to the wetland.                                      |
| 12-2-7C1e | A buffer strip of at least twenty five feet (25) in width, preferably |
|           | vegetated with native plant species, shall be maintained or           |
| 10.0.70   | restored around the periphery of the wetland.                         |
| 12-2-70   | To effectively reduce runoil volumes, inilitration practices          |
|           | located on soils in hydrologic soil groups A or B as designated       |
|           | by the U.S. soil conservation service. Infiltration basins and        |
|           | trenches designed to recharge ground water shall not be located       |
|           | within seventy five feet (75') of a water supply well or a building   |
|           | foundation A sediment settling basin shall be provided to             |
|           | remove coarse sediment from storm water flows before they             |
|           | reach infiltration basins or trenches. Storm water shall not be       |
|           | allowed to stand more than seventy two (72) hours over eighty         |
|           | percent (80%) of a dry basin's bottom area for the maximum            |
|           | design event to be exfiltrated. The bottom of infiltration facilities |
|           | shall be a minimum of four feet (4') above seasonally high            |
|           | ground water and bedrock.   |
| 12-2-7E1a | The side slopes of all detention basins at 100-year capacity shall    |
|           | be as level as practicable to prevent accidental falls into the       |
|           | basin and for stability and ease of maintenance. Along                |
|           | thoroughfares and major collector streets no part of a storm          |
|           | water detention facility including berming and side slopes shall      |
|           | be within ten feet (10') of the public right of way.                  |
| 12-2-7E1b | All wet detention basins shall have a level safety ledge at least     |
|           | four feet (4') in width two feet (2') below the normal water depth.   |
| 12-2-7E1c | Velocities throughout the surface drainage system shall be            |
|           | controlled to safe levels taking into consideration rates and         |

|           | depths of flow. The product of velocity (feet/second) times depth     |
|-----------|---|
|           | (feet) should not exceed four (4).                                    |
| 12-2-7E1d | All storm water detention basins shall be provided with an            |
|           | overflow structure capable of safely passing excess flows at a        |
|           | stage at least one foot (1') below the lowest foundation opening      |
|           | within fifty feet (50') of the elevation contour of said stage around |
|           | the detention basin. The existing 100-year peak rate of runoff        |
|           | from the area naturally tributary to the detention pond outfall       |
|           | shall not be exceeded if the restrictor is blocked.                   |
| 12-2-7F   | The storm water drainage system shall be designed to minimize         |
|           | and facilitate maintenance. Turfed side slopes shall be designed      |
|           | to allow lawn mowing equipment to easily negotiate them. Wet          |
|           | basins shall be provided with alternate outflows which can be         |
|           | Used to completely drain the pool for sediment removal.               |
|           | (Pumping may be considered if drainage by gravity is not              |
|           | feasible.) Pre-sedimentation basins shall be included, where          |
|           | for how or or inclaiming sediment deposition and removal. Access      |
| 12-2-761  | On site sediment control measures as specified by the following       |
| 122701    | criteria shall be constructed and functional prior to initiating      |
|           | clearing, grading, stripping, excavating or fill activities on the    |
|           | site.   |
|           |   |
|           | a. For disturbed areas draining less than one acre, filter            |
|           | barriers (including filter fences, straw bales or equivalent          |
|           | control measures) shall be constructed to control all off site        |
|           | runoff as specified in referenced handbooks. Vegetated filter         |
|           | strips, with a minimum width of twenty five feet (25'), may be        |
|           | used as an alternative only where runoff in-sheet flow is             |
|           | expected.   |
|           |   |
|           | b. For disturbed areas draining more than one but less than           |
|           | five (5) acres, a sediment trap or equivalent control measure         |
|           | shall be constructed at the downslope point of the disturbed          |
|           | alea.   |
|           | c. For disturbed areas draining more than five (5) acres a            |
|           | sediment basin or equivalent control measure shall be                 |
|           | constructed at the downslone point of the disturbed area              |
|           |   |
|           | d. Sediment basin or sediment trap designs shall provide for          |
|           | both detention storage and sediment storage. The detention            |
|           | storage shall be composed of equal volumes of "wet"                   |
|           | detention storage and "dry" detention storage and each shall          |
|           | be sized for the 2-year twenty four (24) hour runoff from the         |
|           | site under maximum runoff conditions during construction.             |
|           | The release rate of the basin or trap shall be that rate required     |
|           | to achieve minimum detention times of at least ten (10) hours.        |
|           | The elevation of the outlet structure shall be placed such that       |
|           | it only drains the dry detention storage. A sediment basin shall      |

|          | have an emergency spillway capable of passing the 10-year twenty four (24) hour storm  |
|----------|--|
|          |  |
|          | e. The sediment storage shall be sized to store the estimated<br>sediment load generated from the site over the duration of the<br>construction period with a minimum storage equivalent to the<br>volume of sediment generated in one year. For construction<br>periods exceeding one year, the 1-year sediment load and a<br>sediment removal schedule may be substituted. |
| 12-2-7G2 | Storm water conveyance channels, including ditches, swales   |
|          | and diversions and the outlets of all channels and pipes shall be<br>designed and constructed to withstand the expected flow<br>velocity from the 10-year frequency storm without erosion. All<br>constructed or modified channels shall be stabilized within forty<br>eight (48) hours, consistent with the following standards:  |
|          | a. For grades up to four percent (4%), seeding in combination<br>with mulch, erosion blanket or an equivalent control measure<br>shall be applied. Sod or erosion blanket or mat shall be<br>applied to the bottom of the channel.   |
|          | b. For grades of four percent to eight percent (4% to 8%), sod<br>or an equivalent control measure shall be applied in the<br>channel.   |
|          | c. For grades greater than eight percent (8%), rock, riprap or<br>an equivalent control measure shall be applied or the grade<br>shall be effectively reduced using drop structures.   |
| 12-2-7G3 | Disturbed areas shall be stabilized with temporary or permanent<br>measures within three (3) calendar days following the end of<br>active disturbance or re-disturbance, consistent with the<br>following criteria:  |
|          | <ul> <li>Appropriate temporary or permanent stabilization<br/>measures shall include seeding, mulching, sodding<br/>and/or non-vegetative measures.</li> </ul>   |
|          | <ul> <li>Areas having slopes greater than twelve percent (12%)<br/>shall be stabilized with sod, mat or blanket in<br/>combination with seeding or equivalent</li> </ul>   |
| 12-2-7G5 | Storm sewer inlets and culverts shall be protected by sediment   |
|          | traps or filter barriers meeting accepted design standards and specifications.   |
| 12-2-7G6 | Soil storage piles containing more than ten (10) cubic yards of  |
|          | of less than twenty five feet (25') to a roadway or drainage   |
|          | channel. Filter barriers, including straw bales, filter fence, or  |
|          | equivalent, shall be installed immediately on the downslope side of the piles  |
| 12-2-7G7 | If dewatering devices are used, discharge locations shall be   |

|            | protected from erosion. All pumped discharges shall be routed      |
|------------|--|
|            | through appropriately designed sediment traps or basins or         |
| 12-2-768   | Each site shall have graveled (or equivalent) entrance roads       |
| 12-2-700   | accoss drives a defined vehicle washing area and parking areas     |
|            | of sufficient length and width to prevent sediment from being      |
|            | tracked onto public or private roadways. Any sediment reaching     |
|            | a public or private road shall be removed by shoveling or street   |
|            | cleaning (not flushing) before the end of each workday and         |
|            | transported to a controlled sediment disposal area                 |
| 12-2-7611  | A maintenance schedule for each measure used shall be              |
| 12-2-7011  | indicated on the plan.   |
| 12-2-7G12  | Proposed ditches and waterways which are to convey off site        |
|            | flows through the site shall be stabilized prior to construction.  |
|            | Where new waterways are to be constructed they shall be            |
|            | stabilized prior to their use to convey flood flows.               |
| 12-2-7G13  | Storage facilities shall facilitate sedimentation and catchment of |
|            | floating material. Unless specifically approved by the             |
|            | administrator, concrete lined low flow ditches shall not be used   |
|            | in detention basins.   |
| General    | If an agricultural land use is downstream of and adjacent to a     |
|            | site run off storage facility outlet, then requirements found in   |
|            | Village Code section 12-2-71 shall be incorporated in the          |
|            | engineering plans.   |
| General    | If land disturbance activities in stream channels cannot be        |
|            | avoided, then requirements found in Village Code section 12-2-     |
|            | 7G4 shall be incorporated into the engineering plans.              |
| General    | line engineering plan submittal shall include all applicable       |
| Additional | Storm Water Pollution Provention Plan (SW/PDP) Poquiroments:       |
| Required   | <u>Storn Water Foliulion Flevention Flan (SWFFF) Requirements.</u> |
| IVequileu  | Pollutant Discharge Elimination System (NPDES) II R10 Permit       |
|            | and shall be submitted to the Village as part of the Final         |
|            | Engineering drawings submittal. The SWPPP shall be kent on-        |
|            | site and maintained throughout the duration of construction. The   |
|            | following items shall be included in the SWPPP                     |
|            |  |
|            | 1. Signed copy of the NOI  |
|            | 2. IEPA acceptance letter  |
|            | 3 Signed copy of the Owner Certification statement                 |
|            | 4 Signed Contractor Certification statements                       |
|            | 5 Site Description   |
|            | 6 Description of non-storm water discharges                        |
|            | 7 Description of Frosion and Sediment Controls to                  |
|            | he employed on-site  |
|            | 8 Description of Maintenance Responsibilities                      |
|            | 9 Weekly site inspection worksheets                                |
|            | 10 Incidence of Non Compliance forme                               |
|            | 11 Conorol NDDES Dermit II D10                                     |
|            |  |

|                        | 12. Erosion Control Plan Drawings and Details   |  |  |
|------------------------|---|--|--|
| Additional<br>Required | The location of any entry signs and monuments should be shown on the engineering plans. |  |  |

#### SUPPLEMENTAL DOCUMENTS

| Village Code<br>Section | Present | Description   |
|-------------------------|---------|---|
| 12-2-7A                 |         | Storm sewer and overland flow channel capacity calculations.  |
| 12-2-7B                 |         | Stormwater detention calculations for 2-year and 100-<br>year storms, and supporting documentation for Tc, RCN,<br>stage-storage-discharge calculations, restrictor capacity,<br>etc. |
| Additional<br>Required  |         | Utility crossing elevations and locations requiring alternate materials.  |
| Additional<br>Required  |         | Wetland Delineation report and Opinion of Jurisdiction (if applicable).   |
| Additional<br>Required  |         | Proposed flood study, including topographic work map<br>and compensatory storage calculations (if applicable).  |
| Additional<br>Required  |         | Turning exhibits or AutoTurn analysis using appropriate sized vehicle through parking lots, cul-de-sacs, entrances, and atypical roadway alignments.                                  |
| Additional<br>Required  |         | Off-site roadway improvement plans (widening, turn lanes, etc.) where required by the Village or other permitting authority.  |
| Additional<br>Required  |         | Dam Safety determination for proposed ponds (if applicable).  |
| Additional<br>Required  |         | Exhibit of off-site tributary areas and delineation of same (if applicable).  |
| Additional<br>Required  |         | Exhibit showing location and evaluation of agricultural drainage systems.   |

#### Engineering Plan Submittal

For each Final Plat submittal:

- Two (2) copies of final engineering plans and required supplemental documents shall be submitted to Bryan Welch, PE at Christopher B. Burke Engineering, Ltd., 9575 W. Higgins Road, Suite 600, Rosemont, IL 60018.
- Two (2) copies of final engineering plans and supplemental documents shall be submitted to Karen James, Village Planner at the Village of Shorewood, 903 W. Jefferson Street, Shorewood, IL 60404.