

VILLAGE OF GLENVIEW



ENGINEERING STANDARDS MANUAL

CAPITAL PROJECTS DEPARTMENT

February 28, 2007

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NOTES TO READER

These Engineering Standards have been rewritten to set forth the current technical aspects governing development/redevelopment of land within the jurisdiction of the Village of Glenview.

Engineering Standards are based on the knowledge and experience of staff from many departments. The current version of standards are determined to be the most beneficial to the Village of Glenview and may or may not be used as a standard in other municipalities or government agencies. These standards are based on a commitment of excellence and desire to make Glenview the best for all residential, commercial and business properties. Standards are continually under review and revisions are made when deemed in the best interest of the Village. Approvals are a formal process and no one shall proceed with any construction without Capital Projects Engineer (CPPE) approval (and other requirements that apply) or by lack of receipt of disapproval by the CPPE.

Applicants seeking approval as a Planned Development (PD) should be aware that Final Engineering (as defined in Section III) must be completed prior to Plan Commission referral to the Board of Trustees.

Please review both the Preliminary as well as Final Engineering requirements prior to submitting plans for review and approval.

All work within the North Maine Utilities shall follow the applicable sections of the Village of Glenview Engineering Standards Manual.

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List of Definitions and Abbreviations

LIST OF DEFINITIONS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ABS	Acrylonitrile-Butadiene-Styrene
AGC	Association of General Contractors
ANSI	American National Standards Institute
APPROVED	Unless otherwise stated, materials, equipment or methods accepted and approved by the Village Engineering and/or Public Works Departments.
APPROVED EQUAL	A manufactured product, or a method or procedure, having the same characteristics and similar in degree or other standard of comparison to that specified.
AS-BUILT PLANS	Design plans checked in the field and revised to show actual locations, elevations, and materials for constructed improvements, utilities, grading and detention/retention facilities.
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BFE	Base Flood Elevation. The highest water surface elevation of the Base Flood; having a one (1) percent statistical probability of being equaled or exceeded in a given year. The Base Flood is also referred to as the one year (100) year flood.
BUILDING PERMIT	A written authorization issued by the Village of Glenview for the construction, erection or alteration of a structure or building.
CCFPD	Cook County Forest Preserve District
CCHD	Cook County Highway Department
COMPENSATORY STORAGE	An artificial excavation creating a volume of on-site stormwater storage, at or above the Base Flood Elevation, to accommodate the existing stormwater storage displaced by on-site development.

CONTRACTOR	The contractor awarded the prime contract for the work by the Village, Owner, Utility, or developer and/or any of their subcontractors, suppliers or fabricators. The contractor(s) must be licensed and bonded with the Village of Glenview prior to and during all phases of the work.
DBH	Diameter at Breast Height
DETENTION	A dry bottom stormwater storage area designed to be normally dry, but contains water when excess stormwater runoff occurs.
DEVELOPER	The individual(s), company, corporation, or other legal entity who holds title to or an equitable interest in the property on which construction operations are to be conducted.
DEVELOPMENT	Altering the terrain on a site and/or providing construction on a site and/or providing landscaping on a site.
DPW	The Village of Glenview - Department of Public Works.
EASEMENT	Authorization or grant by a property owner for the use by another and for a specific purpose, of any designated part of the owner's property.
ENGINEERING PLAN	A drawing or set of drawings sealed by a Registered Professional Engineer which illustrates and/or describes all aspects of the site development.
EXCAVATION	Any act by which organic matter, earth, sand, gravel, rock or any other similar material is cut into, dug, quarried, uncovered, removed, displaced, or relocated, including the conditions resulting there from.
EXCESS STORMWATER	That portion of stormwater runoff which exceeds the material drainage channels serving a specific watershed.
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FILL	Any act by which earth, sand, gravel, rock or any other material suitable for its intended use is deposited, placed, replaced, pushed, dumped, pulled, transported or moved by man to a new location, including the conditions resulting there from.
FIRM	Federal Insurance Rate Map

GRADING	The use of excavation or fill to bring the ground surface in conformity with the site development plan.
IDOT	Illinois Department of Transportation
IEPA	Illinois Environmental Protection Agency
ISTHA	Illinois State Toll Highway Authority
JULIE	Joint Underground Locating Information for Excavators
MUTCD	Manual of Uniform Traffic Control Devices published by the United States Department of Transportation, Federal Highway Administration, latest edition.
MWRDGC	Metropolitan Water Reclamation District of Greater Chicago
NEMA	National Electrical Manufacturer's Association
NGVD	National Geodetic Vertical Datum
NPDES	National Pollution Discharge Elimination System
OWNER	The individual(s) who holds title to or an equitable interest in the property on which construction operations are to be conducted.
PARCEL	All contiguous land in one ownership.
PERMITTEE	Any person to whom a site development permit is issued.
PROJECT SITE	A lot or parcel of land, or a contiguous combination thereof, where the development is to be performed.
PROVIDE	Furnish, install and connect.
RETENTION	A wet bottom stormwater storage area designed to be maintained as a pond or free water surface.
RIGHT-OF-WAY	Land owned, dedicated, or used as a public street or easement.
SEDIMENT	Soil particles which become detached from the ground surface, are transported from their site of origin, and come to rest on other ground surfaces or in bodies of water, watercourses or wetlands.

SITE DEVELOPMENT PERMIT	A permit issued by the Village of Glenview for site development.
SITE DEVELOPMENT PLAN	A drawing or other written description sealed by a Licensed Architect or Licensed Professional Engineer that illustrates and/or describes all aspects of the site development.
SOIL EROSION	The detachment and movement of soil particles by water, wind, ice and/or gravity.
STORMWATER RUNOFF	Rainfall that is not absorbed or detained by soil or plant material, or lost by evaporation.
SWPPP	Stormwater Pollution Prevention Plan
TPO	Village of Glenview - Tree Preservation Officer
USGS	United States Coast and Geodetic Survey
VACANT	Land on which there are no structures, or only structures which are secondary to the use or maintenance of the land itself.
VEM	Village Engineering Management (includes Village Engineer, Construction Division Engineer, Plan Review Engineer or Project Manager).
VILLAGE	The Village of Glenview

Design References

DESIGN REFERENCES

All work shall be designed and constructed in accordance with these Engineering Standards, as well as the latest edition of the following references, as they apply:

- A. “Standard Specifications for Road and Bridge Construction”, Illinois Department of Transportation (IDOT)
- B. "Supplemental Specifications and Recurring Special Provisions and Interim Special Provisions", Illinois Department of Transportation
- C. “Illinois Manual on Uniform Traffic Control Devices” and other applicable supplements of the Illinois Department of Transportation
- D. “Manual for Structural Design of Portland Cement Concrete Pavement”, Illinois Department of Transportation
- E. “Manual of Instructions for the Structural Design of Flexible Pavements on Projects involving MFT, FAS and FAUS Funds”, Illinois Department of Transportation
- F. “Design Manual”, “Highway Manual”, “Culvert Manual”, Bridge Manual” and other applicable manuals of the Illinois Department of Transportation
- G. “Standard Specifications for Water and Sewer Main Construction in Illinois”, Standard Specifications Committee, comprised of IEPA, IDOT, etc.
- H. “Manual of Procedures” and “Sewer Permit Ordinance”, Metropolitan Water Reclamation District of Greater Chicago
- I. “Illinois Recommended Standards for Sewage Works”, Illinois Environmental Protection Agency
- J. Standards of the American Society for Testing and Materials
- K. Standards of the American Association of State Highway and Transportation Officials
- L. Standard Specifications of the Illinois State Toll Highway Authority
- M. Standards of the American Water Works Association
- N. Standards of the American National Standards Institute, Inc.

- O. Requirements of the State of Illinois Plumbing Code
- P. Village of Glenview Subdivision Code
- Q. Village of Glenview Zoning Ordinance
- R. Village of Glenview Administrative Policies

Note: Alternate materials and/or construction methods shall be submitted in writing to the Village Engineering and will be reviewed by the VEM and Public Works Department.

Section I

CONCEPTUAL ENGINEERING PLANS

- A. Definition**
- B. Required Submittals**

SECTION I

CONCEPTUAL ENGINEERING PLANS

A. DEFINITION

“Conceptual Engineering” may, at the option of the Developer, be submitted to the Development Department for review prior to Preliminary Engineering and Site Plan Review. Conceptual Engineering plans shall contain such information as is necessary, in the judgment of the Village, to ensure that the general concept of the development is in compliance with the Engineering Standards.

B. REQUIRED SUBMITTALS

Conceptual engineering plans and drawings shall include, but are not necessarily limited to the following:

1. Ten (10) sets of Conceptual Engineering drawings on two (2) foot by three (3) foot sheets, using USGS (NGVD of 1929) datum.
2. Existing boundary survey.
3. Location Map, with the project site delineated thereon.
4. Proposed lot configuration and areas.
5. Width and location of existing and proposed right-of-way, street pavements, parking lots, sidewalks, and bike paths.
6. Location and size of existing and proposed water, sanitary sewer and storm sewer systems, sidewalks, and streets.
7. Location of any existing and proposed surface drainage systems and drainage patterns, wetlands, flood plain and/or flood ways, etc.
8. Location of any existing and proposed detention/retention basin(s).
9. Location of any Flood Plain Boundaries.
10. Areas designated for the passage and/or storage of surface run-off shall be identified and their easements clearly delineated.
11. Tentative building footprint, top of foundation elevation(s), and proposed ground surface elevations at key locations to show preliminary grading concepts.

12. All existing vegetation that is to be retained in place, including all trees ten (10) inches or greater DBH.

13. Existing structures, wells, septic tanks and field tiles.

Note: Please consult the Design Standards, Section IV, before preparing any plans.

Section II

PRELIMINARY ENGINEERING PLANS

- A. Definition**
- B. Required Submittals**
- C. Phasing of Developments**
- D. School and Park Donations**

SECTION II

PRELIMINARY ENGINEERING PLANS

A. DEFINITION

“Preliminary Engineering” shall contain such information as is necessary, in the judgment of the VEM, to ensure that the proposed development can actually be constructed in accordance with the Engineering Standards.

B. REQUIRED SUBMITTALS

Preliminary engineering plans and drawings shall include, but are not necessarily limited to, the following:

1. Ten (10) sets of Preliminary Engineering drawings and Preliminary Plat on two (2) foot by three (3) foot sheets, using USGS (NGVD of 1929) datum.
2. Existing boundary survey.
3. Location Map, with the project site delineated thereon.
4. Proposed lot configuration and areas.
5. Width and location of existing and proposed right-of-way, street pavements, parking lots, driveways, sidewalks, and bike paths.
6. Location and size of existing and proposed water, sanitary sewer and storm sewer systems (including services), sidewalks, streets, and retaining walls.
7. Location of any existing and proposed surface drainage systems and drainage patterns, upstream bypass areas, wetlands, flood plain and/or flood ways, etc.
8. Location of any existing and proposed detention/retention basin(s), and overflow routes.
9. Location of all existing and proposed public utility, (i.e. electric, gas) easements, covenants and other pertinent information.
10. A topographical map of existing conditions at one (1) foot contour intervals, including adjacent residential ground surface and top of foundation elevations.
11. Existing and proposed easements, including their widths and purpose.
12. Areas designated for the passage and/or storage of surface run-off shall be identified and their easements clearly delineated.

13. Tentative building footprint, top of foundation elevation(s), and proposed ground surface elevations at key locations to show preliminary grading concepts.
14. Letters of preliminary approval from other affected agencies, i.e. IDOT, CCHD, Township, Sewer Districts, etc.
15. All existing vegetation that is to be retained in place, including all trees ten (10) inches or greater DBH.
16. Existing structures, wells, septic tanks and field tiles.
17. Location of existing and proposed traffic signals, street and parking lot lights.
18. Location of existing and proposed parkway trees.
19. Location of Flood Plain Boundaries.
20. Description and elevation of Benchmark used.
21. Traffic Impact Report (if required).

NOTE: Please consult the Design Standards, Section IV, before preparing any plans.

C. PHASING OF DEVELOPMENTS

Preliminary Engineering must show planned improvements for the entire development. If the project is to be phased, the phase limits shall be clearly denoted. Final engineering plans for portions of the development may be submitted in phases.

D. SCHOOL AND PARK DONATION REQUIREMENTS

Evidence from School Districts and the Glenview Park District regarding future need for schools and parks in a development of twelve (12) or more dwelling units, pursuant to Section 18.12 and 18.13 of the Glenview Subdivision Code.

School and Park Donation Summary
(Glenview Ordinance #4140)

Detached Single Family

Unit Size	Elementary School District	High School District	Park District	Total Donation
3 Bedrooms	\$6,169.72	\$2,200.00	\$7,247.50	\$15,617.22
4 Bedrooms	\$9,659.44	\$4,304.35	\$9,410.00	\$23,373.79
5 Bedrooms	\$7,158.06	\$3,586.96	\$9,425.00	\$20,170.02

Attached Single Family

Unit Size	Elementary School District	High School District	Park District	Total Donation
2 Bedrooms	\$1,580.00	\$454.35	\$4,975.00	\$7,009.35
3 Bedrooms	\$3,079.44	\$705.43	\$5,980.00	\$9,764.87
4 Bedrooms	\$5,432.78	\$2,068.48	\$7,862.50	\$15,363.76

Multi-Family Dwellings

Unit Size	Elementary School District	High School District	Park District	Total Donation
1 Bedrooms	\$34.44	\$11.96	\$4,395.00	\$4,441.40
2 Bedrooms	\$1,465.00	\$550.00	\$4,785.00	\$6,800.00
3 Bedrooms	\$4,126.67	\$1,410.87	\$7,632.50	\$13,170.04

Escrow Numbers`

District #30 (Elementary)	E3924	District #25 (High School)	E3555
District #31 (Elementary)	E5428	Park District	E3558
District #34 (Elementary)	E3554		

- Donations apply to subdivisions of one or more lots, planned developments or any other subdivision development of three or more lots or dwelling units.
- Effective for all subdivisions or developments approved on or after March 21st, 2000.
- Land may be dedicated for park and recreational purposes and/or for school sites in lieu of cash donation.
- The Village Manager shall make the determination for number of bedrooms contained within a dwelling unit. Rooms designated by an applicant as “den”, “library”, “study”, “sewing room”, “exercise room”, or the like may be designated by the Village Manager as bedrooms if they are suitable for such accommodations.

Section III

FINAL ENGINEERING PLANS

- A. Required Submittals**
- B. Engineering Certification**
- C. Drawing Requirements**
- D. Miscellaneous Requirements**

SECTION III

FINAL ENGINEERING PLANS

The submittal for final engineering shall include, as a minimum, the following items:

A. REQUIRED SUBMITTALS:

1. Eight (8) sets of completed Final Engineering drawings and Final Plat on two (2) foot by three (3) foot sheets using USGS (NGVD of 1929) datum and Project Specifications. Plans larger than twenty-four (24) inches by thirty-six (36) inches will not be accepted or reviewed.
2. Two (2) complete sets of stormwater detention calculations, together with a coded drainage map of the development which shows the sub-drainage areas, pipe sizes, pipe slope, and pipe flow calculations.
3. Two (2) copies of the Environmental Assessment as a Condition of Land Conveyance, Dedication or Donation, certified by an Illinois Registered Professional Engineer.
4. Two (2) copies of an engineer's estimate showing the cost of all on and off-site improvements associated with the development. This estimate may exclude buildings and private landscaping.
5. Copies of all signed contracts for the proposed site improvements.
6. The following permit applications and copies of approved permits must be received by the VEM prior to Final Engineering Approval of a proposed project:
 - a. Four (4) copies for the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC).
 - b. Four (4) copies for the Cook County Highway Department (CCHD).
 - Permit for all work within CCHD R.O.W.
 - c. Three (3) copies for the State of Illinois-Department of Transportation (IDOT).
 - Permit for all work within IDOT R.O.W.
 - Permit for all work within any flood way, as designated by the Illinois Department of Natural Resources, Division of Water Resources.
 - d. Three (3) copies for the Illinois Environmental Protection Agency (IEPA).
 - Public Water Supply Construction Permit.

- Public Sanitary Sewer Construction Permit.
 - National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10 (see NPDES permit process chart).
- e. Sanitary Sewer Districts.
 - f. Townships (Niles, Maine, New Trier, Northfield).
 - g. North Cook County Soil and Water Conservation District.
 - h. U.S. Army Corp of Engineers – Wetlands.
 - i. Federal Aviation Administration (FAA).
 - j. Cook County Forest Preserve (CCFPD).
 - k. Illinois State Toll Highway Authority (ISTHA).
 - l. Various Railway Authorities.
 - m. Various miscellaneous authorities.
 - n. Federal Emergency Management Agency (FEMA).
7. Letter of permission to do off-site work on private property.
 8. The design engineer is required to submit any plan changes required by another jurisdictional agency under a cover letter explaining in detail the changes. Any failure to provide notice to the VED is at the developer's risk, which is likely to result in approval delays.

NPDES PERMIT PROCESS shall comply with the following: The following forms are required in order to satisfy the erosion control requirements as outlined in the NPDES permit.

FORM	RESPONSIBILITY	WHEN	WHERE TO SEND/FILE
Stormwater Pollution Prevention Plan (SWPPP) (1) and Erosion Control Plan	Designer/Applicant's Field Engineer/Village	During Design	Submit it w/plans and keep on site in Project Files • Copy to Village
Contractor Certification Statement (2)	Contractor and all Subcontractors whose operations disturb soils (3)	Signed at or prior to Preconstruction Meeting	Form submitted w/plans and keep signed form On-Site in Project Files • Copy to Village
Notice of Intent (NOI)	Designer to prepare/Permittee to sign (1)	Thirty (30) days before construction begins and with Village approval of SWPPP and Erosion Plans (4)	Post at Jobsite Original by Certified Mail to IEPA Copy to: • Project On-Site File • Copy to Contractor • Copy to Village
NPDES/Erosion Control Inspection Report	Applicant's Design Engineer/Village Inspector	Weekly and after more than 0.5 in. rainfall and 5.0 in. of snowfall	Keep in Project on-site File • Copy to Contractor • Copy to Village
Incidence of Non-Compliance (ION)	Applicant's Design Engineer or Village Inspector	Within five (5) days after incident occurred	Original by Certified Mail to IEPA Copy to: • Project On-Site File • Copy to Contractor • Copy to Village
Notice of Termination (NOT)	Applicant's Design Engineer with Village approval	Final Stabilization (5)	Original by Certified Mail to IEPA Copy to: • Project On-Site File • Copy to Village

- NOTES:
- (1) *The Permittee or his assigned representative must sign this form.*
 - (2) *Field Engineer portion of the report should be completed before the actual construction starts.*
 - (3) *Contractor and any sub-contractor whose operations will disturb soil will be required to sign the Contractor Certification Statement.*
 - (4) *Thirty (30) days prior to start of construction, regardless if prior environmental clearance has been received from all resource agencies.*
 - (5) *Final stabilization is defined as thorough establishment of an approved grass turf, without bare spots (Note: this differs from IEPA regulation).*
 - (6) *Found in forms on IEPA web site www.epa.state.il.us/water/forms.html*

B. ENGINEERING CERTIFICATION

Engineering plans, specifications and all calculations submitted for review must be signed and sealed by a State of Illinois - Licensed Professional Engineer. Said attestation must include the expiration date of the Professional Engineer's License and the date the seal was affixed.

C. DRAWING REQUIREMENTS

Complete drawings shall contain, at a minimum, the following:

1. To provide consistency from project to project, the plan sheets shall be assembled in the sequence below. The designer should note that not all plans will have all sheets and some sheets may be combined together (as approved by the VEM). All units shall be in English. The required sequence is as follows:
 - a. Cover Sheet
 - b. Index of Sheets
 - c. Alignment, Ties and Benchmarks
 - d. General Notes and Specifications
 - e. Master Utility Plan
 - f. Plan and Profile Sheets
 - g. Drainage and Utility Sheets
 - h. Grading Plan (required) and Wetlands (if required)
 - i. Erosion Control Plan (required) and "SWPPP" (if required)
 - j. Intersections
 - k. Traffic Signals
 - l. Pavement Lighting
 - m. Pavement Markings and Signing
 - n. Traffic Control
 - o. Typical Sections
 - p. Details
 - q. "Cross Sections" (if required)

2. Title Sheet shall comply with the following:
 - a. Show title information in the top center of the sheet and include type of improvement.
 - b. Provide address, contact name and phone numbers for all utilities.
 - c. Provide a project layout map at bottom center of the sheet and include on the map the location of project, north arrow, prominent features, route and street names, scale of location map, township and range numbers.
 - d. Include the project approval block in the lower right-hand corner of the sheet and check to ensure the signatures and dates for the Village Engineer and Local jurisdictional officials, where applicable.
 - e. Include the design firm's company name, and the professional Engineer's signature, date of their license expiration and professional stamp below the client's approval box.
 - f. Show the information for "JULIE".
 - g. Include detailed plan legend.
3. Alignment, ties and benchmarks shall comply with the following:
 - a. Where necessary for complex projects, include a geometric alignment figure.
 - b. Show schematics for reference tie locations (when required) which include the applicable centerline station, the applicable control ties, and the complete description of the features used to determine the tie location.
 - c. All development of two (2) or more acres, or three (3) or more lots, shall provide two (2) points at diagonal corners of the site, with State Plane Coordinates.
 - d. Provide the site benchmark data on this sheet and include an accurate description of location, benchmark elevation, and coordinate information (if available). The site benchmark shall be referenced to a Village datum benchmark (also described on coversheet).
4. General notes and specifications shall include all applicable general plan notes and specifications (design and construction notes should be project specific).
5. An overall master utility plan drawn to a minimum scale of one (1) inch equals one-hundred (100) feet showing the following:
 - a. Existing and proposed right-of-way, street pavement, sidewalk, walkways, bikeways, water or surface detention boundary limits, building footprint or pad limits, site geometrics, and easements.

- b. Size and location of existing and proposed utilities (storm sewer, sanitary sewer, watermain, etc.).
 - c. On a separate sheet, show all utilities and services (including but not limited to gas, electric, cable television, telephone, streetlights, traffic signals, watermain, sanitary sewer and storm sewer), junction or controller boxes, pedestals and all easements, right-of-way and lot lines. All wire services within exclusive detention easements shall be placed in heavy-wall galvanized conduit.
 - d. Utility companies shall not be required to submit individual permit applications and plans for items shown and approved on the overall utility plan. However, changes, revisions or additions to the approved overall utility plan shall be submitted for review and approval. Utility companies shall be responsible for notifying the Village a minimum of forty-eight (48) hours prior to the commencement of work. All proposed utilities shall conform to the following:
 - All proposed utilities, whether with the easements or future public right-of-way, shall be placed a minimum of five (5) feet from the outside edge of any existing or proposed Village watermain, sanitary or storm sewers, and other related appurtenances.
 - All proposed utilities shall be placed a minimum of three (3) feet from any existing or proposed back of curb and five (5) feet from the edge of an improved roadway and are not within the clear zone.
 - All proposed utilities shall be placed within uniduct or other approved conduits, under all existing or proposed Village maintained street crossings, at the developer's expense.
 - All proposed power and fiber optic cable utilities shall be placed within uniduct or other approved conduits, within any existing or proposed Village right-of-way, at the developer's expense.
 - All proposed transformers, pedestals, switch gear boxes or other appurtenances to proposed utilities shall not be placed within exclusive easements or in such a manner so as to block swales, overland flow routes or access to proposed Village maintained infrastructure. In addition, all appurtenances to proposed utilities shall be constructed to approved final grade.
 - e. Include a pipe and structure schedule.
6. Plan and Profile sheets shall comply with the following:
- a. Plan and Profile views shall label the applicable plan view stations in the title block at the lower right-hand corner on each sheet.

- b. Plan View shall show mainline stationing increasing from left to right (south to north or west to east). Provide tic marks along the centerline at fifty (50) foot intervals and note the station on every even one-hundred (100) foot intervals and at all intersections. Use a minimum scale of one (1) inch equals forty (40) feet. Show all P.C.'s and P.T.'s along the centerline. Note all pavement widths at stations wherever there is a change in pavement width. Provide a North arrow on each sheet. For temporary and permanent entrances and side road intersections, show the facility with the applicable street name, entrance type, the existing surface material type, the width of the intersecting facility, and for intersections with public roads, the angle of intersection from the side road centerline to the mainline centerline.
 - c. Profile View shall show the profile of the finished roadway centerline surface, bottom of subgrade, top and bottom of underground utilities. The vertical scale shall be one (1) inch equals five (5) feet. Show the existing ground line to the nearest 0.1' and proposed pavement surfaces to the nearest 0.01'. Show the vertical curve data above the profile line for crest curves and below the profile line for sag curves including the VPI station, the vertical curve length, the elevation at the VPI, and station and elevation of high and low points of vertical curve. Show tangent grades to the nearest hundredth (i.e., 0.01) of a percent. Use a "+" prefix for positive grades and "-" prefix for negative grades. Show the elevations for the proposed centerline every fifty (50) feet. Provide additional profiles, where required by the VEM for pavement edges, ditches, right-of-way elevations or other situations. Note ditch locations with invert elevations at fifty (50) foot intervals and breaks in grade on the cross sections and include the gradient percentage, centerline station, beginning and ending elevations, and elevations at gradient changes. Note all overhead utilities where they cross the centerline and the type of utility. For bridges within the project, show elevations of abutments, piers, low vertical clearance points, normal water level, high water level, and stream bed.
 - d. For utilities include the distance from the centerline, material type, pipe size, length and slope, flow direction, upstream and down stream flow elevations, end section or headwall type and size, and end treatment (rip rap). For manholes, catch basins, and inlets, show the structure number, centerline station and offset, rim elevation, or grate elevation at edge of pavement, and invert elevations and direction (N, S, E, W) for all pipes. Show the areas of trench backfill under pavements, walks, driveways and entrances.
7. An overall grading plan drawn to a minimum scale of one (1) inch equals one-hundred (100) feet showing the following:
- a. Existing and proposed right-of-way, pavement, and easements.
 - b. Existing and proposed drainage structures, including rim and invert elevations.
 - c. Existing and proposed contours by means of a topographic survey of the development at one (1) foot contour intervals and such land beyond the development that may impact or be impacted by the drainage and design elevations of the development. This topographical survey is to be done using USGS (NGVD of 1929) datum. Surveys shall

extend at least fifty (50) feet off site in every direction, or to such further point or points as determined to be required by the VEM.

- d. Existing and proposed lot layout with lot numbers, site geometrics, foundation elevations, exact locations of existing buildings adjacent to the development property or subdivision, and key spot elevations to delineate overland stormwater flow.
 - e. Existing and proposed detention areas and overland flow routing. Include the existing volume, normal water level, one-hundred (100) year HWL, overflow elevation, and the proposed one-hundred (100) year HWL, design HWL, required volume, design volume and overflow elevation.
 - f. Identification of existing and proposed streams, flood water run-off channels, basins, ponds, wetlands, etc.
8. An overall erosion control plan drawn to a minimum scale of one (1) inch equals one-hundred (100) feet showing the following:
- a. Existing and proposed right-of-way, pavement, and easements.
 - b. Existing and proposed drainage structures, including only pertinent rim and invert elevations.
 - c. Existing and proposed contours at one (1) foot intervals.
 - d. Existing and proposed foundation elevations and key spot elevations to delineate overland stormwater flow.
 - e. Existing and proposed detention areas with high water elevation and overland flow routing.
 - f. For those projects that disturb one (1) acre or more, include a stormwater pollution prevention plan (SWPPP) on the overall erosion control plan which includes the following:
 - Site description identifying potential sources (nature of construction activity) of pollution that may affect the quality of stormwater discharges.
 - Intended sequence of major activities which disturb soils for major portions of the site (e.g., grubbing, evacuation, grading).
 - Total site area and total site area to be disturbed by excavation, grading or other activities.
 - Appropriate best management practices (BMP), including erosion, sediment, and stormwater management controls to minimize the discharge of pollutants from the site.

- Description of steps to be taken to prevent and control pollutants in stormwater discharge from the site, including inspection by the design engineer (Illinois Licensed Professional Engineer) of all disturbed, unstabilized areas and maintenance of all controls to ensure their effective operation.
9. Intersections shall include pavement elevations, lane widths, curb or edge of pavement radii, curb ramps, turning radii for left turning vehicles, location of median noses and islands, location of traffic signal equipment, location of traffic signs, pavement markings and construction joint layout (if concrete).
10. Traffic Signals shall comply with the following:
- a. Traffic signals shall be in accordance with the Illinois Department of Transportation District I Traffic Signal Design Guideline.
 - b. North arrow up or to the right, and use layout scale of one (1) inch equals twenty (20) feet. Break lines are not allowed. All pavement, driveways and cross streets between the intersection and perimeter loops must be shown. Proposed geometrics only should be shown. Label and dimension R.O.W. Dimension pavement marking and lane widths. Provide IDOT District I traffic signal legend. Label roadway names. Dimension equipment locations, pavement loops and their locations. Dimension and size conduit runs. Show curb, sidewalk, known utilities, driveways, buildings and other features adjacent to R.O.W., etc. and locate drainage structure(s) which may affect signal appurtenances.
 - c. All lights shall be LED. Battery backup may be required as determined by the VEM.
 - d. Include phase designation diagram or chart sequence of operation. If these diagrams or chart sequences do not fit on this sheet, a separate sheet may be used. Also include diagram or chart sequence for emergency vehicle preemption and chart sequence for railroad preemption.
 - e. Denote limits of interconnect system within intersections and system loops, and the location of the master controller and telephone service.
 - f. Use IDOT District I notes for temporary traffic signals. Denote existing and proposed geometrics. Include dimensional pole locations, sequence of operation, and locations of existing equipment. Show schedule of existing equipment to be removed, salvaged or returned, with note concerning who will receive equipment and how. Include notes concerning any controller specifications, and temporary maintenance of interconnects.
11. Pavement lighting shall comply with the following:
- a. Use Illinois Department of Transportation District I “General Guidelines for Lighting Design and Plan Preparation” for any portion adjacent to IDOT facility.
 - b. Show base lighting layout with locations of light poles, control installation, conduits,

cables, light pole setback, and type of pole, breakaway or non-breakaway.

- c. Submit calculations and supporting documentation showing the levels of luminance, luminance and veiling luminance and uniformity ratios, voltage drop calculations, cable sizing, load tabulations for each circuit, and grounding scheme.
- d. Lighting for Village facilities shall meet with VEM approval.

12. Pavement markings and signings shall comply with the following:

- a. Show existing and proposed sign locations with sheeting, post, base type, sign dimensions, and station/offset location.
- b. Show existing and proposed pavement markings with material, dimensions, station/offset locations, taper rates, and lane widths. Pavement markings shall be in accordance with IDOT District I Standards for Typical Pavement Marking.

13. Traffic Control shall comply with the following:

- a. Where necessary, provide plan view sheets showing temporary widths and tapers, temporary traffic lanes, proposed construction staging, location of signing for work zones, temporary pavement markings (types and sizes), roadside safety and layouts, and general notes for construction, closures, time frames, etc.
- b. Utilize and reference IDOT Traffic Control Devices Standard.

14. Typical shall comply with the following:

- a. Ensure that all applicable typical sections are provided with horizontal dimensions, vertical dimensions, type and depths of surface, base, and sub-base courses, curb and gutters/medians, landscaping, side slopes expressed as a ratio of vertical to horizontal distances, cross slopes expressed in percent, and all other applicable notations.
- b. Include all notes applicable to the typical sections.
- c. Include the pavement design assumptions and computations.

15. Details shall comply with the following:

- a. Include applicable Village details.
- b. Include all applicable IDOT Highway Standards necessary to construct the project.

16. Cross sections shall comply with the following:

- a. Plot cross sections at intervals or locations as directed by the VEM. Use a horizontal scale of one (1) inch equals ten (10) feet. The vertical scale shall be one (1) inch equals five (5) feet.

- b. Plot the existing cross section using a light, dashed line and show the existing ground lines, pavement structure, drainage structures, major utilities, all affected structures, existing and proposed right-of-way and easement lines, bodies of water near the right-of-way limits, and existing elevations. Plot the proposed cross section using a dark, solid line and show centerline or the profile grade line (if different), proposed pavement structure, all side road and entrances, curb and gutter or shoulders, sidewalk locations and depth, proposed side slopes, special fill materials, all underground utilities affected by the construction, ditch elevations and drainage direction, proposed right-of-way and easement lines, any other special features, and all new drainage structures, which includes the centerline station, distance and direction from centerline, description and size of structure, and top and flow line elevations.
 - c. Provide the proposed centerline pavement surface elevation vertically on each cross section. Show the side slope using a vertical to horizontal ratio. Show any earthwork for temporary pavements.
17. All existing vegetation that is to be retained in place, including all trees ten (10) inches or greater DBH. All existing vegetation that is to remain within the proposed public right-of-way must be reviewed and evaluated by the Village Public Works Department and/or the Village's Tree Preservation Officer (TPO).
18. Existing structures, wells, septic tanks and field tiles shall conform to the following:
- a. Water wells shall be plugged according to State of Illinois rules and regulations. If the well is to be kept for landscape maintenance, it must be brought into compliance with Illinois regulations. There shall be no connections between the Village water system and any private well.
 - b. Septic systems shall be abandoned. The septic tank and distribution boxes shall be removed. Piping for the seepage field shall be removed if it is plastic pipe, or crushed if clay tile pipe is used.
 - c. Field tile shall be connected to proposed storm sewer system or abandoned in place as directed by the VEM.
 - d. The Developer must submit copies of all aforementioned certifications to the Village.
19. All plan items shall be dimensioned in feet and decimal parts of a foot. North arrow and scale shall be shown on all applicable plan sheets, details and maps.
20. Any revisions to previously submitted engineering plans, either before or after VEM approval, shall be duly noted on the plans with revision dates, revision numbers and highlighting the change(s) on the revision block. The title sheet shall indicate the latest revision date and each individual plan sheet shall reflect the latest revision date applicable to the specific plan sheet. Any plans submitted without these revision notes will not be accepted. All revisions must also be itemized in letter form to accompany the revised engineering plans.

21. A note placed on the cover sheet shall state: “All contractors (and sub-contractors) who work on this project agree to conform to the rules and regulations of all applicable agencies”.
22. All development within a designated flood plain must also be designed in accordance with the Village of Glenview Flood Control Ordinance, No. 3201, including all subsequent amendments. All developments that provide compensatory storage, as part of this ordinance, or the subdivision code. The entire area designated for compensatory storage shall be in an easement.. This easement must be exclusively for compensatory storage, or as additional language to the exclusive easement required for stormwater detention.
23. Plans which have been drawn in an exceptionally poor manner or are extremely deficient in necessary information will not be reviewed until these matters have been corrected.

D. MISCELLANEOUS REQUIREMENTS

1. Recapture Agreements: Should the developer wish to seek to have a recapture agreement executed for any off-site work that was required as part of the development, the developer must initiate, draft and obtain approval from the Village at the time of development of the property. Any request for recapture after the date of final Village Board acceptance will not be considered.
2. A Certificate of Insurance will be required from all developers and contractors working within the Village of Glenview. See Section VIII-D for more detailed requirements.
3. A Hold Harmless and Indemnification Agreement will be required from all developers and contractors working within the Village. See Section VIII-D for more detailed information.
4. Video Taping: Notwithstanding other requirements in the Engineering Standards, video taping of utilities (public or private) may be required by the Village during the design, construction or closeout process as a means to determine conditions, capacity, or effectiveness of the utility system. This may or may not include existing, new, onsite or offsite utilities as determined by the Village to be necessary.
5. Existing Utilities: A condition assessment of existing utilities may be required by the Village during the design, construction or closeout process as a means to determine the condition, capacity or effectiveness of a utility system. This may or may not include existing, new, onsite or offsite utilities as determined by the Village to be necessary.
6. Unless directed otherwise by the Village Engineer, all electrical, cable television, telephone and all other utilities shall be buried (including existing utilities) in the required rear yard easement, but above ground appurtenances will be allowed in extenuating circumstances.
7. Related final (dated) reports shall be referenced in the final (dated) engineering plans and the final (dated) engineering plans shall be referenced in the related final (dated) reports.

Section IV

DESIGN STANDARDS

- A. Site Grading**
- B. Soil Erosion Control**
- C. Water Distribution System**
- D. Sanitary Sewer System**
- E. Storm Sewer System**
- F. Stormwater Management**
- G. Streets And Other Site Improvements**
- H. Environmental Assessment**
- I. Easement**
- J. Variances**

SECTION IV

DESIGN STANDARDS

Adequacy of Design

The responsibility for adequacy of the design shall rest solely with the Design Engineer and the issuing of a permit by the Village shall not relieve the Design Engineer of that responsibility. The issuance of a permit shall not be construed as approval of the concept or construction details of the proposed facilities and shall not absolve the Permittee, Co-Permittee, Owner, Developer or Contractor, or their agents, or the Design Engineer, of their respective responsibilities.

Approval

Approval of the design by the VEM shall not confer upon the Village any responsibility for the accuracy of the design drawings.

Professional Engineer

The VEM reserves the right to require a Professional Engineer for design requirements.

Coordination of Work

The following specifications govern construction of this project, and apply to the work described on the design plans. In the event of any discrepancy, the order of precedence is the current:

- Village of Glenview Engineering Standards Manual Amendments and Policies
- Village of Glenview Engineering Standards Manual
- Village of Glenview Engineering Standards Manual Details
- Village of Glenview Ordinances
- IDOT Standard Specifications
- Approved Plans

Responsibility

Failure of Village representatives to observe or recognize hazardous or unsightly conditions, or to recommend denial of a site development permit, shall not relieve the permittee or any contractor from responsibility for the condition or damage resulting there from and shall not result in the Village, its officers or agents being responsible for any condition or damage resulting there from.

A. SITE GRADING

All developed sites whether for a single-family residence, a multi-family home subdivision, or commercial developments shall be designed to be self-draining, but shall not adversely affect adjacent properties.

Stormwater detention/retention basin shall be constructed during the initial phase of mass grading operations.

Prior to commencement of any construction operation, a six (6) foot high chain link fence with a locked gate, installed pursuant to the Village Ordinance No. 4192, shall be erected around the entire area of construction. In addition, a silt fence shall be installed around the area of construction, together with applicable soil erosion control measures as discussed in Section IV-B.

Submission requirements for grading shall include the following:

1. A vicinity map in sufficient detail to enable easy location of the site, including boundary lines and acreage of the site, a legend, and scale.
2. Existing topography of the site and adjacent land within at least fifty (50) feet of the boundaries, drawn at one (1) foot contour intervals, which clearly depicts the topographic relief in the area and vicinity of proposed improvements, as well as confirmation of the drainage pattern of the improvements area.
3. The location of existing buildings, structures, utilities, bodies of water, flood plains, drainage facilities, vegetative cover, paved areas and other significant natural or man-made features on the site and adjacent land within at least fifty (50) feet of the boundaries of the site.
4. A general description of the predominant soil type on the site, location and limitations for proposed use.
5. Location of areas of excavation, grading and filling, proposed contours, finished grades, street profiles, provisions for stormwater drainage, including the control of accelerated runoff, with a drainage area map and computations, kinds and locations of utilities, areas and acreage proposed to be paved, covered, sodded or seeded, vegetatively stabilized, or left undisturbed.
6. All graded sites shall be self draining. Minimum slopes during the rough grading stage shall be a half (0.5) percent. Minimum slopes for final grading shall be one (1) percent.
7. Where berms or embankments are used, side slopes shall not be steeper than 4:1 (horizontal to vertical), without written request by the developer and supporting stabilization plans, and written approval by the VEM.

8. All lots within a subdivision/development shall be graded in a manner so that the rear portion shall drain toward the street by means of storm sewer, or as approved by the Village Engineer. In no case shall the overland discharge course exceed two-hundred and fifty (250) feet without flowing into a storm sewer pipe or structure (Refer to Lot Grading Guidelines Detail for Slope Requirements).
9. Lots shall be laid out to provide positive drainage away from all buildings, and individual lot drainage shall be coordinated with the general storm drainage pattern for the area. Drainage shall be designed to avoid concentrations of stormwaters onto adjacent lots. All drainage courses shall be protected by covenants and deed restrictions, preventing alteration, building upon or obstruction of the drainage ways. If trees are designated to be saved on the site, than tree wells, retaining walls or other approved measures by the VEM and Village Tree Preservation Officer shall be used to protect trees and reduce grades to the minimum.
10. Spot grades at curbs shall be located at top of curb unless otherwise noted on the plans.
11. For building permits, the grading plan is required to insure that existing drainage patterns are not blocked and that the construction site and neighboring properties are not adversely affected by the new construction. The grading plan shall consist of both existing and proposed grades, including the top of foundation for all buildings and/or additions, and be submitted in either USGS (NGVD of 1929) datum, or an assumed datum based on an elevation of 100.0; preferably the top of foundation of the residence. The grading plan submitted should reflect existing or proposed brick ledges or step-foundations or drop sidings. The proposed top of foundation shall match existing top of foundation but cannot be higher than the average of the two adjacent (either side) buildings top of foundation. If the building is multi-level, show proposed top of foundation and finished grade at all levels.

Grades shall be developed and presented on a plan, drawn to scale, using feet and decimal part of a foot only. Spot grades at ten (10) foot intervals, contour lines at one (1) foot or at half (0.5) foot spacing, or any combination of the three shall be used to accurately and clearly show the existing and proposed pattern(s) of drainage. In cases where the slope of the lot does not exceed two (2) percent, the engineering plan should show at a minimum, spot grade or contours at reasonable spacing such that the drainage pattern of the lot is easily identified. For single family residences, the contour lines or spot grades shall extend a minimum of thirty (30) feet beyond the area of new construction, and at least ten (10) feet onto the adjacent property, if the property line is within thirty (30) feet of construction. In all cases, positive drainage throughout the proposed construction area must be achieved and the grading plan must reflect no additional run-off onto adjacent properties, or the diverting or blocking of existing run-off onto the lot unless approved otherwise by the VEM.

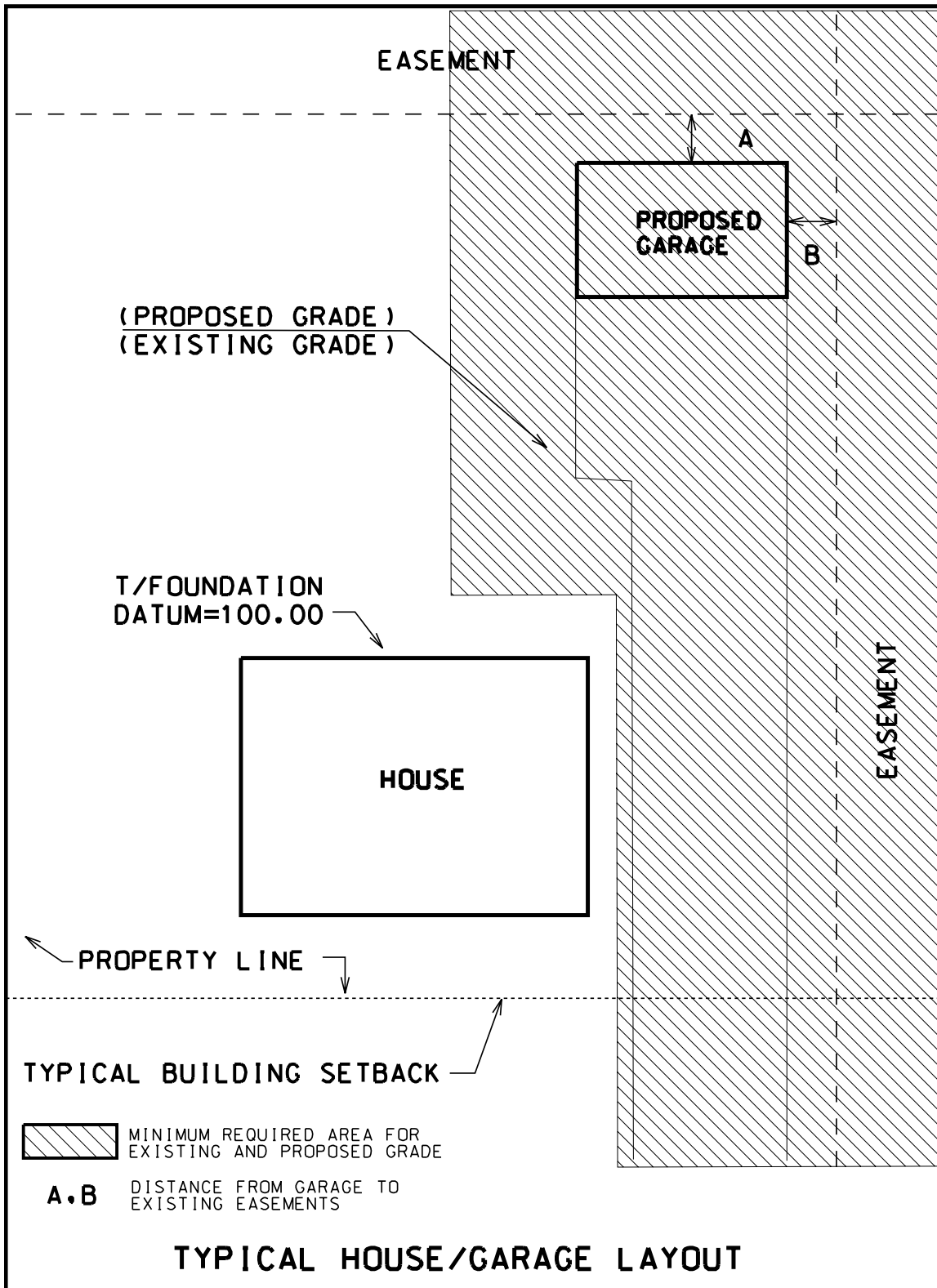
12. Site restoration includes but is not limited to the backfilling of any excavation, grading, seeding, fencing or storm water management necessary to render a site clean and safe.

13. The following requirements must be submitted at the time of application for a detached garage:

- a. Proposed detached garage with or without driveway extension where there is currently no existing detached garage in proposed location on the lot:
 - Provide a current plat of survey of property showing the proposed location of the garage and driveway. Location of proposed garage and driveway shall be superimposed on plat and proposed garage and driveway location shall be dimensioned with respect to all property and easement lines.
 - Provide a grading plan showing existing and proposed spot grade elevations. Provide elevations in the manner mentioned previously and in the area on the typical house/garage layout diagram. Show all proposed grade elevations that differ from the existing grade elevations. Provide a top of foundation elevation for the existing house. Use an assumed Datum Bench Mark of one-hundred (100) feet if the elevation is other than USGS Datum. Show the proposed top of foundation/finished floor elevation(s) for the proposed garage.
- b. A proposed detached garage with or without driveway extension where there is an existing detached garage to be demolished on the lot:
 - If the proposed detached garage is to be built at the same location and elevation as the existing garage, clearly state this intent on the submitted improvement plans (no grading plan will be required).
 - If the proposed garage is not to be built at the same location and/or elevation as the existing garage, the requirements above will apply.
- c. Additional requirements for all proposed detached garages are:
 - All requirements of the Glenview Zoning Code shall be followed when proposing the location of the new detached garage.
 - For lots where there are existing easements (see typical house/garage layout diagram); and where the proposed dimension “A” and/or “B” is from zero (0) to three (3) feet, an as-built spot survey showing the garage location, drawn by a licensed surveyor, shall be submitted after the foundation of the garage is poured and prior to framing the garage (no framing to commence until written Village approval is received). The spot survey should dimension the location of the new garage slab with respect to the applicable easement and property lines. If the new garage location encroaches into existing (or proposed) easements as determined by a spot survey or as proposed in the construction drawing, the owner will be required to obtain written permission for easement encroachment from all concerned parties (such as utility companies and the Village of Glenview), and shall submit the original permission documents to the VEM for review and

approval. Permission granted by other parties does not guarantee that permission to encroach the easement will be granted by the Village of Glenview.

- If zoning requirements conflict with engineering requirements, a meeting shall be held with all parties concerned to determine a solution.



B. SOIL EROSION CONTROL

The VEM is responsible for enforcing the requirements set forth in the Village Soil and Erosion Control Regulation, Ordinance No. 1950. The following requirements, some of which have been excerpted from the Ordinance, provide minimum standards to safeguard persons, to protect property and prevent despoliation of the environment, and to promote the public welfare by regulating and controlling the design, construction, quality of materials, and use and maintenance of any development or other activity which disturbs or breaks the topsoil or otherwise results in the movement of earth. These requirements are applicable to all developments within the Village, and shall apply to any movement of earth, any sedimentation and erosion control plan, and the granting of a permit for execution of said plan.

The development plan shall relate to the topography and soils of the site, resulting in the lowest potential for erosion. The smallest practical area of land shall be exposed at any given time during development and such minimum area exposure shall be kept to as short a duration of time as is practical. Sediment basins, debris basins, desilting basins, and/or silt traps and fences shall be installed and maintained to remove sediment from run-off waters from land undergoing development. Provision shall be made to effectively accommodate the increased run-off caused by changed soil and surface conditions during and after development. Temporary vegetation or, where appropriate, mulching or other non-vegetative cover shall be used to protect areas exposed during development. Permanent, final plant covering (or structures) shall be installed as soon as possible, and shall be retained and protected so far as consistent with developing the site.

1. Submission requirements for erosion control shall include the following:
 - a. A soils map of the project site showing the predominant soil types.
 - b. A plan showing areas and acreage to be temporarily or permanently sodded, seeded, mulched or paved for each phase of construction.
 - c. Areas and acreage to be left undisturbed for each phase of construction.
 - d. A storm drainage plan, including but not limited to a drainage area map, indicating conditions currently prevailing at proposed and natural outlets such as:
 - Whether the drainage course is bare earth or vegetated.
 - Whether the natural or proposed outlet is subject to long term or continuous flow.
 - Whether (or not) the existing outlet is actively eroding.
 - Whether there is evidence (permanent or seasonal) of a high water table, and its elevation.
 - Whether the area is subject to seepage or spring flow.

- The elevation of normal water level in all proposed and natural outlets.
 - A profile through each outlet, and downstream for a sufficient distance, to indicate the natural gradient of the accepting natural outlet and/or stream channel.
 - Cross-sections and profiles of existing stream channels, where applicable.
- e. An erosion control plan, including all erosion and sediment control measures needed to provide protection throughout all phases of construction. The plans shall also include on-site, as well as the location of any off-site borrow and spoil areas, stockpiles, haul and access roads, and shall further indicate:
- A Gantt chart of project construction items.
 - Duration of exposed disturbed areas for each phase of construction.
 - Installation of temporary or permanent sediment control measures (vegetative and structural) in each phase.
 - Installation of storm drainage in each phase of construction.
 - Paving of streets and commercial parking areas, if any, in each phase, with corresponding dates.
 - Establishment of permanent vegetative cover, including but not limited to seeding mixes and rates, type of sod, subgrade preparation, lime and fertilizer application, mulching, or similar stabilization procedures in each phase of construction.
 - Details of all structural sediment control measures.
 - Computations for sediment basins, if any.
- f. When required, the stormwater pollution prevention plan (SWPPP) is included on the erosion control plan and must meet the following requirements:
- Minimum design level unless otherwise specified by more stringent regulations, shall be a storm event equal to or greater than a twenty-five (25) year twenty-four (24) hour rainfall event. Submit calculations within the stormwater management report as a separate chapter or section.
 - The SWPPP must clearly identify for each measure identified in the plan, the contractor(s) that will implement the measure, and all contractor(s) and subcontractor(s) shall sign the following certificate (include in SWPPP).

“I certify under penalty of law that I understand the terms and conditions of the general National Pollution Discharge Elimination System (NPDES) permit ILR10) that authorizes the stormwater discharges associated with industrial activity from the construction site identified as part of this certification”.

The certification must include the name and title of the person providing the signature of the contracting firm; the address (or other identifying description) of the site; and the date of the certification.

- The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the NPDES ILR10 permit and with the requirements of the SWPPP. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.
- Inspection by permittee is required at least once every seven (7) calendar days and within twenty-four (24) hours of the end of a storm that is a half (0.5) inch or greater or five (5) inches or greater snowfall. Based on inspection results, modifications shall provide for timely implementation of any changes to the plans within seven (7) calendar days. The inspection report shall summarize scope of inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, and major observations relating to the implementation of the SWPPP. These records shall be retained as part of the SWPPP for at least three (3) years from the date that the permit coverage expires or is terminated.

The permittee shall complete and submit to IEPA and the Village within five (5) days an “Incidence of Noncompliance” (ION) report for any violation of the SWPPP observed during an inspection conducted, including those not required by the plan.

- g. Use of the “*Technical Manual Designed for Urban Ecosystem Protection and Enhancement*” (*Illinois Urban Manual*) 2002 or latest edition, prepared for the Illinois Environmental Protection Agency by the United States Department of Agriculture - Natural Resources Conservation Service, is made a part hereof by this reference, for purposes of exemplifying the considerations and factors which should enter into preparation of a soil erosion control plan.

2. Special precautions for site work shall include the following:

- a. If at any stage of the grading work, Village representatives determine by inspection that the nature of the operation is such that further work as previously authorized (by permit) is likely to imperil any property, public way, watercourse or drainage structure, the Village may require, as a condition to allowing the work to be done, that such reasonable safety precautions be taken as deemed appropriate to avoid the likelihood

of such peril. "Special precautions" may include, but shall not be limited to, specifying a more level exposed slope, construction of additional drainage facilities, berms, terracing, compaction, or other erosion control measures, testing, investigations and submittal of reports.

- b. Where it appears that stormwater damage has or may result because erosion control measures are not complete, work may be stopped and the contractor (or permittee) required to install temporary or permanent planting or structures, or take such other measures as may be required to protect adjoining property or the public safety. The Village may specify the date of start and completion of grading, or may require that earthwork operations be conducted in specific stages so as to insure completion of protective measures or devices prior to the advent of seasonal weather conditions.
3. Required erosion and sedimentation control measures shall include the following:
- a. Prior to commencement of construction, the contractor shall obtain from the owner and submit to the Village a copy of the Notification of Coverage letter and the Illinois Environmental Protection Agency (IEPA) National Pollutant Discharge Elimination System (NPDES) Permit No. ILR10. The contractor shall conform to all requirements of this permit, including maintenance and inspection of erosion control measures and filing of applicable certifications and reports. A copy of the notification of coverage letter shall be posted at the project site in a prominent place for public viewing.
 - b. Soil erosion and sedimentation control measures shall be completed in accordance with the "Illinois Urban Manual" and NPDES Permit No. 1LR10. Any soil erosion control measures, in addition to those outlined in this Engineering Standards and/or shown on the engineering plans, and which are deemed necessary by the Owner, Design Consultant and/or the Village Engineer, shall be immediately implemented by the contractor.
 - c. The Licensed Professional Engineer responsible for the project shall inspect the erosion control measures proposed for the specific project on a weekly basis and submit to the Village Engineer a letter of certification for all soil erosion control measures that are in place and operating as designed, and identify any non-compliant measures with a schedule to rectify the problems. This letter of certification shall be submitted by the first day of every month.
 - d. The general contractor, earthwork contractor and underground utilities contractor(s) shall be responsible for the installation, inspection, maintenance, and any necessary corrective action associated with erosion and sedimentation control measures as they affect their related work. The inspection shall be conducted and recorded at least once per week and after rain events in excess of half (0.5) inch. The following items are to be provided by the contractors at the time and in the general sequence indicated below.

4. General sequence of items to be provided by the contractors as follows:
- a. Provide and receive Village approval for any temporary measures, including but not limited to stabilized construction entrance(s), silt fence and tree protection fence prior to the start of any construction activity, including issuance of any construction or building permit. The silt fence shall be installed in accordance with the Silt Fence Detail. Tree protection shall conform to criteria given in the Village Tree Standards Manual. Silt fence materials and installation must be approved prior to the start of construction.
 - b. A stabilized construction entrance shall be installed for mud and dust control prior to the onset of construction activity and shall be maintained for effectiveness to remove dirt that could leave the site by construction vehicles throughout the course of the project. The construction entrance shall be located generally where shown on the plan, and/or at any other points where construction traffic frequently leaves the site. In accordance with the detail, the Stabilized Construction Entrance shall be typically thirty (30) feet wide (with a minimum width of fourteen (14) feet if approved by a Village representative), a one-hundred (100) feet long, and shall consist of a minimum six (6) inch thick layer of angular crushed aggregate meeting IDOT gradation CA-1, compacted in place, and underlain with a geotextile filter fabric. Optional vehicle wash down pit may be required as directed by the Village Engineer.
 - c. Provide diversion swales (which are part of the overall grading plan) around the perimeter of the site, as necessary to prevent and intercept stormwater runoff to offsite areas, as part of initial mass grading operations.
 - d. Over-excavate any proposed wet detention basin(s) for settling and siltation, as indicated on the plans or as directed by the Village Engineer. The basins will be properly over-excavated so as to provide sufficient volume for debris and settlement. When stormwater is to be routed through an existing or proposed detention basin in order to allow for settlement of silt and debris, the basin is to be constructed prior to any other grading work. If drainage is into an existing basin, upstream project areas shall be properly protected so as to minimize siltation of the downstream basin.
 - e. Over-excavate around proposed yard inlets, as indicated on the plans or as directed by the Village Engineer.
 - f. Topsoil and other material stockpiles shall be located so as to avoid erosion of the stockpile onto off-site areas. Also, the stockpile shall be sited so that an on-site drainage swale is located between the stockpile and downstream off-site properties. If a stockpile is to remain in place for more than fourteen (14) days, it shall be stabilized with burlap matting or be seeded. Stockpiles should be located such that entrances are from upstream locations.
 - g. Provide a diversion ditch, as necessary, as well as installation of silt fencing in accordance with the Temporary Topsoil Stockpile Detail for all stockpiles prior to placement of material in said stockpiles.

- h. Install ditch check, and flared end section protection, as necessary, in accordance with the Temporary Ditch Check and Flared End Section (FES) Erosion Control Details, in all drainage ways within or directly adjacent to the project site.
- i. Because no sediment shall be allowed to enter the existing storm sewer system, provide straw bales and filter baskets siltation/debris collection, etc., around all stormwater yard/detention basin inlets, curb inlets, catch basins, etc. immediately upon installation of such structures throughout the vicinity of the project site, which could be affected by sediment during construction. Reinforced filter baskets as approved in advance of placement by the Engineering Division, shall be used for sediment control. All erosion control measures shall be maintained until all upstream areas to respective inlets or structures have been completed with a thorough establishment of an approved grass turf, without bare spots (Note this requirement is more stringent than the IEPA regulation of seventy (70) percent). Repair or replacement shall be promptly made, as needed.
- j. All streets, alleys, etc. adjacent to and in the immediate vicinity of the project site shall be kept free of dirt, mud and debris, and cleaned, as necessary, at the end of each work day.
- k. Upon completion of topsoil respread operations, all disturbed areas shall be seeded, sodded, or landscaped as noted on the engineering or landscape plans. Seeding and mulching shall be in accordance with Section 250 and 251, respectively, of the latest IDOT Standard Specifications. Seed mixture shall be Class 1. Sodding shall be in accordance with Section 252 of the IDOT Standard Specifications. All disturbed ground within the existing Village right-of-way shall be restored with a minimum of four (4) inches of topsoil and sodding. Unless soil erosion control items are specifically referred to as individual bid items (such as topsoil respread, seeding, etc.), they are to be considered incidental to the cost of the contract.
- l. All storm sewers, catch basins, inlets, sumps and/or detention basins are to be cleaned at the end of construction of the project and as may be requested until final acceptance of all public improvements by the Village. Cleaning will also be required during the course of construction if it is determined that silt and debris traps are not properly functioning and their performance is impaired.
- m. All erosion control measures shall remain in place until directed otherwise by the VEM.

C. WATER DISTRIBUTION SYSTEM

The water distribution system shall be designed to meet Illinois Environmental Protection Agency and other applicable agency requirements. Such design shall incorporate the more stringent requirements of the following items or agency requirements:

Underground utility work cannot commence until all existing public and private utilities are field located. Call JULIE (800.892.0123) and the Village Department of Public Works (847.657.3030) at least forty-eight (48) hours in advance.

All necessary precautions shall be taken against damage to existing underground utilities. In the event of a break in an existing watermain, gas main, sewer or underground cable, the contractor shall immediately notify a responsible official from the organization operating the affected utility. The contractor or developer shall lend all possible assistance in restoring service and shall assume all costs, charges or claims connected with the interruption and repair of such services.

1. System extension shall comply with the following:

- a. Extensions to the water distribution system shall form a complete network and be compatible with the existing water system. The water system must be extended, as a minimum, to the limits of any development/subdivision and looped wherever possible. Distribution mains within a development shall form a grid to supply water to fire hydrants and service lines. The minimum size watermain to be installed in a subdivision or private development is eight (8) inches in diameter, unless otherwise designated on the Village's Master Plan. The minimum depth of bury shall be six (6) feet, unless otherwise directed by a representative of the VEM. In all cases, all watermains, including service mains and hydrant leads, in excess of one-hundred (100) feet shall be looped, unless otherwise specifically approved by the VEM. Water extension/looping shall meet the requirements as determined by the Fire Department (protection) and Public Works Department (water quality).
- b. The proposed system extension shall be arranged so that in the event of a break in any main, minimal service interruption will result and in no case will require closure of more than three (3) valves to isolate the main.
- c. No private wells (regardless of jurisdictional boundaries) shall be drilled within two-hundred (200) feet of a potable water source.
- d. Private water systems are highly discouraged. The Village has no interest at a future date of accepting ownership and maintenance responsibility of a private water system without all current Village standards being met in advance, and submittal of private ownership maintenance records.
- e. The following is the policy of the Village of Glenview regarding provision of Village water to unincorporated properties:
 - For property within the Designated Annexation Area and if the property is contiguous to the Village Limits, a new water service or change of water service would trigger annexation to the Village. If a property is NOT contiguous to the Village Limits, a new water service or a change in water service will require a water covenant and compliance with all applicable Village codes and ordinances.

- For property outside the Designated Annexation Area, a new water service or change of service will NOT require a covenant. Compliance with Village requirements pertaining to connection / disconnection / reconnection to the Village water system will be required.

2. Material specifications shall comply with the following:

- a. Watermain shall be (ANSI/AWWA A21.51/C151) minimum Class 52 Ductile Iron Pipe (DIP), bituminous coated, cement lined, with rubber-ring (push-on) fittings, or mechanical fittings supplied with “Cor-Ten” bolts. Watermain pipe shall be designated with weight, class, manufacturer’s mark, and year of manufacture. Distribution mains shall be a minimum of eight (8) inches in size. All watermain shall be encased in a minimum 8 mil thick high density polyethylene encasement similar or equal to Clow Type F-191. Encasement material specifications and installation methods shall be in accordance with ANSI/AWWA A21.5/C105, ASTM A-674, using “Method A” installation.
- b. Pipe Restraints require concrete thrust blocking, “Megalug” restraints, Series 1100 or approved equal, and must be installed for all mechanical joints, bends over 10° and fire hydrants (See Thrust Block Installation Details).
- c. Valves sized four (4) inches to twelve (12) inches in diameter shall be right-hand closing resilient wedge gate valves conforming to AWWA C-509. The valves shall have a ductile iron body and be epoxy coated on the exterior and interior surfaces. The iron wedge gate shall be fully encapsulated with molded rubber. Valve bonnet and packing bolts shall be stainless steel. The operating nut shall be ductile iron.

Acceptable Resilient Wedge Gate Valve Manufacturer includes Mueller, Clow, Waterous, or U.S. Pipe. Valves sized sixteen (16) inches to forty-two (42) inches in diameter shall be iron-bodied, rubber-seat butterfly valves conforming to AWWA C-504. The operating nut shall be ductile iron. Acceptable Butterfly Valve Manufacturer includes Pratt, Groundhog, Mueller, or Linseal III. Valve-operating stems shall be O-ring sealed. Valves shall turn counter-clockwise to open and clock-wise to close.

- d. Air release valves shall be placed on the watermain at high points as deemed necessary by the design engineer and/or the VEM to serve as air vents preventing air locking of the watermain. Air release valves shall be placed in pre-case concrete valve vaults of at least five foot inside diameter. Air release valves shall be a manually operated design, and approved by the Village Public Works Superintendent of Water before installation.
- e. Valve vaults shall be watertight and provided for each valve, and shall be constructed of precast reinforced concrete conforming to ASTM C-478, with a minimum sixty (60) inch I.D. barrel section. See Valve Vault Detail. Eccentric cone sections shall be used. No more than two (2) adjusting rings shall be used, measuring a maximum of eight (8) inches in height. Barrel to cone sections shall be sealed using two (2) butyl rubber strips. Steps shall be made of steel reinforced polyurethane, meeting ASTM D-224101, Type II, Grade 49108, over a No. 3 Grade 60, ASTM A-615, reinforcing bar. Steps shall be installed on sixteen (16) inch centers to provide access into the manholes.

Clearance between the watermain and the floor of the vault shall be no less than twelve (12) inches and no more than eighteen (18) inches. All frames and covers which are to be publicly owned and/or publicly maintained, shall be Neenah Foundry Number R-1713. Frames and covers on privately owned structures must be approved by the VEM. Valve vault covers must have “Water” cast into the top of the cover.

- f. Water services shall be a minimum of one (1) inch diameter, Type “K” soft temper copper pipe, conforming to ASTM B-88 and B-251 and shall be marked with the manufacturer’s name or trademark and a mark indicative of the type of pipe. Sizing of the water service shall be a minimum of a one (1) inch diameter for single-family residences or the equivalent flow capacity of a one (1) inch diameter for each unit in a multi-family or multi-story dwelling. Individually owned multi-family units attached horizontally will be required to have a separate water service for each unit. Individually owned multi-family units attached vertically will be required to submit water service connections to the Village Superintendent of Water for approval prior to installation. Water services shall be sized in accordance with design criteria set forth in the “State of Illinois Plumbing Code”. Services must be sized prior to final engineering approval. Water service depth of bury shall be a minimum of six (6) feet. Water services shall use the following fittings:
- Buffalo Box (for one (1) inch, one and a half (1.5) inch, two (2) inch water service) shall comply with the following:
 - Mueller H-10302 with one and a half (1.5) inch i.d. upper section and a two (2) inch Minneapolis tapped base, Ford EM2-60-67.
 - AY McDonald 5623 extendable to six (6) feet.
 - Curb boxes shall be installed to a minimum six (6) foot and maximum eight (8) foot bury depth.
 - Curb stop shall comply with the following:
 - Mueller B-25154 (one (1) inch, one and a half (1.5) inch, two (2) inch)
 - Ford one (1) inch is B22-444M; curb stop will require two (2) inch by one and a one and a half (1.5) inch bushing.
 - Ford one and a half (1.5) inch is B22-666M.
 - Ford two (2) inch is B22-777M.
 - AY McDonald 6104 (one (1) inch, one and a half (1.5) inch, two (2) inch); where one (1) inch curb stop will require two (2) inches by one and a half (1.5) inches bushing.
 - Corporation stop shall comply with the following:

- Mueller B25000 plus H-15068 quarter bend flared coupling.
 - Ford one (1) inch is FB600-4 plus L02 swivel quarter bend flared coupling.
 - Ford one and a half (1.5) inch is FB600-6 plus L02 swivel quarter bend flared coupling.
 - Ford two (2) inch is FB600-7 plus L02 swivel quarter bend flared coupling.
 - AY McDonald 4701B plus 4776S swivel quarter bend flared coupling.
 - Taps sized at one and a half (1.5) inches to two (2) inches are required to use a double-strap, bronze saddle; such as Mueller-H16126-H16137, Ford-202B-540, or A.Y. McDonald No. 3825.
- g. Fire hydrants are to be breakaway type, double steamer design, and are to be painted with Rustoleum Oil Based Enamel, Safety Yellow No. 7644. For hydrants defined by the Village as private, they shall be painted with Rustoleum Oil Based Enamel, Safety Red No. 7664. Acceptable hydrant manufacturer include is U.S. Pipe, M-94 with two (2) inch to four and a half (4.5) inch P.N., N.S.T. steamers, flanged shoe with six (6) inch resilient wedge auxiliary valve. The main valve opening shall be five and a quarter (5¼) inch with a minimum main depth of six (6) feet. Hydrant barrels shall be one-piece ductile iron pipe, and shoe flanges shall be attached to the barrel and valve flange with stainless steel bolts. No flush hydrants shall be used. All other hexagonal nuts and bolts - above and below grade - are to be stainless steel.
- h. Auxiliary boxes shall be cast iron. Adjustments to grade will be done using auxiliary box extensions only. Adapters or risers will not be permitted. To maintain box to valve alignment, boxes shall be installed with Valve Box Stabilizers. Auxiliary boxes shall be installed no deeper than eight (8) feet below final grade.
- i. Backflow prevention devices shall be approved by the VEM and shall be installed on all commercial, industrial, and retail potable water services. Additional and separate backflow devices are required for all fire sprinkler systems, and irrigation systems. An approved backflow prevention device may also be required on other systems as deemed necessary by the Village Plumbing Inspector and/or the Superintendent of Water. Acceptable manufacturers include Watts, Febbco, Hersey, or other manufacturers approved by the Village Water Department.
3. Watermain installation shall comply with the following:
- a. Pressure connections are required for connections to an existing watermain. The pressure connection tap sleeve and valve shall be located within a valve vault, as shown in the Pressure Connection Detail. Pressure connection tap sleeves shall be made of cast iron or ductile iron only. No pressure connection shall be made within three (3) feet of an existing watermain joint. If a pressure connection cannot be made, use of a cut-in sleeve and tee connection may be acceptable, if approved by the Village Water Department. All fittings must be swabbed with a chlorine solution of at least 50

mg/L, as verified by a Village representative. No watermain reducer couplings shall be located within valve vaults.

- b. Watermain connection/extension to the end of an existing watermain shall only be by means of a valve. No new watermain shall be connected to the existing watermain unless the new watermain can be pressure tested separately, from valve to valve. All watermains placed in casing pipe, must be installed pursuant to the Casing Pipe Detail. Use of pipe bends shall be kept to a minimum.
- c. Horizontal separation of all watermains and water services, from any existing or proposed storm or sanitary sewer pipe, sewer service connections, or sewer manholes and catch basins, appurtenances, in accordance with the “*Standard Specifications for Water and Sewer Main Construction in Illinois*” and/or Illinois Environmental Protection Agency requirements shall maintain a minimum of ten (10) feet of horizontal separation, measured at a right angle to the watermain. If the IEPA requirements cannot be met, adequate protection of the water supply must meet the requirements of the IEPA and the Village. There shall be a minimum of eighteen (18) inches of vertical and three (3) feet of horizontal separation from all other utilities (See Watermain Crossing Detail).

Watermains may be located closer than ten (10) feet to a sewer line when:

- Local conditions prevent a lateral separation of ten (10) feet; and
- The watermain invert is at least eighteen (18) inches above the crown of the sewer; and
- The watermain is either in a separate trench or in the same trench on an undisturbed earth shelf located to one side of the sewer.

When it is impossible to meet the above requirements, both the watermain and sewer or drain shall be constructed of slip-on or mechanical joint ductile iron pipe, prestressed concrete pipe, or PVC pipe equivalent to watermain standards of construction. The sewer or drain shall be pressure tested to the maximum expected surcharge head before back-filling.

- d. Vertical separation of watermain from a sewer invert shall be a minimum of eighteen (18) inches above the crown of the sewer or drain, whenever watermains cross storm sewers, sanitary sewers or sewer service connections. The vertical separation shall be maintained for that portion of the watermain located within ten (10) feet horizontally of any sewer or drain crossed. A length of watermain pipe shall be centered over the sewer to be crossed with joints equidistant from the sewer or drain.

Both the watermain and the sewer shall be constructed of slip-on or mechanical joint ductile iron pipe, prestressed concrete pipe, or PVC pipe equivalent to watermain standards of construction when:

- It is impossible to obtain the proper vertical separation as described above; or
- The watermain passes under a sewer or drain.

Vertical separation of eighteen (18) inches between the invert of the sewer or drain and the crown of the watermain shall be maintained where a watermain crosses under a sewer. The sewer or drain lines shall be supported to prevent settling and damage to the watermain, as shown on the Watermain Crossing Detail and as approved by the VEM. Construction shall extend on each side of the crossing until the horizontal distance from the watermain to the sewer or drain line, measured at a right angle to the watermain, is at least ten (10) feet. For new sewer installations crossing over watermains, the entire run of new sewer shall be of watermain quality pipe, extending for the entire distance from sewer structure to sewer structure on each side of the crossing.

Trench Excavation for all watermains shall be a minimum width (as shown on the Utility Trench Detail) and depth to provide for at least six (6) feet of cover over the top of the main. Granular material for replacement of over-excavated unsuitable soils, bedding, and backfill to twelve (12) inches over the top of the watermain shall also conform to the detail.

All utility and service trenches under proposed paved surfaces or within their Zone of Influence shall be backfilled with IDOT gradation CA-7 crushed stone. Backfill under existing pavement, where an open cut of the pavement has been approved, shall be by use of IDOT CA-7 crushed stone to one (1) foot over the top of the sewer pipe covered by a geotextile fabric, and then with CA-7 crushed aggregate or Flowable Fill which meets IDOT standards for Controlled Low Strength Material (CLSM), Mixture 1 (only if directed by VEM with pre-approved verification). Densification of granular backfill by water-jetting, inundation or other hydraulic means will not be permitted. Temporary one (1) inch thick steel plating of roadway trenches is allowed only between May 1st to October 31st (not allowed from November 1st to April 30th unless otherwise received in writing from the VEM in advance) and plating shall be anchored to the pavement.

4. Watermain installation shall comply with the following:
 - a. The horizontal and vertical separation between water service lines and all storm sewers, sanitary sewers, or any drain or sewer service connection shall be the same as watermain separation described above.
 - b. Watermain quality (pressure) pipe, as described above, shall be used for sewer service lines when the minimum horizontal and vertical separation cannot be maintained.
 - c. Where working space will permit trenches for water service replacement may be excavated by machine, provided that private improvements will not be subject to an unreasonable amount of damage. If excavation cannot be made without material damage to existing improvements, hand excavation shall be employed.

- d. Fire and Domestic Services that are jointly provided for buildings shall be separated outside of the building with proper sectionalizing valves and vaults, and be hydraulically designed to provide required water flows. Domestic water services two (2) inches and smaller shall be tapped off the fire main within twenty (20) feet of the building and shall include a buffalo box accessible to Village personnel.
 - e. Disconnection of the water service from the watermain shall be completed prior to demolition or elimination of a building or property that has existing water service supplied to it from the Village as follows:
 - Two (2) inch services and smaller shall be shut-off and capped at the corporation stop located on the watermain.
 - Water service connections larger than two (2) inches shall have the valve and tee section removed and a straight piece of pipe installed.
 - f. Taps shall comply with the following requirements:
 - Water taps shall be spaced no closer than three (3) feet apart and no taps shall be made closer than thirty (30) inches to a bell joint or mechanical fitting.
 - The buffalo box shall allow access to the water shut-off valve (roundway) and shall be at a minimum depth of six (6) feet and maximum depth of eight (8) feet.
 - Buffalo boxes shall not be located within a driveway or sidewalk, but shall be located in street right-of-ways or easements.
5. Valve installation shall comply with the following:
- a. Placement of all gate or butterfly valves shall be in precast concrete vaults. Wherever possible, valve vaults shall be located within grassed parkway areas (avoid roadways where possible). Valves shall be located within the vault such that the operating nut is centered to the frame. A minimum of twelve (12) inch and maximum of eighteen (18) inch clearance must be maintained above the vault floor.
 - b. Spacing of Gate valves shall not exceed intervals of one-thousand (1,000) feet.
 - c. All valve vaults which are constructed on private property must be easemented to the Village for purposes of access.
6. Fire hydrant installation shall comply with the following:
- a. Spacing of Hydrants with resilient wedge-gate valves shall be installed no further than three-hundred (300) feet apart in all public right-of-way. Hydrant spacing within all private and commercial developments shall meet the requirements as determined by the Fire Department. Hydrants shall be placed no closer than five (5) feet nor more than ten (10) feet from the face of curb, or edge of pavement in roadways without

curbing. These dimensions may be modified on a case-by-case basis and as approved by the VED, at those locations where there is a ditch or gravel shoulder adjacent to a roadway without curbing. In no instance shall a fire hydrant be located in excess of twenty-five (25) feet from the edge-of-pavement or curb.

Fire hydrant leads are to be six (6) inches in diameter up to twenty-five (25) feet in length, and eight (8) inches in diameter if greater than (25) twenty-five feet long.

b. Hydrant backfill shall comply with the following requirements:

- Prior to backfilling, the entire hydrant barrel, extending to the hydrant base, shall be poly-wrapped, pursuant to watermain material and methods specified in Section IV-C.2.a.
- Hydrants will be installed so as to face the adjacent roadway, and be backfilled with CA-7 washed bank-run gravel (one and a half (0.5) inch to three and a quarter ($\frac{3}{4}$) inch, with no fines) to a minimum depth of two (2) feet above the watermain.
- Granular backfill material will be covered by a four (4)-mil thick plastic sheet or geotextile fabric. The plastic sheet shall cover the CA-7 to protect it from contamination.

7. Watermain testing shall comply the following:

- a. Each section of watermain and appurtenances without services shall be hydrostatically tested by the contractor and witnessed by a Village representative. The contractor shall correct any defects or leaks, at his expense, before proceeding.
- b. All newly laid watermain pipe shall be subjected to a hydrostatic pressure of one-hundred and fifty (150) pounds per square inch. Duration of each pressure test shall be for a period of not less than two (2) hours. Each valve section of main shall be filled with water and the specified test pressure shall be applied by means of a pump connected to the pipe. Before applying the specified test pressure, all air shall be expelled from the pipe. Any cracked or defective pipes, fittings, valves, or hydrants discovered in consequence of this pressure test shall be removed and replaced and the test repeated until satisfactory results are obtained.
- c. All new watermain and services shall be leak detected:
 - The contractor shall utilize modern leak detecting equipment and skilled personnel with a minimum of three (3) years experience in leak detection and correlation.
 - The contractor shall maintain and provide detection survey field records of the type of monitored appurtenances, their locations and any mechanical deficiencies discovered during the survey, i.e. leaking valves, hydrants or buffalo boxes.
 - The leak detection survey shall include but not be limited to electronic listening of

all water distribution valves, hydrants and buffalo boxes with a computerized leak correlator such as a FCS Tri-Cor 2001 or equivalent. Listening distances shall not exceed five-hundred (500) feet. Every suspect leak shall be analyzed and correlated.

- Each leak shall be pin pointed; field located and recorded on a VEM approved “Leak Detection Form” which shall include a descriptive map of the leak location and an estimated amount of water leakage.
 - At the conclusion of the survey, the contractor shall prepare and submit two (2) copies of a comprehensive report to the VEM prior to roadway surfacing summarizing the survey area, number and type of leaks found, estimates of leakage and any valve, hydrant or buffalo box repairs.
 - All survey work shall be conducted during day light hours, with the water system operating in a normal manner. Notify the VEM a minimum of two (2) working days prior to the survey.
8. Watermain preliminary flushing shall be as thoroughly as possible with the water pressure and outlets available prior to chlorination. Final flushing shall be done after a successful pressure test has been completed.
9. Watermain disinfection shall comply with the following:
- a. All watermains shall be disinfected and tested according to requirements of AWWA C651 (“Standards for Disinfecting Watermains”). The preferred point of application of the chlorinating agent shall be at the beginning of the watermain extension (or any valved section) and through a corporation stop in the top of the newly laid pipe. Water from the existing distribution system or other source of supply shall be controlled so as to flow slowly into the newly laid pipeline during the application of a chlorine solution of at least 50 mg/L. Valves shall be controlled so that the strong or concentrated chlorine solution in the line being treated will not backflow into the existing line supplying the water.
 - b. The retention period shall be at least twenty-four (24) hours. After the chlorine-treated water has been retained for the required time, the chlorine residual at the pipe extremities and at other representative points should be at least 25 parts/million.
 - c. Twenty-four (24) hours after chlorination, all treated water shall be thoroughly flushed from the newly laid pipeline at its extremities until the replacement water, throughout the entire length of pipe shall, upon test and receipt of laboratory test results, be approved as safe water by a Village representative. This quality of water delivered by the new main should remain for a period of at least two (2) full consecutive days as demonstrated by laboratory examination of samples taken from taps on two (2) consecutive days under Village supervision. Water samples should be taken at all dead ends and at 1000 foot intervals on main lines before and after flushing.

- d. A laboratory certified by the Illinois Department of Public Health shall perform the bacteriological analysis of the samples. Should the initial treatment result in an unsatisfactory bacterial test, the procedure shall be repeated until satisfactory test results are obtained. The laboratory shall submit the results of the analysis directly to the VEM. The test results shall indicate the date the sample was collected, the date the analysis was made, exact locations, including lot or address, at which samples were taken, and the project to which these samples pertain. Once all water sample test results have been determined to be acceptable, the new main may be placed in service and all water service taps may then be made onto the active watermain.

10. Water meters shall comply with the following:

- a. All new water meters must be purchased through the Department of Public Works. All old meters shall be returned to the Department of Public Works. The Superintendent of Water shall determine the style and pattern of water meters. No other kind shall be installed or used. The applicant or the owner of the premises, where the meter is placed, shall pay the cost of such meter and its installation.
- b. All meters shall have remote-read capability and shall be installed in a secure and protected area. Installations located in a crawl space are not acceptable. For the purpose of remote meter reading, an electrical metallic tubing (EMT) raceway shall be installed following Village and National Electrical Codes. This raceway shall be placed to within eighteen (18) inches of the water meter and shall exit the building at forty (40) inches above grade adjacent to the gas meter, or at a location approved of by the Superintendent of Water. This raceway shall terminate on the exterior of the building, cut flush with the siding.
- c. Meters shall be installed horizontal with a minimum of twelve (12) inches of permanent clearance from other structures or equipment.
- d. A ball or gate valve shall be placed on each side of the meter. No other connections or valves are allowed.
- e. Installation of water meter and remote meter reader must be in place prior to final inspection and occupancy approval by the Village Building and Zoning Division.
- f. Pit-set water meters shall be used for irrigation systems only and be approved for use by the Superintendent of Water prior to installation. Meter pits shall be at least four (4) foot inside diameter precast concrete vault (See Pit-Set Meter Installation Detail).

11. Abandonment of existing facilities shall be as directed by the VEM, including but not limited to the use of flowable fill, and removal of any service line markings.

D. SANITARY SEWER SYSTEM

The sanitary sewer system shall be designed to meet MWRDGC and other applicable agency requirements. Such design shall incorporate the more stringent requirements of the following items or agency requirements:

1. Design shall comply with the following:

- a. Each single family lot, and/or individually owned unit in a multi-family dwelling attached horizontally, or commercial units in a similar arrangement in other than a single family development, shall be served with a new separate sanitary sewer service. Sanitary sewers shall not be installed in rear yard easements, but should be in public R.O.W.'s. The minimum service size required is six (6) inch diameter, using Polyvinyl Chloride (PVC) pipe, SDR 26 or Schedule 40. Service lines shall be in conformance to the Sanitary and Storm Service Detail. Where watermain quality pipe is required, it shall conform to the requirements of Section IV.D.2 b) below.

A six (6) inch diameter sanitary service clean-out must be provided for all residential homes, approximately ten (10) feet from the outside face of the foundation wall, with a water-tight screw-down cap. If a service line is more than eighty (80) feet to the main, then multiple clean-outs must be provided at no more than eighty (80) foot intervals.

- b. The new sanitary sewer system must be extended, as a minimum, to the limits of a subdivision (or development) at a minimum slope to provide for self-cleaning velocity. The plans should note which sewer lines are to be public and those that are to be private. (Sanitary is privately owned and maintained up to and including the connection to the sewer main located in a publicly owned and maintained right-of-way.) The Village has no interest at a future date of accepting ownership and maintenance responsibility of a private sanitary system, without all current Village standards being met in advance and submittal of private ownership maintenance records. Sanitary sewers shall be designed to accept all existing and future demand, based on the fully developed condition under present zoning and the Village's Comprehensive Plan.
- c. Provide calculations to substantiate the available capacity of the receiving sewer.
- d. Sanitary sewer manholes are to be installed at each change in slope, direction of flow, change in pipe size, change in pipe material, and at each intersection. Curvilinear runs will not be allowed. Maximum manhole spacing is three-hundred (300) feet apart.
- e. Additional structures shall be provided wherever necessary to prevent discharges against the main direction of flow.
- f. An inspection manhole will be required on all commercial projects. The inspection manhole shall be installed along the sewer service, no closer than five (5) feet nor more than twenty-five (25) feet from the outside face of the building structure, with another manhole at the connection to the main sewer.
- g. Sanitary sewer depth shall provide for at least five (5) feet of cover over the top of the sewer pipe.
- h. Sanitary sewer manholes constructed within a flood plain must have a rim elevation at least twelve (12) inches above the base flood elevation with a Neenah R-1713 frame

and cover, or have a water-tight, lock-type frame and cover similar to Neenah R-1916-C, or approved equal.

- i. Engineering plans must contain the following note:

A current color DVD record and a type-written transcription of the internal inspection of the newly constructed sanitary sewer system shall be submitted prior to refunding of site improvement escrow retention monies by the Village. All public and private lines shall be video recorded. The camera must be centered in the pipe and the lens of the camera rotated to view all services. All service connections must be noted in the television report. When the proposed sanitary sewer system is to connect to an existing sanitary sewer system abutting the property, the existing sewer as directed by the VEM must also be televised and reported. Televising of the existing system must be conducted during the engineering plan review stage and the DVD's and written report submitted as part of the review process. The contractor shall coordinate the televising of existing contiguous sewers with the VEM and Public Works Department.

- j. In the event that the video records reveal that the existing sanitary sewer is distressed, damaged and/or in relatively poor condition, it shall be removed and replaced with new sewer pipe. However, lining of the existing sewer may be performed in lieu of removal and replacement if in the opinion of the Public Works Department, after their review of the video records- this is considered a viable alternate.
- k. Video records of the sanitary sewers shall be conducted, and provided to the VEM who will conduct the review with the Public Works Department, for final acceptance and prior to issuance of a Request for Final Acceptance, and before any Certificates of Occupancy are issued. The VEM may require additional video records of sewers that may be subject to damages caused by construction activities after certificates of occupancy issuance. Construction site management should make all reasonable efforts to redirect such construction activity.

In the event that the video records reveal that the existing sewer is distressed, damaged and/or in relatively poor condition, it shall be removed and replaced with new sewer pipe. However, lining of the existing sewer may be performed in lieu of removal and replacement if both of the following conditions are met:

- Public Works Department determines lining is a viable option.
- VEM reviews and approves engineer's calculations of lined sections which meet all Village requirements.

2. Material specifications shall comply with the following:

- a. Sanitary sewers shall be constructed of either rigid Polyvinyl Chloride (PVC) pipe with a minimum *Standard Thermoplastic Pipe Dimension Ratio* (SDR) of 26, conforming to ASTM D-3034 for pipes fifteen (15) inches in diameter or less, and to ASTM F-679 for sewer pipe of eighteen (18) inches to thirty-six (36) inches in

diameter, or DIP Class 52 ANSI/AWWA A21.51/C151. Both pipe types shall be jointed by means of flexible gaskets. Schedule 40 PVC pipe, if approved for use by the Engineering Division, shall conform to ASTM D-1785. Joints for PVC pipe shall be in conformance with ASTM D-3212, with flexible elastomeric gaskets meeting ASTM F-477 criteria. Gaskets for DIP shall be in conformance with ANSI A21.11 (AWWA C111). All pipe shall be laid in approved bedding (See Pipe Trench Details).

- b. For sanitary sewer pipe located within ten (10) feet of a watermain, watermain quality (pressure-rated) PVC (SDR 26) pipe shall be used in accordance with ASTM D-2241, with joints conforming to ASTM D-3139 and flexible elastomeric gaskets meeting ASTM F-477 criteria.
 - c. New sanitary manholes are to be precast reinforced concrete, conforming to ASTM C-478, with a minimum of forty-eight (48) inches I.D. barrel section. Cone sections shall be eccentric, and have a three (3) inch integrally cast concrete collar. Benches must be provided in all sanitary sewer manholes. Pipe penetrations are to be sealed by use of a cast-in-place flexible synthetic rubber pipe sleeve which is to be fastened to the pipe with stainless steel bands, and the interior of the manhole mortared. All manhole sections shall be tongue and grooved and shall be sealed using two (2) butyl rubber strips. Frames are to be sealed to the cone sections of the manhole mechanically, using synthetic rubber seals with stainless steel bands (See Sanitary Manhole Detail).
 - d. A Drop Manhole, conforming to the detail, as well as the above criteria, shall be installed when the difference between the inlet pipe and the downstream pipe is in excess of twelve (12) inches.
 - e. Chimney seals shall be installed on all sanitary sewer manholes, in accordance with the manufacturer's directions. Provide external chimney seals on all new manholes, in unpaved areas, when the rim is adjusted to final grade. In paved areas, internal chimney seals shall be installed on existing manholes, where necessary, as determined and only after final inspection by the VEM. Use "Cretex" chimney seals, or other products (or design solutions) as approved the VEM (See Chimney Seal Detail).
 - f. Steps shall be made of steel reinforced polyurethane, meeting ASTM D-4101, Type II, Grade 49108, over a No. 3 Grade 60, ASTM A-615, reinforcing bar. Steps shall be installed on sixteen (16) inch centers to provide access into the manholes.
 - g. No more than two (2) adjusting rings shall be used, measuring a maximum of eight (8) inches in height.
 - h. Manhole covers must have "SANITARY" cast into the top of the cover. All frames and covers which are to be publicly owned and/or publicly maintained shall be Neenah Foundry Number R-1713.
3. Installation requirements shall comply with the following:
- a. When connecting to an existing sewer main by means other than an existing wye or tee, or to an existing manhole, one of the following methods shall be used:

- Using a pipe cutter, neatly and accurately cut out the desired length of pipe for insertion of the proper fitting. Use “band-seal” (or similar) couplings, and shear rings and clamps to fasten the inserted fitting and hold it firmly in place. Mission couplings shall have the length of boot approximately equal to the pipe diameter. Follow manufacturer's recommendations for installation. No cut-in connections, made by breaking or cutting a hole in the main and inserting the spigot end of an ordinary sewer pipe, shall be permitted.
 - Circular, saw-cut of sewer main with proper tools (“Shower-tap” machine or similar) and proper installation of hub wye saddle or hub tee saddle, in accordance with manufacturer's recommendations. This method shall only be allowed for pipe sizes over twelve (12) inches in diameter. All connections must be encased in concrete.
- b. Pipe penetrations into existing sanitary manholes shall be properly sized and cored and (rubber-boot) sealed with flexible water-tight connections, using “Kor-N-Seal” manufactured by National Pollution Control Systems, Inc., or approved equal (See “Sanitary Manhole” and “Pipe Connection to Structure” Details). Cut, shape and slope the new invert channel in the existing manhole bench so as to provide smooth flow from the new sewer connection.
 - c. Disconnection of existing sanitary sewer services shall be by means of cutting out the existing wye or tee and replacement with a straight piece of equal size pipe, and making the final connection with mission couplings. Disconnection of all services must be performed prior to receipt of a Demolition Permit for demolition of an existing structure. The contractor shall provide the VEM at least forty-eight (48) hours advance notice prior to any disconnections.
 - d. All sanitary sewer trenches shall be excavated to the minimum width as shown on the Utility Trench Details. Granular material for replacement of over excavated unsuitable soils, bedding, and backfill to twelve (12) inches over the top of the sewer pipe shall also conform to the details.
 - e. All utility and service trenches under proposed paved surfaces or within their Zone of Influence shall be backfilled with IDOT gradation CA-7 crushed stone. Backfill under existing pavement, where open cut of the pavement has been approved, shall be by use of IDOT CA-7 crushed stone to one (1) foot over the top of the sewer pipe covered by a geotextile fabric, and then with CA-7 crushed aggregate or Flowable Fill which meets IDOT standards for Controlled Low Strength Material (CLSM), Mixture 1 (only if directed by VEM with pre-approved verification). Densification of granular backfill by water-jetting, inundation or other hydraulic means will not be permitted. Temporary one (1) inch thick steel plating of roadway trenches is allowed only between May 1st to October 31st (not allowed from November 1st to April 30th unless otherwise received in writing from the VEM in advance) and plating shall be anchored to the pavement.
 - f. Upon completion of installation of the sanitary sewer system, the contractor shall clean

all sewer lines and structures of any accumulations of silt, debris and foreign matter of any kind.

- g. For sanitary main extensions as required by the IEPA, leakage testing shall be performed of all new manholes for water tightness in accordance with ASTM C1244-93 "Standard Test Method for Concrete Sewer Manholes by the Negative Pressure (Vacuum) Test".
4. Abandonment of existing facilities shall be as directed by the VEM, including but not limited to the use of flowable fill, and removal of any service line markings.

E. STORM SEWER SYSTEM

All storm sewer systems shall be designed to meet MWRDGC, the Village, and other applicable agency requirements shall incorporate the more stringent requirements.

1. Design shall comply with the following:
 - a. The minimum diameter of all main storm sewer pipe shall be ten (10) inches, lateral storm pipes shall be eight (8) inches, and storm sewer services a maximum of four (4) inches. Storm sewers of different inside diameters or shapes shall join only at structures. Service lines shall be in conformance with the Sanitary and Storm Service Detail.
 - b. The storm sewer must be extended to the limits of any subdivision (or development) and must be sized to accept all existing and future tributary areas.
 - c. Outflow pipe sizing shall not be less than inflow pipe sizing and hydraulic capacity, except for detention restrictors.
 - d. Storm sewer manholes are to be installed at each change in direction (horizontal or vertical) of flow, change in pipe size or shape, change in pipe material, change in pipe slope or at junctions with other storm sewers greater than 8 inches in diameter. Curvilinear runs will not be allowed.
 - e. Additional structures shall be provided whenever necessary to prevent discharges against the main direction of flow.
 - f. Storm manholes shall be placed at intervals of not more than four-hundred (400) feet apart.
 - g. Standard storm sewer configuration for pavement areas should be inlet to catch basin to manhole, where generally the manhole is used only for maintenance access and is located on the mainline in the parkway. Other combinations are only to be used in extenuating circumstances. All proposed storm inlet structures or series of inlet structures shall be designed to drain into a catch basin unless otherwise directed by the Village Engineer.

- h. Storm sewer inlets shall be placed not more than five-hundred (500) feet apart in paved areas and shall not exceed two-hundred and fifty (250) foot intervals in unpaved areas. Inlets shall be provided so that surface water is not carried across any street intersection, parking lot (public or private), or depressed drive isles. Concentrated surface flow shall not be carried across any public sidewalk line or across or around any major intersection.
- i. Storm inlets and catch basins placed within a roadway shall be designed to incorporate an under-drain system of perforated rigid PVC pipe in accordance with the Pipe Under-drain Detail. Pipe class shall be determined by trench depth, bedding material, expected loadings, etc., with documentation provided to the VEM for review.
- j. The Rational Method (Q equals CIA) is to be used to size the storm sewer that will convey waters generated by a storm with a recurrence interval of ten (10) years. Use (accompanying) Bulletin 70 from the State of Illinois Department of Energy and Natural Resources, for rainfall intensity. The design must take into consideration the hydraulics of the receiving sewer/basin under dynamic conditions. The hydraulic gradient shall not exceed the interior top of pipe elevation. The maximum time of concentration shall be assumed not to exceed fifteen (15) minutes.

Runoff coefficients used in design shall be the weighted average for the proposed tributary area using the following:

Existing surface, pre-development	0.15
Proposed grass or landscaped areas	0.45
Proposed hard or impervious surfaces	0.95
Permanent water surface	1.00

Adhere to the Village's Lot Coverage Ordinance for maximum impervious lot area to determine the runoff coefficient.

- k. Storm sewer calculations shall indicate a minimum acceptable velocity of three (3) feet per second and a maximum acceptable velocity is ten (10) feet per second is met for each line segment. Detailed reasoning for exceptions will only be considered in extenuating circumstances.
- l. Enclosed storm sewer system depths shall provide for at least two (2) feet of cover over the top of the sewer pipe.
- m. Provide calculations to substantiate the available capacity of the existing receiving storm sewer/stream in light of the design discharge from the proposed development or improvement.
- n. Clearly identify on the plans which sewer lines are to be public and those that are private.
- o. Downspouts shall not drain onto paved surfaces intended for pedestrian or vehicular use. Roof overflows shall not discharge directly into storm sewers.

- p. Sump pump discharge lines from residential homes shall be connected to any adjacent storm sewer system and/or rain garden. A rigid eight (8) inch diameter PVC (SDR 26) pipe may be used along the rear lot lines for this purpose only. Sump discharge lines shall be designed with a minimum two (2) inch air gap between the service line and the sump pump outlet pipe. A rigid four (4) inch diameter PVC pipe (SDR 26 or Schedule 40) can be used to drain the individual sump pump service line into the storm sewer (see “Sump Pump Discharge” Detail).
- q. In topographically low points of roadways that are highly susceptible to large flows or clogging by leaves or other materials, use a Neenah R-3250A curb inlet frame and curb box with an R-2371 (bicycle safe) grate.
- r. All proposed stormwater inlet structures, or series of inlet structures, shall be designed to drain into one or more catch basins, unless otherwise approved by the VEM.
- s. Storm sewers are a related and integral part of a roadway system. Storm sewers along private streets are to be privately owned and maintained.
- t. The Village has no interest of accepting ownership and maintenance responsibility of a private storm sewer without all current Village standards being met in advance, and submittal of private ownership records.
- u. Engineering plans must contain the following note:

“A current color DVD record and a type-written transcription of an internal inspection of the newly constructed storm sewer system shall be submitted prior to the refunding of site improvement escrow retention monies by the Village. All public and private lines shall be video recorded. The camera must be centered in the pipe and the lens of the camera rotated to view all services. All service connections must be noted in the television report. When the proposed storm sewer system is to connect to an existing storm sewer system abutting the property, the existing sewer as directed by the VEM must also be televised and reported. Televising of the existing system must be conducted during the engineering plan review stage and the DVD and written report submitted as part of the review process. The contractor shall coordinate the televising of existing contiguous sewers with the VEM and Public Works Department”.
- v. Video records of new storm sewers shall be conducted, and provided to the VEM who will conduct the review with the Public Works Department, for final acceptance and prior to issuance of a Request for Final Acceptance, and before any Certificates of Occupancy are issued. The VEM may require additional video records of sewers that may be subject to damages caused by construction activities after certificates of occupancy issuance. Construction site management should make all reasonable efforts to redirect such construction activity.
- w. In the event that the video records reveal that the existing sewer is distressed, damaged and/or in relatively poor condition, it shall be removed and replaced with new sewer pipe. However, lining of the existing sewer may be performed in lieu of removal and

replacement if both of the following conditions are met:

- Public Works Department determines lining is a viable option.
- VEM reviews and approves engineer's calculations of lined sections which meet all Village requirements.

2. Storm sewers shall be constructed of the following materials:

- a. Pre-cast reinforced concrete pipe (RCP), with "O-ring" rubber-gasket joints conforming to ASTM C-361. Lifting holes shall not be allowed on RCP pipe less than eighty-four (84) inches in diameter.
- b. Rigid Polyvinyl Chloride (PVC) pipe with a minimum *Standard Thermoplastic Pipe Dimension Ratio* (SDR) of 26, conforming to ASTM D-3034 for pipes fifteen (15) inches in diameter or less, and to ASTM F-679 for sewer pipe of eighteen (18) inches to thirty-six (36) inches in diameter. Schedule 40 PVC pipe, if approved for use by the VED, and shall conform to ASTM D-1785 with glued-on joints in accordance with ASTM D-3139, and flexible elastomeric gaskets meeting ASTM-F-477 criteria.
- c. Ductile Iron Pipe (DIP), (Class 52 minimum), conforming to ANSI/AWWA A21.51/C151. The type of pipe material will be dependent upon the depth of bury, soil conditions and pipe criteria, as approved by the VEM.

3. Structure materials shall comply with the following:

- a. New storm sewer (TY A or B) manholes and catch basins and inlets are to be of precast reinforced concrete, conforming to ASTM C-478, with a minimum forty-eight (48) inch I.D. barrel section. TY C catch basins and inlets shall be precast structures with a minimum twenty-four (24) inch I.D. barrel section. Cone sections shall be eccentric, and have a three (3) inch integrally cast concrete collar. Benches must be provided in all storm sewer manholes. Pipe penetrations are to be sealed by use of a cast-in-place flexible synthetic rubber pipe sleeve which is to be fastened to the pipe with stainless steel bands. All manhole sections shall be tongue and grooved and shall be sealed using two (2) butyl rubber strips. Frames are to be sealed to the cone sections of the manhole mechanically; using synthetic rubber seals with stainless steel bands and "Cor-Ten" bolts (See Storm Sewer Manhole Details).
- b. Steps shall be made of steel reinforced polyurethane, meeting ASTM D-4101, Type II, Grade 49108, over a No. 3 Grade 60, ASTM A615, reinforcing bar. Steps shall be installed on sixteen (16) inch centers to provide access into the manholes.
- c. No more than two (2) adjusting rings shall be used, measuring a maximum of eight (8) inches in height.
- d. All frames and covers are which are to be publicly owned and/or publicly maintained, shall be Neenah Foundry Number R-1713. Structures using closed covers must have

“STORM” cast into the top of the cover. For open lids, use a Neenah “Type D” Grate, or approved equal.

A Neenah Foundry Number R-3250A Curb Inlet frame, with a “bicycle-safe” Number R-2371 grate, shall be utilized in topographically low points of roadways - and especially in areas highly susceptible to clogging by leaves and other debris if the Village standard R-1713 frame and Type D open grate were used - and at other locations deemed appropriate by the VEM. At those locations where an R-3250 Curb Inlet frame is used, the curb and gutter must be constructed in accordance with the Curb and Gutter for R-3250 Frame Detail.

Within grassed areas only, a Neenah R-4340-B (round beehive type grate) may be used. Calculations for inlet/grate capacities must be submitted with the engineering plans. Dependent on the calculated depth of ponding, the VEM may consider use of higher capacity grates.

Frames and covers on privately owned and maintained structures must meet with approval of the Village.

- e. For all two-way flow through open structures, i.e. structures below the design high water level, both the frames and grates shall be locked/anchored to the drainage structure, unless otherwise approved by the VEM. The lock or anchoring system must meet with VEM and Public Works Sewer Department approval.
 - f. All flared end sections (FES) equal to or greater than twelve (12) inches that will receive or discharge stormwater, shall have a removable grate system to prevent entry. This grate system shall be made from steel stock that is hot-dipped galvanized after fabrication.
4. Installation requirements shall comply with the following:
- a. When connecting to an existing sewer main by means other than an existing wye or tee, or to an existing manhole, one of the following methods shall be used:
 - Using a pipe cutter, neatly and accurately cut out the desired length of pipe for insertion of the proper fitting. Use “band-seal” (or similar) couplings, and shear rings and clamps to fasten the inserted fitting and hold it firmly in place. Mission couplings shall have the length of boot approximately equal to the pipe diameter. Follow manufacturer's recommendations for installation. No cut-in connections, made by breaking or cutting a hole in the main and inserting the spigot end of an ordinary sewer pipe, shall be permitted.
 - Circular, saw-cut of sewer main with proper tools (“Shewer-tap” machine or similar) and proper installation of hub wye saddle or hub tee saddle, in accordance with manufacturer's recommendations. This method shall only be allowed for mainline sewer pipe sizes over twelve (12) inches in diameter and service lines no more than ten (10) inches in diameter. All connections must be encased in

concrete. For larger service line sizes, construction of new storm sewer manhole at the connection point shall be required.)

- b. Pipe penetrations into existing storm manholes shall be properly sized, cored and interior mortared. Cut, shape and slope the new invert channel in the existing manhole bench so as to provide smooth flow from the new sewer connection. Rubber-boot sealing with flexible water-tight connections, using “Kor-N-Seal” manufactured by National Pollution Control Systems, Inc., or approved equal shall be used whenever the pipe invert is under the normal water level.
 - c. Disconnection of existing storm sewer services shall be by means of cutting out an existing wye or tee, replacement with a straight piece of equal size pipe, and making the final connection with mission couplings. Disconnection of all services must be performed prior to the demolition of an existing structure. The contractor shall provide the VEM forty-eight (48) hours advance notice prior to any disconnections.
 - d. All storm sewer trenches shall be excavated to the minimum width as shown on the Utility Trench Detail. Granular material for replacement of over-excavated unsuitable soils, bedding, and backfill to twelve (12) inches over the top of the sewer pipe shall also conform to the detail.
 - e. All utility and service trenches under proposed paved surfaces or within their Zone of Influence shall be backfilled with IDOT gradation CA-7 crushed stone. Backfill under existing pavement, where an open cut of the pavement has been approved, shall be by use of IDOT CA-7 crushed stone to one (1) foot over the top of the sewer pipe covered by a geotextile fabric, and then with CA-7 crushed aggregate or Flowable Fill which meets IDOT standards for Controlled Low Strength Material (CLSM), Mixture 1 (only if directed by VEM with pre-approved verification). Densification of granular backfill by water-jetting, inundation or other hydraulic means will not be permitted. Temporary one (1) inch thick steel plating of roadway trenches is allowed only between May 1st to October 31st (not allowed from November 1st to April 30th unless otherwise received in writing from the VEM in advance) and plating shall be anchored to the pavement.
 - f. All storm sewer structures shall be protected from soil erosion by placing straw bales, around all sewer openings, together with filter baskets, prior to final landscaping, as discussed in Section IV-B.
 - g. Upon completion of installation of the storm sewer system, the contractor shall clean all sewer lines and structures of any accumulations of silt, debris and foreign matter of any kind.
5. Abandonment of existing facilities shall be as directed by the VEM, including but not limited to the use of flowable fill, and removal of any service line markings.

F. STORMWATER MANAGEMENT

The purpose of stormwater management is to minimize runoff of additional stormwater from new development (and redevelopment) and its effects on public health, safety and welfare. The cause of increases in the quantity of stormwater runoff is the development and

improvement of land, whereby additional stormwater could result in the inundation and damage to the proposed development, adjacent and nearby properties.

Review of detention requirements shall be required of any redevelopment. While most cases may result in increased detention requirements, no decrease in existing detention will be permitted without equal or greater detention being provided within the same watershed. Regional detention provided by means of public improvement projects will not be considered as relocated detention except for those individual single family lots which previously constructed detention onsite by way of a building permit. All drainage calculations (formulas, hydrographs, input/output data, etc.) shall be submitted to the VEM for review.

A stormwater detention/retention basin sized in general accordance with the MWRDGC's requirements for stormwater detention, as modified by the rainfall frequencies set forth in accompanying Bulletin 70, ("*Frequency Distributions and Hydroclimatic Characteristics of Heavy Rainstorms in Illinois*", prepared by the Illinois State Water Survey, 1989), must be provided for all single family homes in a multi-family development of three or more lots, or comprising an area greater than one (1) acre with two (2) or more lots, all multi-family developments, and all commercial and industrial developments regardless of the site acreage. See the accompanying table of Stormwater Detention Policy Requirements for specific criteria.

In addition to stormwater detention/retention, compensatory storage must be provided for developments in flood prone areas. All developments must be in accordance with the Village's Flood Control Ordinance, No. 3201 (including all subsequent amendments), an ordinance regulating development in special flood hazard areas.

Detention/retention storage volume will be based on the a hundred (100) year storm. Design high water level (HWL) will consist of the elevation of the stormwater caused by a hundred (100) year storm event plus six (6) inches. The detention / retention volume must be exclusive of the capacity of the storm sewer system. The detention/retention facility shall be located as close to a public right-of-way as practical based on topography and outfall location.

The Village has no interest at a future date of accepting ownership and maintenance responsibility of a private stormwater storage facility.

1. Dry (detention) basin storage system shall comply with the following:
 - a. Minimum bottom flow line slope shall be one (1) percent with an under drain system required for all flow line slopes of two (2) percent or less. Cleanouts shall be provided at the upstream end of all subsurface drains.
 - b. Design high water level must equal the stormwater elevation in a hundred (100) year storm event plus six (6) inches.
 - c. Maximum water depth for parking lot (private or public) surface detention is ten (10) inches.
 - d. In residential developments, the grade elevation at the building foundation shall be a

minimum of one (1) foot above the design high water level. In commercial developments, the grade elevation at the building foundation shall be a minimum of nine (9) inches above the design high water level.

- e. Vertical walls in detention facilities will not be permitted, without an approved, permanent, fixed physical barrier.
 - f. For single family lots, the maximum water depth in dry detention basins shall not exceed one (1) foot in depth; otherwise another suitable means for the detention requirements shall be utilized. No vertical walls will be permitted and the maximum side slopes shall be 5:1.
2. Wet (retention) basin storage system shall comply with the following:
- a. Wet retention basins are allowed for private use only, or as otherwise approved by the VEM.
 - b. Maximum side slopes of 5:1 to two (2) feet below the normal water level. These side slopes shall be stabilized with rip-rap, retaining walls, or other approved, permanent methods of stabilization. Stabilization design plans, must be submitted to the VEM for review. Any necessary circulation systems, including filters, aerators, etc. must be submitted for review and approval by the Village's Health Division.
 - c. Construct a two (2) foot ledge at two (2) feet below the normal water level.
 - d. Maximum side slopes of 4:1 below the two (2) foot ledge below normal water level.
 - e. Design high water level must equal the stormwater elevation caused by a hundred (100) year storm event plus six (6) inches.
 - f. A minimum of twenty-five (25) percent of the retention basin area shall be at least ten (10) feet deep at the normal water level.
 - g. In residential developments, the grade elevation at the building foundation shall be a minimum of one (1) foot above the high water level. In commercial developments, the grade elevation at the building foundation shall be a minimum of nine (9) inches above the high water level.
3. Underground storage system shall comply with the following:
- a. Underground chambers must be large enough to allow the chamber to be manually cleaned.
 - b. Access points for ingress and ventilation purposes are to be provided in the chamber(s) at a maximum spacing of fifty (50) feet and at the ends of the chamber(s). Bolt down lids shall be required as directed by the Village Engineer. All access structure installations shall be a minimum of forty-eight (48) inches in diameter. A maximum of eight (8) inches of adjusting rings are allowed. If more than eight inches are required,

then the access opening should utilize either a cone barrel, flat-top section, or other VEM approved access housing.

- c. Underground storage chambers are to be clearly labeled on development engineering plans as “Private Stormwater Storage Chamber”. These chambers are to be maintained by the owner, or developer until a Homeowners Association has been established. Written documentation of maintenance responsibility and transfer of responsibility shall be submitted for review and approval by the Village prior to acceptance of the improvements.
 - d. Underground storage system shall be constructed of materials listed under Section E.2.a or E.2.b. High Density Polyethylene (HDPE) pipe may be utilized for private use only. It is not to be used within the public right-of-way or for publicly owned and maintained storm sewer. HDPE pipe, if approved by for private use, shall be rigid, with corrugated exterior and a smooth interior, meeting AASHTO M-294, Type S criteria. Pipe sections shall be joined with PVC double-bell couplers installed on the pipe with O-ring gaskets. Exfiltration standards shall meet or exceed that of PVC (SDR-26) with push-on joints. Although private sewers may use rigid, perforated or non-perforated SDR-26 or Schedule 40 PVC pipe, perforated flexible drainage pipe shall not be permitted for main line sewers. In addition, ABS plastic manholes will not be allowed, even on private property.
 - e. Poured in place reinforced concrete chamber designs must be signed and sealed by an Illinois Registered Structural Engineer.
 - f. A catch basin shall be placed at the upstream end of the chamber, and another at the downstream end of the chamber, located immediately in front (upstream) of the stormwater outlet orifice and restrictor manhole. These catch basins can be incorporated into an underground vault design as approved by the VEM.
 - g. All reinforcing steel shall be epoxy coated and all concrete shall be a minimum of three-thousand and five-hundred (3,500) psi, air entrained (five (5) percent to eight (8) percent), and treated with a protective concrete coating, both on the interior and exterior sides of the chamber.
 - h. For precast concrete construction, a geotextile fabric must be placed over the top of the structure, and all joints must be grouted.
 - i. All structural steel members used shall be “Cor-ten”, or hot-dipped galvanized. All connectors shall be of like treatment.
 - j. A minimum of six (6) inches of topsoil (plus sod) must be placed to cover the underground storage chamber when constructed under pervious surfaces.
4. Drainage systems shall have adequate capacity in the development to bypass the flow from all upstream areas for a storm of design frequency, assuming that the tributary land is in a fully developed state under present zoning, or zoning proposed under the Village’s Comprehensive Plan. The bypass flow rate shall be computed utilizing a runoff coefficient

of not less than 0.35. An allowance will be made for upstream detention when such upstream detention (and the release rate) has previously been approved by the VEM and evidence of its as-built construction can be shown. An increase in restrictor size is not an acceptable means of handling bypass flow.

5. Detention basin outflow shall be controlled by means of a restrictor. The restrictor shall consist of a two (2) foot long Ductile Iron Pipe, with a minimum diameter of three (3) inches. When a restrictor diameter of less than three (3) inches is necessary, use of the Village's Special Storm Structure Detail shall be utilized. The Discharge Coefficient (DC) used in the orifice formula in calculating discharge through restrictor pipes shall be 0.80. The restrictor pipe shall be mortared in place in an oversized pre-cast reinforced concrete pipe, placed in a structure located outside of the basin, whose rim elevation is above the design high water level, on the upstream side of the manhole (See Storm Manhole with Restrictor Detail). Restrictors shall be sized according to the allowable release rate based on Bulletin 70, "Frequency Distribution and Hydroclimatic Characteristics of Heavy Rainstorms in Illinois" for a three (3) year storm. In dual restrictor/overflow structures, the overflow shall not be constructed directly over the restrictor location.
6. The first structure upstream from the restrictor manhole must be a minimum forty-eight (48) inch diameter catch basin with a minimum three (3) foot sump below the invert of the pipe. In the event that the catch basin and restrictor manhole must be constructed adjacent to each other, a short ductile iron restrictor pipe may be utilized; but shall be no less than two (2) feet in length.
7. The reservoir outfall system shall include the outfall structure itself and the outfall conveyance system proposed for construction. The system is to be maintained and operated by gravity wherever feasible in the opinion of the Village Engineer. Pumping will be allowed in areas only where absolutely necessary and where adequate maintenance staff (submit written evidence) by the owner is available. When pumping is required, a low maintenance, energy efficient duplex pumping station with backup power provisions meeting the detailed requirements of the Village Engineer shall be provided. When required by the Village Engineer for those pumping facilities where satisfactory performance is considered particularly critical, telemetering control and report back capability to the Village Public Works Department will be required.
8. An overflow control system for all detention/retention facilities must be provided and a detail of the overflow control system must be shown on the engineering plans. Typically, a six (6) inch (min) wide, reinforced Portland Cement Concrete weir-like overflow structure, with a minimum bury depth of forty-two (42) inches will be required (See Overflow Structure Detail). The length of the overflow weir structure will be based upon the design parameters of the project. Overflow control system shall not be constructed directly over the restrictor location.
9. All overland flow routes shall be designed to meet the a hundred (100) year storm event, and should be routed along roadways, wherever possible. The maximum depth of overland flow at the centerline of the roadway shall be nine (9) inches based on the one-hundred (100) year storm event. Where overland flow routes run adjacent to habitable structures, the lowest accessible point of a structure's foundation, including window wells, must be at

least one (1) foot above the one-hundred (100) year hydraulic point of the flow line and shall not encroach within ten (10) feet of a habitable structure. In all detention/retention basins designs, the overflow route shall not pass over the restrictor manhole, or the maintenance catch basin directly upstream. Provide calculations to substantiate all overland flow route capacities which affect (in, through or adjacent) the development (including parcels not intended for immediate construction) to the satisfaction of the VEM. Show the flooding limits of the one-hundred (100) year storm on the engineering plans if within or located in close proximity to a flood zone, or as required by the VEM.

10. All detention/retention basins along a public right-of-way or any roadway shall have a permanent, fixed physical barrier provided for safety.
11. All detention/retention basins shall be located such that the design high water level, as defined above, is a minimum of ten (10) feet from the property line, ten (10) feet from structures and ten (10) feet from the right-of-way.
12. Stormwater detention/retention facilities shall be constructed during the initial phases of construction of a development.
13. Drainage ditches are allowed only in locations where individual property owners assume all maintenance responsibility of the drainage ditch. The Village does NOT maintain private or non-Village constructed drainage ditches. Maximum side slopes of ditches shall not exceed 4:1 and minimum depth shall exceed one (1) foot. Minimum longitudinal grade for a grass lined ditch shall be on one (1) percent. For lesser grades, an under drain system as selected by the VEM shall be utilized. Culverts that are required to access drainage ditches shall include flared end sections or headwalls as an end treatment.
14. All swales shall be a minimum width of two (2) feet and limited to a maximum depth of one (1) foot. Maximum side slopes of swales shall not exceed 4:1 with a minimum longitudinal slope of one (1) percent. Under drains may be by the VEM in swales.
15. Show on the engineering plans as required by the VEM the hydraulic gradient on all streets, and overflow routes that affect (in, through, or adjacent) the proposed development.
16. Detention volume requirements may be reduced upon review and approval by the Village Engineer. The detention volume reduction can be accomplished with sustainable native landscaping means which in turn decreases runoff, increases ground infiltration and reduces maintenance costs. All necessary calculations and cost breakdowns shall be provided to support any detention volume reduction requests.
17. The design of storm detention/retention facilities shall optimize low annual maintenance costs and may provide secondary aesthetic, recreational and other benefits. Approval of the details by the VEM for such secondary benefits is required as necessary to protect public health, safety and adjacent property values.
18. Two copies of the design computations (storm sewer, detention, conveyance, etc.) prepared and sealed by an Illinois Licensed Professional Engineer shall be submitted for

each review and shall show all calculations (not just summaries).

19. Rain gardens shall be a minimum of two-hundred (200) square feet if utilized for sump pump or downspout collection. Sump or downspout discharge outlet shall be exposed into rain garden and not buried. The rain garden shall be depressed six (6) inches below grade and consist of a filtration zone with a minimum six (6) inch topsoil layer over a minimum twelve (12) inch topsoil/sand mix layer. An optional perforated six (6) inch rigid PVC pipe (wrapped in fabric) underdrain system may be provided at the downstream side of the rain garden and installed a minimum of six (6) inches below the ground surface. The proposed plantings shall be from the Village approved native planting list and documentation shall be provided to the VEM for review.

Policy – Stormwater Detention Requirements

Russell N. Jensen, P.E. Village Engineer 4/24/03

Single Family # of Lots	Area < 1 Acre	Area = 1 Acre	Area > 1 Acre
1	No	No	No
2	No	Yes	Yes
3 or more	Yes	Yes	Yes
	Unsubdivided Lot	Subdivided Lot	
Single Family Home Addition	No	No	
Detached Garage	No	No	
New Commercial Development	Yes	Yes	
Commercial Addition or Structural Site Change without Change in Impervious Lot Coverage	Yes*	No	
Commercial Addition or Structural Site Change with Change in Impervious Lot Coverage	Yes*	Yes*	
New Multifamily Development	Yes	Yes	
Multifamily Addition or Structural Site Change without Change in Impervious Lot Coverage	Yes*	No	
Multifamily Addition or Structural Site Change with Change in Impervious Lot Coverage	Yes*	Yes*	

* Relief from the full required detention volume may be considered based on Village Engineering review of existing site conditions. However, in no case shall less than fifty (50) percent of the required detention be provided.

Note: Refer to “Details” in Section X for Design Criteria.

Latest revision per Resolution #03-21, dated 3/18/03

BULLETIN 70*
RAINFALL INTENSITY SCHEDULE

TIME OF CONCENTRATION	3 YEAR STORM 1 (INCHES/HR.)	10 YEAR STORM 1 (INCHES/HR.)	100 YEAR STORM 1 (INCHES/HR.)
5 Min	4.92	6.48	10.92
10 Min.	4.44	5.88	10.02
15 Min.	3.64	4.84	8.20
20 Min.	3.30	4.20	7.50
30 Min.	2.60	3.30	5.60
40 Min.	2.10	2.85	4.50
50 Min.	1.82	2.40	4.08
1 Hr.	1.60	2.10	3.56
1.5 Hrs.	1.24	1.60	2.76
2 Hrs.	1.00	1.32	2.24
3 Hrs.	0.73	0.94	1.60
4 Hrs.	0.59	0.76	1.30
5 Hrs.	0.50	0.65	1.10
6 Hrs.	0.43	0.57	0.97
7 Hrs.	0.38	0.51	0.86
8 Hrs.	0.33	0.45	0.78
9 Hrs.	0.30	0.40	0.71
10 Hrs.	0.28	0.37	0.65
11 Hrs.	0.26	0.35	0.60
12 Hrs.	0.25	0.33	0.56
13 Hrs.	0.23	0.29	0.55
14 Hrs.	0.22	0.27	0.53
15 Hrs.	0.21	0.26	0.49
16 Hrs.	0.20	0.25	0.44
17 Hrs.	0.19	0.24	0.42
18 Hrs.	0.18	0.23	0.39
19 Hrs.	0.17	0.22	0.38
20 Hrs.	0.17	0.21	0.36
21 Hrs.	0.16	0.20	0.35
22 Hrs.	0.16	0.20	0.34
23 Hrs.	0.15	0.19	0.33
24 Hrs.	0.15	0.19	0.32

*Note: The above table has been extrapolated from Bulletin 70 "Frequency Distribution and Hydroclimatic Characteristics of Heavy Rainstorms in Illinois" published by the Illinois Water Survey 1989, Appendix "A". Rainfall Intensity shown is the average of the Northeast Section Data.

G. STREETS AND OTHER SITE IMPROVEMENTS

1. Street systems shall be designed to meet the requirements of the applicable jurisdiction (e.g., Village, IDOT, CCHD, Township, etc.). The arrangement, character, extent, width, grade and location of all streets to be dedicated to the public, and all private streets shall be considered in their relation to existing and planned streets, to reasonable circulation of traffic within the subdivision or planned unit development and adjoining lands, to topographical conditions, to runoff of stormwater, to public convenience and safety, and in their appropriate relations to the proposed uses of the area to be served. All traffic intersections and confluences must encourage safe and efficient traffic flow. Any proposed street dedications shall be in accordance with the following standards.
2. Right -of-way and pavement requirements shall be designed and constructed in accordance with the following criteria:
 - a. All new streets either public or private within the corporate limits of the Village shall be improved with roadway paving and bordered by Portland Cement concrete curbs, in accordance with the Right-Of-Way and Pavement Design Chart (Table 1). Driveways to individual residential buildings do not require curb and gutter or concrete barrier curb. Driveways to all other buildings require combination concrete curb and gutter or concrete barrier curb. The design thickness shall be dependent on the soil support value and the projected traffic factor however; in no case shall structural numbers be less than those shown in Table 1. Design requirements for the pavement will be related to the street classification as set forth in the Street Classification Map (Figure 1) and Street Classification Chart (Table 2). The map and chart are intended to be a part of the Village master plan, and to provide guidance to developers.
 - b. The classification of new streets as well as variations to street classifications shown in Table 1 for a given street must be submitted to the Village Engineer for review prior to submittal of the preliminary plat to the Plan Commission.
 - c. The Right-of-Way Chart and Pavement Design Chart (Table 1) are intended to show minimum right-of-way widths and the minimum design standards for a particular street classification. If, in the opinion of the Village Engineer, traffic use or geometric considerations for a road or a part of a road warrant a greater right-of-way width, a wider pavement and/or a greater structural number than is listed on the chart, the Village Engineer shall submit his written reasons to the Plan Commission prior to the approval of the preliminary plat. Variations to the requirements of Table 1 shall be considered only as a variation to this section.

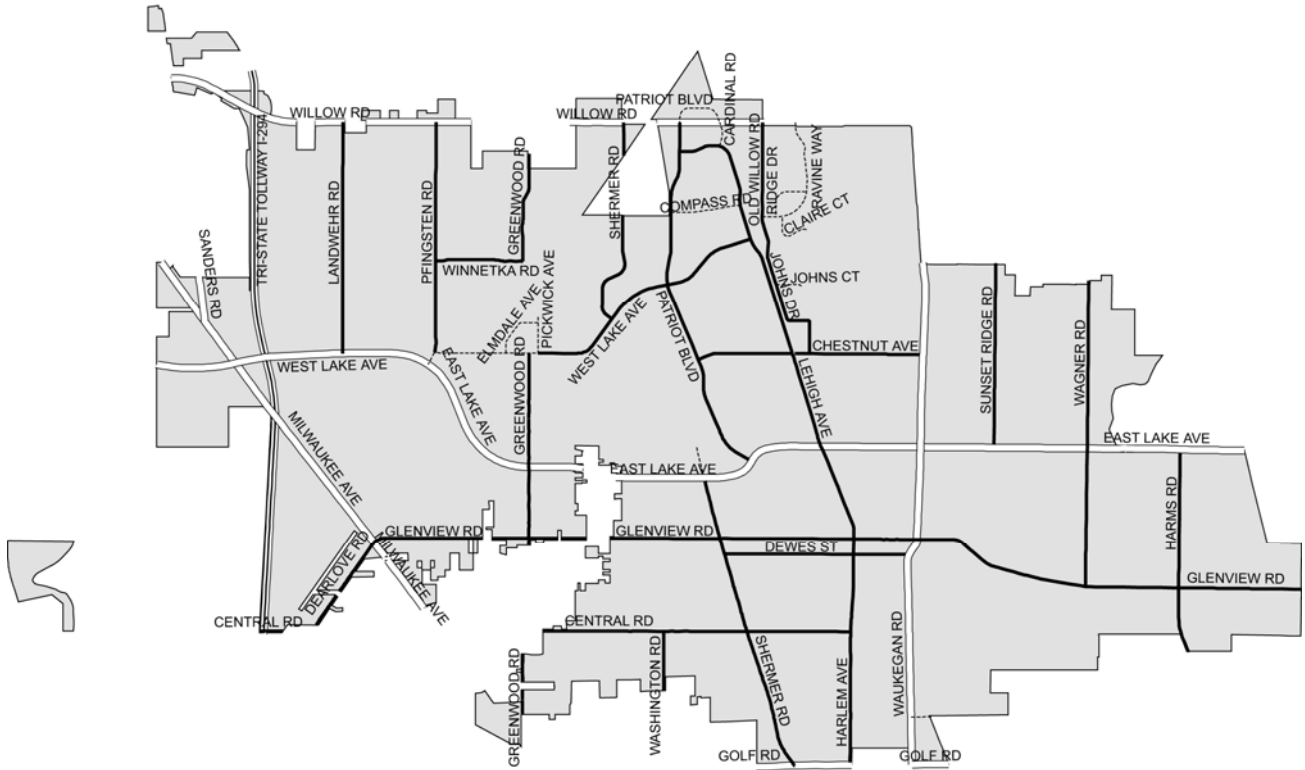
**Table 1
Right-of-Way and Pavement Design Chart**

Type of Development/Street Classification	Minimum Width of Right-of-Way for Public Streets (Feet)	Pavement Widths Back-to-Back of Curb (Feet)	Pavement Widths for Cul-de-sacs (Feet)	Minimum Structural Number
Single Family Residential Development within the Village / Local Road	60	26		3.60
Single Family Residential Development outside the Village / Local Road	66	As determined by the Village of Glenview		3.60
Single Family Residential Cul-de-sac Radii / Local Road	55	26	23 (Inner Radius) 49 (Outer Radius)	3.60
Multi-Family Residential Development / Local Road	70	36		3.60
Multi-Family Residential Cul-de-sac Radii / Local Road	60	36	15 (Inner Radius) 51 (Outer Radius)	3.60
Business and Industrial Development / Industrial Rd.	80	42		4.60
Business and Industrial Cul-de-sac Radii / Industrial Rd.	66	42	15 (Inner Radius) 57 (Outer Radius)	4.60
Collectors Streets Arterial Streets	80 100	As determined by the Village of Glenview		4.60
Alleys	20	18*		






* Curb and gutter not required

Village of Glenview Road Classification Map

FIGURE 2



Legend

-  ARTERIALS
-  COLLECTOR
-  EXPRESSWAYS
-  INDUSTRIAL
-  VILLAGE BOUNDARIES



7-31-2006

**Table 2
Street Classification Chart**

Name	From	Number Of Segments > 1	To	Classification
Central Rd.	West Village Limits	(3)	Harlem Ave.	C
Chestnut Ave.	Patriot Blvd.		Waukegan Rd.	C
Claire Ct.	Ravine Way		East Cul-de-Sac	I
Compass Road	Patriot Blvd.		Lehigh Ave.	I
Dearlove Rd.	Central Rd.	(2)	Milwaukee Ave.	C
Dewes St.	Shermer Rd.		Waukegan Rd.	C
East Lake Ave.	West Lake Ave.		East Village Limits	A
Elmdale Ave.	West Lake Ave.		Pickwick Ave.	I
Glenview Rd.	Milwaukee Ave.	(4)	East Village Limits	C
Golf Rd.	West Village Limits	(2)	East Village Limits	A
Greenwood Rd.	North Village Limits	(4)	South Village Limits	C
Harlem Ave.	Lehigh Ave.		Golf Rd.	C
Harm Rd.	East Lake Ave.		South Village Limits	C
Harrison St.	Greenwood Rd.		Harlem Ave.	C
I-294 Tri-State	North Village Limits		South Village Limits	E
Johns Court	Johns Dr		East Cul-de-Sac	I
Johns Dr.	Old Willow Rd.		Chestnut Ave.	C
Landwehr Rd.	Willow Rd.	(3)	West Lake Ave.	C
Lehigh Ave.	Patriot Blvd.(West Leg)		Harlem Ave.	C
Milwaukee Ave.	North Village Limits	(3)	South Village Limits	A
Old Willow Rd.	Willow Rd.		John's Dr.	C
Overlook Drive	Waukegan Rd.		Metra Tracks	I
Patriot Blvd	Willow Rd. (Traffic Signal)		East Lake Ave.	C
Patriot Blvd.	Lehigh Ave. (East Leg)		Willow Rd. (Traffic Signal)	I
Pfingstein Rd.	North Village Limits		East Lake Ave.	C
Pickwick Ave.	North Cul-de-Sac		West Lake Ave.	I
Ravine Way	Old Willow Rd.		Willow Rd.	I
Ridge Dr.	Ravine Way (West Leg)		Ravine Way (East Leg)	I
Sanders Rd.	North Village Limits	(3)	Milwaukee Rd.	A
Shermer Rd.	Willow Rd.		UP Railroad	I
Shermer Rd.	Old Willow Rd.		West Lake Ave.	C
Shermer Rd.	US Post Office		East Lake Ave.	I
Shermer Rd.	East Lake Ave.		Golf Rd.	C
Sunset Ridge Rd.	Winnetka Rd.		East Lake Ave.	C
Wagner Rd.	North Village Limits		Glenview Rd.	C
Washington Rd.	Central Rd.		South Village Limits	C
Waukegan Rd.	Winnetka Rd.		Golf Rd.	A
West Lake Ave.	West Village Limits		East Lake Ave.	A
West Lake Ave.	Pfingstein Rd.		Lehigh	C
Willow Rd.	West Village Limits	(5)	East Village Limits	A
Winnetka Rd.	Pfingstein Rd.		Greenwood Rd.	C

Note: Refer to Street Classification Map (Figure 1).

- d. Twenty-six (26) foot wide (back to back of curb) pavement shall have a four (4) inch crown as measured from the front of the curb (edge of pavement). All other pavement widths shall use an equivalent or greater slope. Twenty-six (26) foot wide concrete pavement shall have a four (4) inch crown as measured from the flow line of the gutter.
- e. Maximum allowable longitudinal pavement grade equals five (5) percent, and minimum longitudinal allowable pavement grade equals a half (0.5) percent.
- f. Vertical curves shall be used when the absolute value of the algebraic difference between the intersecting pavements' center lines exceed one and a half (1.5) percent. The minimum length of vertical curves shall be one-hundred (100) feet for one and one and a half (1.5) percent absolute value of the algebraic difference of grade. For each additional one (1) percent, or fraction thereof, of absolute value of the algebraic difference in grade over one and a half (1.5) percent, a fifty (50) foot increment, or fraction thereof, shall be added to the length of the vertical curve.
- g. Driveway grades shall have a minimum slope of one (1) percent and a maximum slope of eight (8) percent. It shall be substantiated that there is sufficient vehicular bottom clearances for all driveway grades in excess of five (5) percent.
- h. The radii at all intersections shall be a minimum of twenty-five (25) feet, a minimum of thirty (30) feet for collector streets, and a minimum of thirty-five (35) feet for industrial and arterial streets.
- i. Street widening for the primary purpose of providing on street parking where already existing per Village aerial mapping is only permissible on non-curbed streets and where approved by the VEM by obtaining a Village permit after submittal of a hold harmless agreement for ownership and maintenance of the widened pavement section. The property owner shall be responsible to replace or repair any widened pavement section at the owner's cost. The Village has no responsibility to repair or replace any street widening.
- j. New public alleys shall be constructed of reinforced PCC pavement.
- k. The improvement or extension of existing alleys should comply with the following, at a minimum, if the adjacent property owner wishes to extend an alley to their property:
 - Engineering plans must be developed by an Illinois Licensed Professional Engineer and reviewed by the Village.
 - The Engineering plans must include a plan for a drainage system for the alley such that the storm drainage does not negatively impact the other property owners on the alley. The alley drainage system shall be connected to the existing Village storm sewer system. Any damage caused by the connection will need to be repaired to the satisfaction of the VEM. The responsibility to upgrade an existing

Village storm sewer for alleys shall be by the Village generally through the Capital Improvement Program.

- The alley may be constructed of gravel, concrete, or asphalt, consistent with the existing surface, if the alley is to be privately maintained. If requested to be publicly maintained, the alley shall be reinforced PCC. The approach and apron to the alley from the public street must be concrete in all cases.
 - The alley width shall be a minimum eighteen (18) feet wide and extend lengthwise to the limits of the extended property line.
 - Where an alley is proposed, all adjacent property owners must be notified and concur, unless otherwise determined by the Village Board to be in the greater public interest.
- l. All frontage not utilized for public sidewalk purposes, including parkway areas, driveways, private walks, etc. shall be maintained by the adjacent property owner and should consist as grass.
 - m. Intersections on curved alignment should utilize flat horizontal and vertical controls for hazard reduction. All three (3) or four (4) leg intersections shall be at right angles only.
 - n. Drainage routing and collection structures should prevent flow across roadways, intersections, crosswalks and major driveway entrances.
 - o. For existing roads with no existing curb and gutter, the minimum pavement width shall be no less than eighteen (18) feet edge-to-edge, except for streets in Glen Oak Acres where the minimum width shall be no less than sixteen (16) feet edge-to-edge for two-way traffic areas and no less than twelve (12) feet edge-to-edge in one-way traffic areas.
 - p. No asphalt work is allowed after November 1st without advance (prior to placement) written authorization from the Village Engineer. This authorization will in no way void the contractor's and developer's guarantee on the work done.
 - q. Lane closures on State or County routes shall be allowed between the hours of 9:00am to 3:00pm, unless authorized in writing by IDOT or CCHD respectively and approved in writing by the VEM.
3. "Private Streets" shall comply with the following:
 - a. Private streets are treated the same as public roadways in reference to their design material and inspections as described herein and as approved by the VEM to ensure a safe and quality product for the property owners.

- b. "Half Streets" are prohibited. Private streets shall be constructed no less than 14 feet wide with a minimum structural value of 1.40.
 - c. Streets that are to be privately owned and maintained must be clearly noted on the plans. The Village has no interest of accepting ownership and maintenance responsibility of a private street right-of-way, or other site improvements without all current village standards being met in advance, and submittal of private ownership maintenance records.
 - d. Private street maintenance and responsibility includes all pavement components and the related drainage system.
4. Pavement length shall comply with the following:
- a. Maximum residential block length shall be thirteen-hundred and twenty (1,320) feet.
 - b. Cul-de-sacs shall have a maximum length of five-hundred (500) feet.
5. Public pavements (including parking areas) shall be designed and constructed so as to obtain a minimum fifteen (15) year service life or greater with minimal maintenance after acceptance of the pavement by the Village. Show all pavement design calculations on engineering plans. Table 3 indicates the approved materials which can be used for roadway construction within the Village of Glenview. Listed with these materials are the coefficients to be used for approved pavement structural number. The coefficients, when multiplied by the thickness of the materials, will yield the structural number.

Table 3
Allowable Pavement Construction Materials

Structural Materials	Minimum Strength Requirements		Structural Number Coefficients (SN)
	IBR	PSI	
Hot-Mix Surface Course (Table 4)			0.40
Base Course:			
Aggregate, Type B Uncrushed	50		0.10
Crushed (100 %)	80		0.13
Aggregate, Type A	80		0.13
Hot-Mix Asphalt Base Course (formerly BAM)			0.24 – 0.33
Hot- Mix Binder Course 1 (Table 4)			0.33
Portland Cement Concrete (New)		3500*	0.50

* Twenty-eight (28) day design compressive strength

**Table 4
Hot-Mix Asphalt Mix Selection ***

ADT	Pavement Material	Thickness per Lift	
		Min.	Max.
Surface Course			
0 - 5,000	Hot-Mix Asphalt Surface Course, Mix "C", IL-9.5, N50; PG 64-22	2.0"	3.0"
5,000 - 10,000	Hot-Mix Asphalt Surface Course, Mix "D", IL-9.5, N50; PG 64-22	2.0"	3.0"
10,000 - 25,000	Hot-Mix Asphalt Surface Course, Mix "D", IL-9.5, N70; PG 64-22	2.0"	3.0"
Binder Course			
0 - 10,000	Hot-Mix Asphalt Binder Course, IL-19, N50; PG 64-22	2.5"	4.0"
10,000 - 25,000	Hot-Mix Asphalt Binder Course, IL-19, N70; PG 64-22	2.5"	4.0"

*Comply with the most recent IDOT Hot-Mix Asphalt Mix Selection and QA/QC requirements

6. Pavement materials and minimum thickness shall comply with the following: The MINIMUM thicknesses of each component are required as indicated below, and one or more component layers shall be increased (in one-half (.05) inch increments only) to meet the required minimum structural number.
 - a. Rigid pavement shall comply with the following:
 - Minimum four (4) inches of Aggregate Base Course Material, Type B. Milled asphalt meeting Aggregate Base Course (crushed) specifications **cannot** be used for Aggregate Base Course, Type B.
 - A six (6) inch minimum for Sn equals 3.60 and eight (8) inch minimum for Sn equals 4.60 of Portland Cement Concrete (PCC) pavement designed in accordance with IDOT standards for Class PV concrete. All Portland Cement Concrete shall be treated with a protective coat application.
 - Concrete pavements shall be reinforced in accordance with IDOT standards as directed by the VEM.
 - PCC shall have a minimum fourteen (14) day compressive strength of three-thousand and five-hundred (3,500) psi (6.1 bag mix), with five (5) percent to eight (8) percent air entrainment, and three-quarter ($\frac{3}{4}$) inch to one and a half ($1\frac{1}{2}$) inch slump. Fly ash is not allowed in PCC mix.
 - In those cases where undercut backfill may be needed for the subgrade, the use of nine (9) inches of Aggregate Material (i.e. crushed concrete) meeting Aggregate Base Course gradation and a three (3) inch milled asphalt cap may be used. Milled

asphalt or the blending of asphalt millings with crushed concrete or other crushed aggregate material **is not allowed** for use in either the subgrade or base material. Any crushed concrete used shall be free of building debris; such as particles of brick, wood, wire, plastic, etc.

- Berths provided in non-residential areas for loading and unloading of materials or merchandise from vehicles must be constructed of a minimum eight (8) inch reinforced concrete pavement over four (4) inches of Aggregate Base Course Material.
- All outside areas used for the storage of materials, products or vehicles in non-residential areas shall be a minimum of six (6) inch P.C.C. or Portland Cement Concrete pavement.

b. Flexible base pavement shall comply with the following:

- Minimum four (4) inches of Aggregate Base Course (crushed) Material, Type B. Milled asphalt meeting Aggregate Subgrade specifications **cannot** be used for Subbase Granular Material.
- Seven and a half (7.5) inch minimum for Sn equals 3.60 and ten and a half (10.5) inch minimum for Sn equals 4.60 Hot-Mix Asphalt Binder Course according to the most current IDOT standard, placed in multiple lifts with maximum lift thickness of four (4) inches.
- One and a half (1.5) inch minimum Hot-Mix Asphalt Surface Course, according to the most current IDOT standard.
- In those cases where undercut backfill may be needed for the subgrade, the use of nine (9) inches of Aggregate Material (i.e. crushed concrete) meeting Aggregate Base Course gradation and a three (3) inch milled asphalt cap may be used. Milled asphalt or the blending of asphalt millings with crushed concrete or other crushed aggregate material **is not allowed** for use in either the subgrade or base material. Any crushed concrete used shall be free of building debris; such as particles of brick, metal, wood, wire, plastic, etc.

7. Subgrade shall comply with the following:

- a. All subgrade material shall have a minimum Illinois Bearing Ratio (IBR) of 3.0. All organic or otherwise unsuitable subgrade material, including subgrade material having an IBR less than 3.0, shall be removed and replaced with inorganic suitable (non-frost susceptible) fill material (see Section IV-G.6 above), or the pavement designed to compensate for the marginal soil condition. The soil support IBR values selected for use by the engineer shall represent a minimum value for the (existing or fill) subgrade soils. Verification of subgrade IBR values must be submitted to the VEM for approval.
- b. All subgrade embankment material (or backfill) shall be compacted to the

requirements of Art. 205.06 of the IDOT Standards, except the top foot of subgrade shall be compacted to at least ninety-five (95) percent Modified Proctor density in accordance with AASHTO T-181.

8. Pavement open-cuts/ auguring shall comply with the following:

Open cuts of Village owned pavement are restricted to those that have not been resurfaced, rehabilitated or reconstructed within the past five (5) years, unless otherwise approved in writing by the VEM. All restoration/installation of mains, pipes, conduits, etc. within this five (5) year time period shall be done by approved lining, pipe boring, or jacking methods. Concrete slab replacement shall be as full slabs only unless otherwise directed by the VEM. Other issues that may become a factor in not allowing an open cut include (but not limited to):

- a. Motorist inconvenience and vehicle delays.
- b. Roadway is a direct route for emergency vehicle use.
- c. Known locations for running sand or unstable material.
- d. Utility impacts which may cause excessive road closure.

All open cuts that are permitted within an existing paved surface area are required to use CA-7 crushed aggregate or controlled low strength material (CLSM) Mix 1 (only if required by Village Engineering). Where the cut extends to the edge of the pavement, the flowable fill should extend one (1) foot beyond the outside edge of pavement.

All pavement to be replaced shall be patched in kind, with all saw cutting at full depth. Temporary use of steel plates will not be allowed from November 1st and April 30th unless otherwise received in writing from the VEM in advance. Steel plates shall be placed over all PCC patches until concrete is cured for a minimum of three (3) days. Patching shall comply with the following:

- a. For flexible pavement, patches shall have a minimum of seven (7) inches (two (2) lifts) of binder course placed over a minimum of four (4) inch compacted subbase of granular material (CA-6). A minimum one and a half (1.5) inches of surface course shall be laid over the binder course.
- b. For rigid pavement, patches shall be replaced with a minimum fourteen (14) day, three-thousand and five-hundred (3,500) psi, six (6) inch thick PCC (6.1 bag mix), conforming to IDOT Standards for Class PP concrete, placed over a minimum four (4) inch compacted granular base course (CA-6). The existing pavement shall have No. 6 epoxy-coated dowel bars, two (2) feet in length, drilled at twenty-four (24) inches on center, grouted in place. All PCC patches shall be treated with a protective coat application. No fly ash is allowed in the PCC mix. Patching shall be required on an entire slab basis or as determined by the VED.

- c. For composite pavement patches with a concrete base and asphaltic surface, the concrete shall be placed at the same thickness as the existing concrete pavement, or a minimum of six (6) inches thick, whichever is greater, and placed over a minimum four (4) inch compacted granular base course (CA-6). Number 6 epoxy-coated dowel bars, two (2) feet in length, shall be placed at twenty-four (24) inches on center, grouted in place. Bituminous concrete surface course shall be placed at the same thickness over the concrete.
9. Pavement testing shall comply with the following:
- a. New pavement will be tested (Dynalect pavement evaluation program) by a Village appointed consultant to ensure that the structural strength of the pavement will provide a minimum of fifteen (15) years of service life after acceptance. The cost for said testing shall be borne by the Owner/Developer. This testing shall be completed and approved by the Village immediately (less than 30 days) prior to the placement of the final surface course of bituminous concrete.
 - b. The pavement evaluation program shall generally embody the following testing/pavement evaluation techniques:
 - Environmental study (frost cycle, drainage, etc.).
 - Pavement surface evaluation.
 - Soil borings at approximately one location per block per street.
 - Dynamic pavement deflection analysis (Dynalect machine or equal correlated with Benkelman Beam or equal).

The program shall evaluate the existing condition of the base and binder course in maximum 200 foot sections. If the pavement section is not projected to meet a life expectancy of fifteen (15) years or more, then the report shall propose asphalt overlays in excess of the surface course design thickness or pavement reconstruction to bring the new pavement section to a fifteen (15) year life expectancy. The VEM shall evaluate the results of the report and inform the contractor or developer as to the required pavement operation for each section in question.

- c. The Dynalect pavement evaluation program shall not be considered valid unless the wearing surface was applied during the same construction season.
- d. After receipt of the Dynalect pavement evaluation program report, the VEM will review said reports and will perform an inspection of the existing base and binder courses. All base and binder course failures will then be repaired to the VEM satisfaction. This may include, but may not be limited to, crack grouting, crack filling and crack filling.

If additional pavement testing is performed as part of the five (5) year evaluation program for all Village pavement, and the development has not been accepted by the Village at the time of testing, the applicable costs of the evaluation program shall be paid by the developer.

10. Curbs shall comply with the following:

- a. Curb and gutter shall be M-3.12 mountable type adjacent to residential properties unless otherwise approved or directed by the Village Engineer (refer to details). All (public and private) commercial streets, industrial streets and parking lots shall use B-6.12 curb and gutter.
- b. Curbs shall be constructed with a minimum fourteen (14) day, 3500 psi, PCC (6.1 bag mix) in accordance with IDOT Standards for Class SI concrete. Two (2) continuous epoxy coated No. 4 rebars shall be continuous at utility trench crossings, except across expansion joints. Reinforcement shall extend five (5) feet beyond trench walls. One (1) inch thick expansion joints shall be placed at sixty (60) foot (maximum) intervals, and contraction joints shall be at fifteen (15) foot intervals and at all points of curvature. Two (2) Epoxy coated No. 6 smooth dowel bars (eighteen (18) inches long), with greased caps, shall be provided at the location of all expansion joints. Curbs shall be placed over a minimum compacted three (3) inch aggregate base (CA-6).
- c. Both the front and back of curb (below grade) shall have finished surfaces without voids.
- d. Curbs shall be protected from ongoing project construction activity to minimize or eliminate chipping, cracking, gouging or other visible damages. The VEM will solely determine any curb sections that need to be removed and replaced, generally before placement of adjacent surface course(s). Structure conditions are not the sole factor for which removal and replacement is determined.
- e. No reduction in curb width (front to back) shall be utilized to remove damaged portions as a permanent repair measure for acceptance by the Village. Curb cuts shall be full depth only.
- f. Epoxy repairs, where directed by the VEM, shall be by use of an IDOT approved product and placement.
- g. Horizontal saw cutting of existing driveway curbing in lieu of removal and replacement (where allowed) shall commence after the removal of the existing driveway and prior to placement of the new driveway. Proposed curb section to be cut requires preinspection by the VEM to determine if the curb qualifies for this type of work and existing curb is in a sound structural condition as determined solely by the VEM. Saw cutting shall be from the back (parkway side) with equipment similar to that manufactured by Kotkurb of Montreal Canada. No handsaw cutting will be allowed. Saw cut shall be uniform with a half (0.5) inch to three-quarter ($\frac{3}{4}$) inch lip at gutter and otherwise comply with IDOT standards for depressed curb. Saw cutting shall leave no rough edges on curb. Standard curb flow line shall be maintained at all

times. Curb shall be sealed with an approved sealer after completion of curb cutting. The VEM shall solely determine if the existing curb, gutter or pavement is damaged, chipped or cracked in any way from the curb cutting operation and will instruct the contractor to remove and replace the damaged section and make repairs to the satisfaction of the Village. All additional material and labor will be performed at the developer's expense. It is not the intent of the VEM to allow curb cuts to be used exclusively throughout a development or portion thereof as the design standard.

- h. All buffalo box, sanitary sewer and storm sewer service locations shall be indicated by a VEM approved stamp or sawcut mark on the curb (or pavement surface as directed by the VEM) with a "W", "S" or "ST", respectively, as the case may be. Any abandonment/removal of service lines requires removal of the stamped or sawcut marking at the time of abandonment/removal.
- i. The vertical and horizontal alignment of all PC concrete curb shall not vary in any way from the dimensions and elevations shown on the plan. The petitioner will remove all curb improperly constructed at the incorrect vertical and horizontal alignment and replace with curb properly located.
- j. Curb head and gutter shall be pitched to drain toward face of curb unless otherwise shown in the plans or directed by the VEM.

11. Sidewalks shall comply with the following:

- a. Public sidewalks are to be constructed of a minimum five (5) inch thick by five (5) foot wide, 6.1 bag mix (IDOT Class SI) PCC with five (5) percent to eight (8) percent air entrainment. All Portland Cement Concrete shall be treated with a protective coat application. Fly ash is not allowed in the PCC mix. Sidewalks shall be placed over a minimum compacted three (3) inch aggregate base (CA-6). No milled asphalt shall be used for base material. Private sidewalks shall be constructed to a minimum four (4) inch thickness.
- b. Public walks shall be constructed through all driveways and shall be thickened to a minimum of six (6) inches, or the thickness of the driveway, if greater.
- c. Sidewalk shall be constructed one (1) foot off the street R.O.W. line unless otherwise directed by the Village Engineer.
- d. Three (3) equally spaced, epoxy coated No. 4 rebars shall be centered over all utility trenches. Bars shall extend a minimum of five (5) feet beyond the walls of the utility trench.
- e. Sidewalk shall be continuous through all driveway areas.
- f. A three-quarter ($\frac{3}{4}$) inch thick expansion joint, with premolded joint filler, shall be provided at fifty (50) foot intervals, and contraction joints (one and a quarter ($1\frac{1}{4}$) inch deep by a one-eighth ($\frac{1}{8}$) inch wide shall be at five (5) foot intervals.

- g. Ramping and sloping of sidewalks, as well as surface texture, at all intersections shall be designed and constructed in accordance with current IDOT Handicap Standards and Specifications. Identify all locations of detectable surfaces on plans. All sidewalks and shared-use trails shall use truncated domes of contrasting color at curb ramps. Color variations other than Federal standard color 30166, brick red, shall be directed to the IDOT District I field engineer and if approved, to the Village Engineer for final approval before placement.
- h. Where handicap spaces are located adjacent to a sidewalk, a curb ramp per IDOT specifications shall be located in the access isle (striped portion) of the handicap stall.
- i. All concrete sidewalks poured when temperatures are over forty (40) degrees shall be treated with a protective coat application of linseed oil, or curing compound equivalent.
- j. A minimum clear zone of five and a half (5.5) feet between obstructions (signs, lights, buildings, benches, trees, etc.) shall be maintained on all public sidewalks.
- k. Side forms shall use lumber with a normal thickness of two (2) inches and a depth equal to the sidewalk thickness specified or of steel with equal rigidity. Two (2) inch x four (4) inch forms will not be allowed. Side forms shall be held securely in place by stakes or braces, with the top edges of the forms true to grade. The forms shall be lightly coated with oil prior to placing concrete. The contractor is responsible for maintaining proper barricades until overdig area is backfilled.
- l. Sidewalk cross slope design shall be two (2) percent. No approval or acceptance of public sidewalk shall be given for a constructed cross slope equal to or less than one (1) percent, or more than four (4) percent.

12. Retaining wall structures shall comply with the following

- a. Drainage and backfill conditions for all retaining walls must be detailed and noted. Grading slopes shall follow Section IV.A. The retaining wall and associated grading shall not interfere with existing swales or drainage patterns or adversely impact adjacent properties.
- b. Retaining walls shall not be constructed within any easement unless specifically designed and approved by the VEM. Any retaining walls to be constructed in a utility easement shall require waiver letters from all utility companies prior to VEM approval and the start of any related construction.
- c. Retaining walls shall not be constructed within ten (10) feet of rear or side lot lines. If an easement of greater than ten (10) feet is present along any property line, the retaining wall shall not be constructed within the easement.
- d. The retaining wall policy outlines the permitted use of retaining walls. Developers or homeowners that choose to utilize a retaining wall shall agree to and comply with the following:

- Any solid structure in excess of twelve (12) inches in height along any exposed elevation portion and measured from the final grade at the base of the wall to the top of the wall, and whose purpose is to contain any soil and/or other materials shall be considered a retaining wall.
 - The design and construction of any retaining wall shall meet or exceed the current Village standards or the more stringent requirements of any overriding regulations.
 - A permit shall be required prior to any retaining wall being constructed. The following items shall be included in the permit application:
 - Material of the retaining wall.
 - A grading plan consisting of both existing and proposed grades.
 - Cross sectional detail of the retaining wall, drainage system and related work.
 - Plat of Survey for the property.
 - Retaining walls, thirty-six (36) inches or more in height, shall be designed and the plans be dated, sealed, and indicate the expiration date of the Illinois Registered Structural Engineer. Pre-manufactured walls must also conform to this requirement.
 - Retaining walls of thirty (30) inches or more in height shall require a permanent fixed physical barrier at the top of the wall.
 - The property owner shall be required to sign a Hold Harmless Agreement for ownership and maintenance of the retaining wall prior to the start of construction.
 - No private retaining walls shall be designed or constructed within the Village right-of-way.
 - Refer to the current Engineering Standards, Section IV. G. for specific construction details.
13. Reinforced concrete structures that are cast-in-place, unless otherwise directed by the VEM, shall be constructed with epoxy coated reinforcement bars.
14. Parkway trees shall be planted with a minimum of thirty (30) feet and a maximum of forty-five (45) feet separation throughout the subdivision and in commercial developments. In single family residential areas, the selection of two (2) inch minimum standard tree species as well as the planting of these trees shall be the responsibility of the Village Tree Preservation Officer (TPO) and Public Works Department. The Public Works Department shall use a portion of the development's posted escrow to defray its cost for time, material and overhead. Plantings in a cul-de-sac center island, shall be deciduous trees, approved and planted by the Village TPO and Public Works Department, and shall be maintained by the Homeowner's Association, or a private contractor. All existing trees to remain on site are to be protected from damage throughout construction. Protection

shall consist of a suitable barrier placed around the drip-line of the tree, in accordance with the Village's Tree Standard Manual. If any trimming or removal of parkway trees is required, the contractor shall contact the Village TPO at least five (5) days prior to beginning this work.

Selection and/or placement of trees by the developer will only be allowed with additional requirements including but not limited to:

- a. All trees shall be pre-inspected at the nursery by Village Tree Preservation Officer (TPO) prior to dig-up.
 - b. No tree plantings are allowed from Oct. 31st through March 31st.
 - c. Spring plantings are highly preferred. Written request with justification shall be submitted for review and approval prior to other planting times.
 - d. Each tree installed shall be tagged (obtain for Public Works) and/or located by GPS method (submit disk copy to VEM) which shall identify the month and year of installation.
 - e. A landscape map (2 copies) with date of installation or replacement shall be submitted prior to Oct. 1st for inspection. If submitted later, the inspection will occur the following spring.
 - f. Developer shall replace trees no later than the spring following the inspection.
 - g. Replaced trees shall be re-inspected within twelve (12) to eighteen (18) months (fall time frame) to determine if additional replacements are required.
 - h. Developer shall submit to homeowners upon occupancy any relevant information supplied by Village regarding tree preservation (including watering, mulching, etc.).
15. Continuous street lighting is not specifically required by the Village, however, any street lighting system provided in any development must be acceptable to the Village, as follows:
- a. All work shall include the installation of all fuses, lamps, grounding wires, conduit, foundations, standards, mast arms, luminaries, fuses, lamps, controls, handholes, trenching and backfill.
 - b. All work done and material used in connection with the installation of the street lighting system shall be in accordance with the specifications of the National Electrical Code, appropriate IES Nema Standards, Underwriter's Laboratory approvals, AASHTO criteria, and the Village Engineering Standards.
 - c. All commercial driveway, street and sidewalk crossings shall be provided with a cable duct raceway for underground cable consisting of two (2) inch diameter galvanized rigid steel conduit with two (2) inch insulating fiber bushings. Cable duct shall be

installed in trenches six (6) inches wide by twenty-four (24) inches deep, and backfilled with compacted suitable fill material.

- d. Junction boxes as approved by the Village shall be provided in close proximity to each pole for cable slack needed by maintenance personnel.
- e. All lighting standards shall be located with the pole centerline located three (3) feet behind the back of the curb line, unless otherwise noted on the drawings and approved by the VEM.
- f. Upon completion of installation, and at a time convenient to the owner and/or the Village, the contractor shall conduct all operating tests required by the owner and/or the Village. The contractor shall furnish any and all instruments and personnel required to conduct the tests.
- g. Upon completion of all work, the contractor shall provide the Village Engineer with a clear and legible as-built drawing(s) which shall include splices, controls, etc. Unless otherwise agreed to with the Village, all street lighting shall be privately owned and maintained.

16. Traffic signals shall comply with the following:

- a. Design shall strictly follow IDOT District I traffic signal design guidelines (latest edition).
- b. Traffic control equipment shall include phone connection for data transfer.
- c. Proposed signals shall be interconnected to existing signals as directed by the VEM.
- d. All traffic lenses including pedestrian heads shall be light emitting diode (LED).
- e. Provide a full traffic activated controller, Type five (5) or as directed by the VEM.
- f. Emergency vehicle pre-emption systems shall be included on all traffic signals and be compatible with existing Village equipment.
- g. A battery back-up system approved by the VEM, capable of three (3) hour minimum battery life to provide one hour of full functioning signals and two (2) hours of flashing red shall be installed in the controller cabinet (Type IV cabinet with an external battery enclosure).
- h. All traffic signals shall be submitted to the Village Traffic Committee for review.
- i. Pedestrian crossings shall include audio signals unless otherwise directed by the VEM.

17. Vacant lots within a proposed subdivision (or development) shall be maintained in accordance with criteria established by the Village Department of Public Works.

18. Traffic Control shall comply with the following:

- a. Engineering traffic control plan as required by the VEM demonstrating the protective measures and devices that will be employed consistent with the MUTED, to prevent injury or damage to persons or property and to minimize disruptions to efficient pedestrian and vehicular traffic.
- b. All work within public right-of-ways and on private roads shall conform to the requirements of the latest edition of the MUTCD:
 - When an opening is made into the existing pavement.
 - When construction takes place adjacent to the edge of the existing pavement.
 - When a utility crossing is made beneath the existing pavement.
 - When it is necessary to close a lane of traffic due to construction operations or any other work within the right-of-way which affects traffic flow (pedestrian and vehicular).
- c. Permission for any lane or road closures shall be obtained from the Village, IDOT or the CCHD prior to commencing construction. Signing will be required in strict conformance with the MUTCD. No construction operation shall commence until such time that all required signs and barricades have been erected. All work shall be phased so to minimize interference with traffic flow.
- d. Unless authorized by the Village in writing in advance, no street openings shall extend beyond the end of the working day.
- e. Advance construction message boards shall be placed a minimum of seventy-two (72) hours prior to the start of construction as directed by the VEM.

19. Signing, stripping and mailboxes shall comply with the following:

- a. All pavement signing (street names, regulatory, etc.), pavement marking and mailbox locations are to be submitted to the Village Traffic Committee for review. The Committee represents Village Departments such as Police, Fire, Public Works and Development.
- b. All pavement markings shall be thermoplastic pavement marking in accordance with the appropriate material specifications of the “Standard Specifications for Traffic Control Items” except parking lots, which may be painted. Pavement marking tape shall be installed and maintained on all binder course placed pavement which is opened to traffic. All tape shall be substantially removed prior to final surfacing.

- c. Mailboxes shall be installed at such locations approved by the Village in conformance with the standards of the United States Post Office. No mailbox turnouts are allowed in the public right-of-way.

20. Boring or jacking shall comply with the following:

- a. Boring or jacking shall be required as directed by the VEM, including under any drip line of any tree designated by the Tree Preservation Officer and under streets paved (surface) within the last five (5) years. Pits shall be located at a minimum of distance specified by the VEM from the edge of pavement. All pits shall be clearly marked and protected by fencing and barricades per current Village Code. Pit shoring shall be designed, erected, supported, braced and maintained so it will safely support all vertical and lateral loads that may be imposed upon it. No wet boring or jetting will be permitted.
- b. When the proposed installation is made by boring, care must be taken to make the bore in a straight line and of uniform diameter. If an obstruction is encountered, the operation shall be suspended at once and another trial made at a different location. The pipe casing shall not be retrieved but shall be completely backfilled and sealed.
- c. If, as a result of a boring operation, excessive voids or too large a bore hole is produced, pressure grouting should be applied through fittings installed in the casing pipe wall. The pressure grouting shall fill all excessive voids on the outside of the casing pipe. The grout mixture shall consist of a clean, dry concrete mix, composed of one part Portland Cement and ten parts of sand and gravel by volume or other mix approved in writing by the VEM in advance.
- d. Care shall be taken in arranging the jacking equipment and struts to ensure that thrust is applied parallel with the centerline of the pipe or as approved by the VEM. A jacking head or collar shall be used to apply pressure from the jack to the pipe. Pressure applied with the metal of the jack in direct contact with concrete pipe will not be permitted.
- e. Casing spacers should be sized precisely for the individual installation. The maximum allowable movement resulting from the spacer installation shall be two (2) inches in any direction within the casing pipe. The spacers shall be installed at 6 foot intervals.
- f. Voids between the casing pipe and carrier pipe shall be filled with blown sand or pea gravel meeting the requirements of the IDOT "Standard Specifications for Road and Bridge Construction". The ends of the casing pipe shall be sealed with either brick or mortar, concrete, or synthetic rubber and seals specifically made for this purpose.
- g. Installation of underground utilities in the vicinity of trees which are to be preserved shall be accomplished by tunneling. The tunneling limits shall coincide with the dripline of the tree(s) to be preserved.
- h. Tree tunneling shall consist of boring within the specified area with an auger. The diameter of the auger shall be at least six (6) inches greater than the bell of the pipe to

be installed. A four (4) inch sand cushion shall be placed in the bored hole prior to installation of the pipe. The pipe shall be pushed, carefully, into place so as not to disturb the bored hole. Voids surrounding the pipe shall be filled with sand meeting the requirements of the IDOT “Standard Specifications for Road and Bridge Construction”.

21. Driveways shall comply with the following:

a. Residential driveways shall comply with the following:

- The approach width at the edge of street pavement of back of curb shall not exceed thirty (30) feet in width which includes a maximum three (3) foot wide taper on each side.
- For concrete approach wider than sixteen (16) feet, a contraction joint shall be located along the centerline.
- Sidewalks (where required) shall run through driveway entrances unless directed otherwise by the Village Engineer.
- Curbing (optional) along driveway edges shall not run through sidewalk areas in driveways.
- For concrete driveways over an underground utility trench, place six (6) inch by six (6) inch weld and wire fabric at mid-depth of concrete. The approach shall consist of six (6) inch minimum thick PCC over four (4) inch minimum CA-6 crushed stone, while the driveway shall consist of four (4) inch minimum thick PCC over four (4) inch minimum CA-6 crush stone.
- For asphalt driveways, the approach shall consist of three (3) inch minimum Hot-Mix Asphalt Surface Course over six (6) inch minimum CA-6 crushed stone, while the driveway shall consist of a three (3) inch minimum Hot-Mix Asphalt Surface Course over four (4) inch minimum CA-6 crushed stone.
- Brick pavers or other architectural paving materials or finishes are not allowed in the driveway approach area or public right-of-way without a building permit and written permission (including a Hold Harmless Agreement) from the VEM in advance. Pavers shall be a minimum two and three-eighths ($2\frac{3}{8}$) inches thickness and shall be constructed over a one (1) inch minimum sand bed over six (6) inch minimum CA-6 crushed stone.
- A three-quarter ($\frac{3}{4}$) inch preformed expansion joint shall be placed between the driveway approach and the street curb and sidewalk.
- Removal and replacement of street curb shall include two (2) one and quarter ($1\frac{1}{4}$) inch by nineteen (19) inch epoxy coated dowels drilled and embedded nine (9) inches into the existing curb on both sides of the driveway.

- The pitch or grade of driveways shall not be toward or in the direction of the residence. If requesting a variance, a hundred (100) year design capacity storm system must be added to protect the residence.
- b. Commercial driveways shall conform to the following:
- Spacing between drives shall be sixteen (16) feet on side streets and thirty (30) feet on main thoroughfare. At corners, driveway shall not be closer to right-of-way line than eight (8) feet on intersecting side street or fifteen (15) feet on intersecting main thoroughfare.
 - The Village reserves the right to establish a maximum number of exit and entrance lanes based upon the parking capacity and traffic hazard impacts upon the public streets.
 - Sidewalks (where required) shall run through driveway entrances unless directed otherwise by the Village Engineer.
 - Driveway widths shall not exceed thirty-five (35) feet. The width of flare shall be determined by the VEM.
 - Curbing along driveway edges shall not run through sidewalk areas in driveways.
 - For concrete driveways, the approach shall consist of eight (8) inch minimum PCC over four (4) inch minimum CA-6 crushed stone, while the driveway shall consist of six (6) inch minimum PCC over four (4) inch minimum CA-6 crushed stone. For asphalt driveways, the approach shall consist of four (4) inch minimum bituminous asphalt over eight (8) inch minimum CA-6 crushed stone, while the driveway shall consist of four (4) inch minimum bituminous asphalt over six (6) inch minimum CA-6 crushed stone.
 - Truck docking and loading bays shall be constructed in rigid pavement only and to the same structural requirements as industrial roads.
- c. Access facilities must be constructed so they do not adversely affect roadway drainage. The drainage and the stability of the subgrade must not be impaired by driveway construction or roadside development. In no case shall the construction of an access facility cause water to flow across the roadway pavement, or to pond on the shoulders, or in the ditch, or result in erosion within the right-of-way. Where the construction of an access facility necessitates crossing a roadway ditch, a culvert pipe shall be installed in the ditch by the permittee. The low point of the driveway profile shall be at or close to the ditch line. Under no circumstances shall existing ditches or gutters be filled without adequate alternative provisions for drainage being made.
- d. No part of a driveway, including the flare, should encroach on the frontage of an adjacent property (assuming property line extended to street).

- e. Where drainage is carried along the street curb and curb depression is desired, the driveway shall be constructed with a short upgrade to prevent runoff from spilling into private property.
- f. In the interest of public safety and convenience, the VEM may restrict the placement of an access facility to a particular location along the owner's frontage. The location of entrances along acceleration, deceleration or lane tapers should be avoided. Adequate sight distance will be critically reviewed.
- g. Driveway patching and/or replacement shall follow Driveway Replacement Detail.

22. Parking lots shall comply with the following:

- a. Surface course shall be a minimum of one and a half (1.5) inch bituminous concrete surface course – Class 1, compacted. Binder course shall be a minimum of three (3) inch bituminous concrete binder course-Class I, compacted. The binder course and surface shall be laid in two (2) lifts. Base course shall be a minimum of ten (10) inch crushed stone (CA-6) or four (4) inch of bituminous aggregate mixture (BAM) at a minimum Marshall Stability of 1700, compacted. The minimum structural number shall be 2.70 (show calculations on engineering plans).
- b. The VED may approve other equivalent combinations of surface course, binder course and base course. Five (5) inches of non-reinforced concrete pavement is an acceptable alternative in lieu of asphalt and base combinations.
- c. Private parking lots shall have a minimum structural value of 1.40 (show calculations on engineering plans).
- d. All parking lots (private and public) shall use a minimum longitudinal slope of a half (0.5) percent and a maximum of five (5) percent.
- e. Any parking lot (private or public) that has any surface detention shall not be permitted to overlay the surface. Any parking lot overlay shall address the capacity and impact of any stormwater routing or overflow.

H. ENVIRONMENTAL ASSESSMENT

Requirements for environment assessment as a condition of land conveyance, dedication or donation shall comply with the following:

- 1. Not less than five (5) days prior to any conveyance, dedication or donation of real estate required under any Village of Glenview ordinance or requirement, the Grantor, at its sole cost and expense, shall have caused to be prepared and submitted to the Village five (5) copies of a written final report of a site assessment and environmental audit, in scope, form and substance, and prepared by an independent, competent and qualified engineer, satisfactory to the Village (the "Environmental Audit"), and dated not more than sixty (60) days prior to the transfer date, showing that the engineer made all appropriate inquiry into

the previous ownership and uses of the property consistent with good commercial and customary practice in an effort to minimize liability, which takes into account and satisfies the “innocent landowner” provision set forth in 42 U.S.C. 9601 (35), such that consistent with generally accepted engineering practice and procedure, no evidence or indication came to light which would suggest there was a release of substances on the property which could necessitate an environmental action, and which demonstrates that the property and the facility complies with, and does not deviate from, all applicable environmental statutes, laws, ordinances, rules and regulations, including any licenses, permits or certificates required there under.

2. The Environmental Audit shall also demonstrate that the property and the improvements located thereon, if any, do not contain:
 - a. Asbestos in any form.
 - b. Urea formaldehyde.
 - c. Transformers or other equipment that contain fluid containing polychlorinated biphenyls.
 - d. Underground storage tanks.
 - e. Any other chemical, material or substance, the exposure to which is prohibited, limited or regulated by any federal, state, county, regional or local authority (the “Authorities”) or which poses a hazard to the health and safety of the occupants of the property or the facility, or the occupants of adjacent property.
3. The Environmental Audit shall also demonstrate that the property and facility are not, and have not been, the subject of any past, existing or threatened investigation, inquiry or proceeding concerning environmental matters by the Authorities, and that no notice or submission concerning environmental matters has been given or should be given with regard to the property and the facility to the Authorities. The Environmental Audit shall demonstrate that the property and facility are not subject to, or covered by, the requirements of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. 11001, *et seq.*, and that the property is not now being used and has never been used for any activities involving directly or indirectly the use, treatment, storage or disposal of any hazardous or toxic chemical, material, substance or waste.
4. The grantor of the property and facility acknowledges and agrees that the Village shall not be obligated to take title to any land if, in its sole and exclusive judgment, for any reason whatsoever (including, without limitation, information revealed by the Environmental Audit) that the use or condition of the property, or any part thereof, poses a material health, safety or environmental hazard.

I. EASEMENTS

1. Configuration of Easements shall be laid out in such a manner so as to assure proper continuity for utilities and/or surface water flow. Easements shall comply with the following:
 - a. Public utility easements within the Village shall be a minimum of ten (10) feet wide unless additional width is deemed necessary. In no case shall the outside wall of an underground public utility be less than four (4) feet from the easement line.
 - b. Public utility easements outside the Village, but within Glenview's jurisdictional planning limits, shall be a minimum of ten (10) feet wide. In no case shall the outside wall of an underground public utility be less than four (4) feet from the easement line.
 - c. Pedestrian easements shall be a minimum of ten (10) feet wide.
 - d. Cul-de-sac lots shall include an easement ten (10) feet wide across their frontage to allow for tree planting and maintenance.
 - e. Stormwater detention/retention facilities shall be placed within an easement for stormwater detention purposes. This easement as measured from the design high water level shall be a minimum of five (5) feet wider than said level. No other easement will be allowed to coincide with this detention easement.
 - f. Overland flow route easements shall be provided from storm sewers and stormwater detention/retention facilities to the natural point of discharge. The easement width of this flow route shall be a minimum of ten (10) feet, and minimum fifteen (15) feet (in total) for side yards, granting the Village the right to undertake maintenance and lien rights for the cost of such maintenance in the event the owner fails to maintain said routes. The utilization of streets for overland flow routing is preferred.
 - g. An ingress and egress easement shall be granted to the Village of Glenview for the purpose of inspection and/or maintenance of the detention/retention system. This access must be a minimum of ten (10) feet wide, and clear of all obstructions.
 - h. For all developments requiring compensatory storage for floodwaters, the entire area designated for compensatory storage must be easemented exclusively for compensatory storage to the Village.
 - i. Drainage easements shall be provided for any development or improvement which conveys water from upstream areas.
 - j. Any additional easements as directed to be established by the Village. This shall include but not be limited to easements for existing utilities, overland flow routes, detention/retention facilities, vehicle or pedestrian ingress/regress routes, etc.
2. Easements granted to the Village for stormwater drainage and detention/retention must provide the following language on both the engineering plans and the plat:

- a. The obligation of maintaining the (insert description of detention/retention facility) and the appurtenances thereto as described hereon shall be that of the owner, entity or its successors and assigns holding title to said (insert description of detention/retention facility). However, the Village of Glenview shall have the right pursuant to this grant of easement, but not the obligation, to enter the premises described hereon as (insert description of detention/retention facility) at any time it deems necessary to inspect, repair or maintain detention/retention facility, including appurtenances thereto, which the Owner or Homeowner's Association fails or refuses to maintain, following written notice to do so from the Village. In the event of performance by the Village or its agents of any such repair or maintenance work, the cost thereof (including both direct and indirect costs) shall be paid by the Owner or Homeowner's Association, or the individual members or share holders of the Homeowner's Association, and shall constitute a lien upon the above-described (insert description of detention/retention facility) and the adjacent entire real estate which the detention/retention facility and appurtenances serve. Such lien may be enforced by the Village, which may also recover all reasonable costs and attorney's fees in doing so, in the manner provided by law, or enforcement and foreclosure of liens.
- b. The following language must be provided on all engineering plans and plats for all developments which alter any of the existing topography:

To the best of our knowledge and belief, the drainage of the surface waters will not be changed by construction of this Subdivision (Development), or on this site, or any part thereof, or that if such surface water drainage will be changed, reasonable provisions have been made for the collection and diversion of such surface waters into public areas or drains which the property owner has a right to use, and that such surface waters will be planned for in accordance with generally accepted engineering practices so as to reduce the likelihood of damage to the adjoining property because of construction of the Subdivision (Development), or this site.

Dated this _____ day of _____ A.D., 200 _____

Owner or Attorney

Engineer

- c. All plats should contain the following utility easement language:

Easements, designated for overhead, underground, and surface public utilities and drainage, are hereby reserved for, and granted to the Village of Glenview, Northern

Illinois Gas Company (NICOR), Comcast Cable, Commonwealth Edison Company, and Ameritech, their successors and assigns, in all platted easement areas, streets, and other public ways and places shown on this plat. Said easements shall be for the installation, maintenance, relocation, renewal and removal of public utilities, drainage facilities and related appurtenances, in, over, under, across, along and/or upon the so designated property. It shall include the right to enter the subdivided property for all such purposes, and the right, without liability, to cut, trim, alter and/or remove any vegetation, roots, structures or devices within the designated easement property as may be reasonably required incident to the right herein given.

Without prior written consent of the grantees, no buildings, structures or other obstruction shall be constructed, planted or placed in any such easement areas, streets or other public ways or places, nor shall any other uses be made thereof which will interfere with the easements reserved and granted hereby. Such easements shall further be for the purpose of serving all areas shown on this plat as well as other property, whether or not contiguous thereto, with gas, electric, telephone, fiber-optic and/or cable TV, watermains, sanitary and storm sewers, and shall include the right to overhang all lots with aerial service wires to serve adjacent lots, but such aerial service wire shall not pass through permanent improvements on such lots.

Such easements shall survive the vacation by proper authority of any street and other public way and place shown on this plat, unless otherwise expressly mentioned in an ordinance of vacation.

3. Easement encroachments are generally discouraged, and are prohibited for all detention facilities or other locations as indicated by the VEM. Notwithstanding, the following procedures are required for requesting the encroachment into either a recorded or unrecorded utility and /or drainage easement:
 - a. Property owner shall, in writing, request permission to encroach in the easement. The request should be made to all concerned parties (such as utility companies and the Village of Glenview) and include the purpose for the encroachment and indicate the extent of the encroachment by dimension (copy VEM on all related correspondence).
 - b. The property owner shall proceed in obtaining written permission to encroach into the easement from all utility companies serving the area and forward a copy of the written permission to the VEM.
 - c. The VEM will review the request and notify the owner, in writing, whether or not the request will be tentatively granted by the Village.
 - d. If the request is to be tentatively granted by the Village, the property owner shall be required to sign an encroachment agreement with the Village.
 - e. Final approval for encroachment into easement can then be granted by the Village.

Permission to encroach granted by one party does not guarantee that permission to encroach will be granted by the Village or any other party.

J. VARIANCES

1. Any variance to the current standards shall be submitted in writing to the Village Engineer for review and approval. Detailed reasoning shall be included for a variance and shall identify how the Village of Glenview will benefit. No one shall assume a variance without written confirmation and approval of the Village Engineer or designate. Precedence of a variance from another project is not justification for any other project. Any project variance shall be based on its own unique conditions and characteristics.
2. Any denial of a variance may be appealed to the Director of Capital Projects. Appeals shall be submitted in writing and shall include all past documentation used in the variance request process. A copy shall also be submitted to the Village Engineer at the time of the appeal. The decision of the Capital Projects Director shall be made in writing and shall be final.

Section V

PLATS

- A. Plan**
- B. Easements**
- C. Certificates**

SECTION V
REQUIREMENTS

A. PLAN

All plats must contain a plan, with lot dimensions and bearings, offsets to the center line of adjacent roadways - if present - monuments, distances to and a description of section corners and lines, etc., as well as a legal description of the subdivided property.

B. EASEMENTS

The plat must also include the location and dimensions of easements related to public utilities, drainage, stormwater detention or retention facilities, overflow, etc., and easement language required under Section IV-I.

C. CERTIFICATES

Following are appropriate certificates which, as a minimum, must be included on all plats. Additional certificates should be included on the plat, dependent on site-specific requirements; such as, for example, a Mortgage Certificate, an IDOT Certificate, a School District Certificate, etc. Any plat that grants the Village access rights shall be reviewed and approved by the Village Engineer.

VILLAGE ENGINEER'S CERTIFICATE

STATE OF ILLINOIS }
COUNTY OF COOK }

APPROVED BY THE VILLAGE ENGINEER OF THE VILLAGE OF GLENVIEW, COOK COUNTY, ILLINOIS, ON
THIS _____ DAY OF _____, A.D 20____.

VILLAGE ENGINEER

BOARD OF TRUSTEE'S CERTIFICATE

STATE OF ILLINOIS }
COUNTY OF COOK }

APPROVED AND ACCEPTED BY THE PRESIDENT AND BOARD OF TRUSTEES OF THE VILLAGE OF GLENVIEW, COOK COUNTY, ILLINOIS AT A MEETING HELD THIS _____ DAY OF _____, A.D. 20____.

BY: _____
PRESIDENT OF THE BOARD OF TRUSTEES

ATTEST: _____
VILLAGE CLERK

PLAN COMMISSION CERTIFICATE

STATE OF ILLINOIS }
COUNTY OF COOK }

APPROVED AND ACCEPTED BY THE PLAN COMMISSION OF THE VILLAGE OF GLENVIEW, COOK COUNTY, ILLINOIS, AT A MEETING HELD THIS _____ DAY OF _____, A.D. 20__.

BY: _____
CHAIRMAN OF THE PLAN COMMISSION

ATTEST: _____
SECRETARY

VILLAGE COLLECTOR'S CERTIFICATE

STATE OF ILLINOIS }
COUNTY OF COOK }

I, _____ COLLECTOR FOR THE VILLAGE OF GLENVIEW,
COOK COUNTY, ILLINOIS, DO HEREBY CERTIFY THAT I FIND NO DELINQUENT GENERAL TAXES,
DELINQUENT SPECIAL ASSESSMENTS OR UNPAID CURRENT SPECIAL ASSESSMENTS DUE AGAINST THE
LAND INCLUDED IN THE PLAT HEREON DRAWN.

DATED THIS _____ DAY OF _____, A.D. 20__.

VILLAGE COLLECTOR

Section VI

TRAFFIC IMPACT REPORT

- A. Existing Conditions**
- B. Trip Generation and Assignment**
- C. Analyses and Recommendations**

SECTION VI

TRAFFIC IMPACT REPORT

As a part of the development review process, a traffic impact report may be required by the Village. When required, the Traffic Impact Report shall, at a minimum, address the following issues:

A. EXISTING CONDITIONS

1. Peak hour (AM and PM) through and turning movement counts at key intersections and drives.
2. Street Characteristics – R.O.W.'s, street widths, lane widths, traffic controls, parking controls, accidents, etc.
3. Existing capacity analyses at the key intersections and drives for both AM and PM peak hours.
4. Summary of existing traffic operations.

B. TRIP GENERATION AND ASSIGNMENT

1. Trip Generation:
 - a. Use ITE factors or substantiate any difference,
 - b. AM and PM peak hours and daily, and
 - c. Take into account other surrounding developments.

2. Trip Distribution:

Percent distribution of site traffic by different land uses (i.e., office, hotel, residential, etc.) for major approaches to the site.

3. Traffic Assignment:

Assignment of site traffic for both AM and PM peak hours at major intersections and site drives. This may include non-site traffic, factored for growth and/or site traffic from other surrounding committed and/or potential developments. Assignments should also be for different development phases if the project is to be phased out beyond a five (5) year period.

C. ANALYSES AND RECOMMENDATION:

1. Analyses and recommendations to minimize the impact on surrounding streets and intersections.
2. Analyses and recommendations related to the location and widths of site access drives.
3. Analyses and recommendations related to internal circulation.
4. Analyses and recommendations related to parking demand and geometry.

Recommendations shall include, but are not necessarily limited to, lane improvements, signalization, medians and signage. All existing signalization must be upgraded, and all new signalization must include Opticom and pedestrian systems.

Section VII

REQUIRED FEES AND GUARANTEES

- A. Letter of Credit Method Guarantee**
- B. Surety Bond Method of Guarantee**
- C. Drawing Requirements**
- D. Miscellaneous Requirements**

SECTION VII

REQUIRED FEES AND ESCROWS

The owner, developer or contractor must guarantee installation and completion of Site Improvements. This can be accomplished in one of three ways: 1) posting a Letter of Credit, 2) provide a Surety Bond, or 3) deposit of a Cash Escrow. Either of these three Escrows must be presented to the Village prior to the Village Engineer signing the Plat to guarantee completion of construction of Site Improvements; including, but not limited to, mass excavation and grading, erosion control, roadway and parking areas, installation of utilities, sidewalks, curb and gutter, etc. - both on and off-site - exclusive of building structures and private landscaping.

The Escrow amount shall be based upon either one-hundred and ten (110) percent of the contract bid amount of Site Improvements, or one-hundred and ten (110) percent of the Engineer's cost estimate for the project improvements. The Village reserves the right to make any necessary changes to the contract or the Engineer's cost estimate to reflect anticipated construction costs if the Village would need to complete the proposed project. Also included in the Escrow amount is a Site Grading fee of five-hundred (500) dollars for each ten-thousand (10,000) square feet, or any fraction thereof, up to a maximum of ten-thousand (10,000) dollars per subdivision or development.

The following list has been prepared to assist the Engineer in computing the Engineer's Estimate, which is used to determine the escrow amount. The following items (onsite and off-site) must be included in the Estimate as well as the quantities, unit prices, and total dollar amounts. The Engineer's Estimate must be signed and sealed by a registered Professional Engineer. However, if the Developer wishes, he may submit a signed contractor's proposal, provided that all of the onsite and off-site items listed below are included and properly itemized:

- All proposed storm sewers, sanitary sewer and watermains. Include all building services.
- All appurtenances for item No. 1, including but not limited to, manholes, valves, valve vaults, fire hydrants, catch basins, buffalo boxes, headwalls, flared end sections, etc.
- All sidewalks and bike paths.
- All driveway aprons.
- Restoration of right-of-way (includes parkway trees and sod).
- All landscaping (items to be included must conform to the approved landscaping plan for the project).
- All necessary paving and curbing. Base course, binder course and surface course must all be listed separately.
- All street lights (if required) along private and public roadways. All parking lot lights must also be included.

- All earthwork required for private and public roadways.
- All labor and materials involved in the soil erosion control plan.
- All traffic control.
- Mass grading for site work.
- Traffic signals (if required).

The procedures for each method of guarantee are set forth below:

A. LETTER OF CREDIT METHOD OF GUARANTEE:

1. The Letter of Credit method requires an irrevocable standby Letter of Credit issued by a bank or other financial institution, meeting the following criteria:
 - a. Member of FDIC or FSLIC.
 - b. The face amount of the Letter of Credit shall not exceed five (5) percent of the institution's capital stock and surplus.
 - c. The institution must be licensed to do business in the State of Illinois.

2. Form of Letter:

The accompanying form of Letter of Credit is the only type that the Village will accept, and must be prepared in the precise format and language.

3. Amendments:

The Village prefers that new Letters of Credit be issued for subsequent project phases or additional work. If amended Letters of Credit are submitted, they should clearly indicate the changes from the initial Letter of Credit, or the scope of the amendment.

4. Term of Letter of Credit

The Letter(s) of Credit shall remain in full force and effect and will not be released for at least one (1) year from the date of issuance.

Irrevocable Standby Letter of Credit

BY

NAME AND ADDRESS OF BANK

BENEFICIARY:

DATE:

VILLAGE OF GLENVIEW

CREDIT NUMBER:

1225 WAUKEGAN ROAD

OPENER'S REFERENCE NO.:

GLENVIEW, IL 60025

PROJECT DESCRIPTION:

BY THE ORDER OF:

WE HEREBY OPEN OUR IRREVOCABLE STANDBY LETTER OF CREDIT ("LETTER OF CREDIT" FOR THE ACCOUNT OF _____ FOR A SUM OR SUMS NOT EXCEEDING A TOTAL OF _____ U.S. DOLLARS (U.S. \$ _____) AVAILABLE BY YOUR DRAFT(S) AT SIGHT ON OURSELVES EFFECTIVE _____ AND EXPIRING AT OUR COUNTERS ON _____. THIS LETTER OF CREDIT IS ISSUED FOR THE PURPOSE OF SECURING AND PAYING FOR THE INSTALLATION OF THE FOLLOWING PROJECT IMPROVEMENTS IN THE PROJECT REFERENCED ABOVE ("THE PROJECT"): INCLUDING:

THE UNDERSIGNED AGREES THAT THIS LETTER OF CREDIT SHALL REMAIN IN FULL FORCE AND EFFECT AND PERTAIN TO ANY AND ALL AMENDMENTS OR MODIFICATIONS WHICH MAY BE MADE FROM TIME TO TIME TO THE PLANS, SPECIFICATIONS AND COST ESTIMATES FOR THE PROJECT, WITHOUT FURTHER NOTICE FROM THE VILLAGE OF GLENVIEW WITH REGARD TO SUCH AMENDMENTS OR MODIFICATIONS. THIS LETTER OF CREDIT SHALL EXPIRE ON THE _____ DAY OF _____. PROVIDED, HOWEVER, THE UNDERSIGNED SHALL NOTIFY THE DIRECTOR OF CAPITAL PROJECTS OF THE VILLAGE OF GLENVIEW AT THE ABOVE ADDRESS BY CERTIFIED MAIL, RETURN RECEIPT REQUESTED, LIMITED TO ADDRESSEE ONLY, AT LEAST SIXTY (60) DAYS PRIOR TO SAID EXPIRATION DATE THAT THE LETTER OF CREDIT IS ABOUT TO EXPIRE. IN NO EVENT SHALL THIS LETTER OF CREDIT OR THE OBLIGATIONS AS SET FORTH HEREIN EXPIRE, EXCEPT UPON SAID PRIOR WRITTEN NOTICE BY THE UNDERSIGNED, IT BEING EXPRESSLY AGREED BY THE UNDERSIGNED THAT THE ABOVE EXPIRATION DATE SHALL BE EXTENDED AS REQUIRED TO COMPLY WITH THIS NOTICE PROVISION.

DRAFT(S) MUST BE ACCOMPANIED BY A WRITTEN STATEMENT SIGNED BY ONE OF THE FOLLOWING ONLY: DIRECTOR OF CAPITAL PROJECTS, FINANCE DIRECTOR, VILLAGE MANAGER OR ACTING VILLAGE MANAGER OF THE VILLAGE OF GLENVIEW STATING THAT ONE OF THE FOLLOWING CONDITIONS HAVE OCCURRED:

1. THAT _____ IS IN DEFAULT: OR
2. THAT THIS LETTER OF CREDIT IS DUE TO EXPIRE WITHIN SIXTY (60) DAYS OR LESS, AND _____ HAS FAILED TO EITHER EXTEND THE EXPIRATION DATE BY AMENDMENT OR TO SUPPLY A REPLACEMENT LETTER OF CREDIT.

EACH DRAFT MUST BEAR UPON ITS FACE THE CLAUSE "DRAWN UNDER IRREVOCABLE STANDBY LETTER OF CREDIT NO. _____" DATED THIS _____ DAY OF _____ 20____.

THE UNDERSIGNED AGREES THAT THIS LETTER OF CREDIT SHALL NOT BE REDUCED IN AMOUNT OR RELEASED, EXCEPT UPON RECEIPT OF A WRITTEN NOTICE BY THE DIRECTOR OF CAPITAL PROJECTS, CERTIFYING THAT THE LETTER OF CREDIT MAY BE REDUCED IN A SPECIFIC AMOUNT. THE OUTSTANDING BALANCE OF THE LETTER OF CREDIT SHALL BE THE FACE AMOUNT AS STATED ABOVE, LESS ANY PRIOR DRAWINGS BY THE VILLAGE AND ANY AMOUNT WHICH IS RELEASED UPON THE FURNISHING OF NOTICE AS STATED ABOVE, PROVIDED, HOWEVER, THAT THE OUTSTANDING BALANCE OF THE LETTER OF CREDIT SHALL NOT BE REDUCED TO LESS THAN TEN (10) PERCENT OF THE INITIAL FACE AMOUNT AS STATED ABOVE, UNTIL THE CORPORATE AUTHORITIES OF THE VILLAGE OF GLENVIEW ACCEPT THE AFOREMENTIONED PROJECT IMPROVEMENTS AND THE DIRECTOR OF CAPITAL PROJECTS NOTIFIES THE DRAWEE BANK THAT THE LETTER OF CREDIT MAY BE RELEASED OR UNTIL THE EXPIRY DATE OF THIS LETTER OF CREDIT, WHICHEVER OCCURS EARLIER.

EXCEPT SO FAR AS OTHERWISE EXPRESSLY STATED HEREIN, THE LETTER OF CREDIT IS SUBJECT TO THE "UNIFORM CUSTOMS AND PRACTICES FOR DOCUMENTARY CREDITS (1993 REVISIONS). INTERNATIONAL CHAMBER OF COMMERCE ISP PUBLICATION NO. 590".

WE HEREBY AGREE THAT DRAFTS DRAWN UNDER AND IN COMPLIANCE WITH THE TERMS OF THE LETTER OF CREDIT MUST BE DULY HONORED IF PRESENTED TO THE DRAWEE BANK ON OR BEFORE _____.

KINDLY ADDRESS ALL CORRESPONDENCE REGARDING THE LETTER OF CREDIT TO: _____, ATTENTION: _____ STANDBY LETTERS OF CREDIT _____. TELEPHONE INQUIRIES CAN BE MADE TO _____, AT (_____) _____ - _____.

AUTHORIZED OFFICIAL

B. SURETY BOND METHOD OF GUARANTEE

1. The Surety Bond method requires issuance of a payment bond by a surety company meeting the following criteria:

- a. Must be authorized and licensed by the State of Illinois to sell and issue sureties.
- b. Must be a Corporate Surety.
- c. Must be approved by the Village.

2. Form of Surety Bond:

The accompanying form of Surety Bond must be prepared in the identical format and language.

3. Amount:

The penal amount of the Surety Bond shall be one-hundred and ten (110) percent of either the bid amount or the engineer's cost estimate of the project site improvements.

4. Term of Surety Bond:

The Surety Bond shall remain in full force and effect and will not be released until all site improvements have been constructed and completed in accordance with Village requirements and the approved plans and specifications.

IRREVOCABLE SURETY BOND

KNOW ALL MEN BY THESE PRESENTS: That _____ as Principal, and _____ as Surety, located

at _____ are firmly bound to the VILLAGE OF GLENVIEW in the penal sum of

Dollars (\$ _____) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors and assigns, jointly and severally, firmly by these presents. This bond is issued for all subdivision improvements or site improvements regarding the (name of the project) _____ to be constructed in accordance with the Village Ordinances, Plans and Specifications approved by the Village Engineer.

THE CONDITION OF THIS OBLIGATION is such that, the Principal has sought approval to develop and construct a (define project) _____ on property located within the boundaries of the Village of Glenview.

NOW, THEREFORE, if the Principal shall well and truly perform said construction of said subdivision or site improvements in accordance with all applicable provisions of the Village Ordinances, Plans and Specifications approved by the Village Engineer, and shall fully indemnify and save harmless the Village from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the Village all outlay and expenses in making good any default, and shall in all respects fully and faithfully comply with all the covenants, terms, conditions and agrees with the Village, then this obligation shall be void; otherwise to remain in full force and effect.

In the event that the Principal fails to install and construct the subdivision or site improvements per the scheduled completion, the Principal shall be considered in default and the Surety shall pay to the Village any amount incurred by the Village to complete, repair, remedy or correct any such defect, up to the aggregate amount of this bond. The Village shall furnish written notice to the Surety of any non-performance or default on the part of the Principal. In the event the non-performance or default is not cured within ten (10) days following the date of Notice being received by the Surety, the Village may proceed to have the work completed. Upon completion, the Village shall present a statement of costs relative to any said corrective work. The Surety shall provide payment in full of the total amount contained in the statement of costs to the Village including all costs and expenses, including reasonable attorney fees, incurred by the Village in enforcing the terms of this Subdivision Bond. In addition, the Surety shall pay all attorneys' fees and other costs reasonably incurred in enforcing collection of the Surety's obligations in the event that the Surety wrongfully fails to honor the Village's demand for payment under the terms of the bond.

This irrevocable Surety Bond shall expire and be discharged only upon completion of all improvements guaranteed herein and upon receipt of written acceptance by the Village Board of Trustees and written certification of the Village Clerk that the bond may be discharged. Upon approval of the Village, however, this instrument may be proportionately reduced as the site improvements are completed.

In witness whereof, this Surety Bond is executed this _____ day of _____, 2004.

Principal:

Surety:

By:

Attorney-in-Fact:

Village of Glenview

By:

Its:

ENG/FORMS & LETTERHEADS/REQUIRED FEES/IR SURETY BOND (8/06)

C. CASH ESCROWS METHOD OF GUARANTEE

An Escrow, in the form of Cash or a Certified Check, may be deposited with the Village, based on one-hundred and ten (110) percent of the Engineer's cost estimate or contract bid cost of all Site Improvements, as well as a Site Grading fee as previously defined.

D. REQUIRED FEES

Prior to signing the Plat of Subdivision by the Village Engineer, the following fees must be paid to the Village by cash or check:

1. A Plan Review Fee equal to one (1) percent of the total cost of Site Improvements, including, with a minimum review fee of two-hundred (200) dollars for the first three (3) lots of a development and an additional one-hundred (100) dollars for each lot greater than three (3) lots in the development, which must be paid at the time of initial review. The minimum plan review fee will be credited toward the total plan review fee calculated on the cost of final engineering for the project. This plan review fee applies to all commercial, multi-family and single family developments.
2. Pavement Inspection Fee is for the Village to hire an independent consultant to test and evaluate public pavement constructed as part of any development. Costs associated with this evaluation shall be borne by the Owner or Developer. For private pavements (including parking areas), the Developer shall provide test reports of new pavements to the Village.
3. Public Signage Fee is the estimated cost is for materials and installation of stop signs, street identification signs etc., by the Public Works Department.
4. Parkway trees as set forth in the Subdivision Code, is for the costs of administration, purchase and installation of parkway trees in single family developments, as well as in multi-family or commercial developments.
5. Site Inspection Fees are based on the following percentages:
 - a. (1) Five (5) percent of sanitary sewer construction costs;
 - b. (2) Four (4) percent of all other construction costs, up to \$500,000; and
 - c. (3) Three (3) percent of all other construction costs greater than \$500,000.
6. A Right-of-Way Fee of ten (10) cents per square foot per month shall be charged to all developers who propose the use of public right-of-way for the construction of private developments.
7. Other Fees are required as applicable.
8. Recaptures are in addition to the above outlined escrows. The Village will collect all monies previously expended either by the Village or another developer for infrastructure

improvements where it has been determined that such improvements directly benefit the proposed development. Said recapture monies will then be returned to the entity that made the improvement.

9. When the Plan Review Fee and Site Inspection Fees (Section VII-D.1 and D.5 above) are based on an engineer's cost estimate, it is the responsibility of the Owner/Developer to substantiate the estimate with actual contract amounts prior to start of the work. If the estimate is higher than the contract cost, the Village will refund the difference to the Owner or Developer. If the contracts are higher than the estimate, the Owner/Developer must deposit the difference with the Village prior to commencement of work.
10. Disbursement of funds shall comply with the following:
 - a. Written requests for payment for work completed on a project are to be received by the VEM no later than seventeen (17) working days prior to the Village Board of Trustees' meeting date for bill approval. (Dates of Village Board meetings will be furnished upon request). The VEM will process the request. A percentage of the requested amount may be withheld depending on the timely progress of work.
 - b. Copies of approved waivers for engineering or project related professional services, labor and materials in the amount of the payout, and a sworn statement of certification of the work completed, must accompany all pay requests to the VEM. Waivers must be signed. Waiver verification is the responsibility of the project Owner or Developer. Payouts shall not be recommended by the VEM for items which waivers of lien have not been received.
 - c. Checks will typically be available the Friday after the Village Board approves the payout. Checks will be mailed, unless an authorized representative requests that the check be held, to be picked up by an authorized representative of the payee.
 - d. Final payment and release of all monies held will be made upon satisfactory completion of all work on the project, after a punch list of problem areas has been compiled and satisfactorily completed, and all public improvements have been formally accepted by the Village Board.
 - e. The VEM will compute and collect all fees associated with the project as part of the escrow process. These fees will be taken out of the escrow as the project progresses.
 - f. The ten (10) percent contingency fund held in the escrow account will not be released until all work has been substantially completed and inspected, and the punch list completed and inspected to the satisfaction of the VEM.
 - g. The Village will pay costs associated from the pavement testing and evaluation and also costs for all street signage, as bills are received. All unused funds will be returned upon completion of the project.
 - h. Contractor's retention monies will not be released unless the owner accepts

responsibility, in writing and notarized, for the maintenance of the improvements until the project is accepted by the Village Board. All punch lists and permits shall be finalized before retention can be released.

E. MAINTENANCE BONDS

An amount equal to ten (10) percent of the amount required in Section VII-A , B or C above shall be held by the Village for a twelve (12) month maintenance guarantee period after the final Certificate of Occupancy, or the completion of all engineering requirements indicated herein, (including as-builts) whichever is the later, to assure that any defects not apparent at that time are corrected. Substantial completion of site improvements shall not be considered for the start of the twelve (12) month guarantee period. Full completion of all requirements is therefore vital to this requirement.

Section VIII

PROJECT INSPECTION PROCEDURES

- A. Site Grading**
- B. Underground Utilities**
- C. Pavement**
- D. General Conditions**

SECTION VIII

INSPECTION PROCEDURES

Inspection of the installation of a development's infrastructure is done to ensure conformance with the engineering plans and specifications as approved by the VEM. The following sets forth the procedures of the VEM:

A. SITE GRADING

All site grading, including swales and excavation of detention/retention areas, shall be done in accordance with the approved engineering plans. Any changes in site grading must be approved in writing by the Village Engineer prior to any changes being performed. Individual lots shall be graded to provide positive drainage from buildings and toward drainage structures. No part of site grading can be assigned from developers to individual homeowners. Positive drainage shall be established for vacant lots or underdeveloped parts of a development whether or not it is intended to be developed in the near future. Final occupancy will not be issued until grading has been approved.

1. The developer shall not be relieved of responsibility for damage to persons or property otherwise imposed by law, and the Village or its officers or agents will not be made liable for such damage, by (1) the approval of final engineering, (2) compliance with the provisions of the approved plans, associated permits or with conditions attached to it by the Village Engineer, (3) failure of Village Officials to observe or recognize hazardous or unsightly conditions, (4) failure of Village Officials to recommend denial of approval for plans or associated permits, or (5) changes approved in writing by the Village Engineer.
2. In order to obtain inspections, the Owner/Developer/Contractor shall notify the Village Engineering Division at least two (2) working days prior to the commencement of any work and prior to the completion of stripping and clearing, rough grading, final grading and final stabilization of the site. All inspections shall be requested by calling 847.904.4320. If an inspection is not made or notification of the inspection is not given within five (5) working days after notice is received by the Village from the Developer/Contractor, the Developer or Contractor may continue work at his own risk, without presuming acceptance or approval by the Village.
3. If at any stage of the grading of any development site, the VEM personnel determines by inspection that the nature of the site is such that further work is likely to imperil any property, public way, water course or drainage structure, or the public health, safety and welfare, the Village Engineer may require, as a condition of allowing the work to continue, that such reasonable "special precautions" be taken as is considered necessary to avoid the likelihood of such peril. Such "special precautions" may include, but not be limited to, a more level exposed slope, construction of additional drainage facilities, berms, terracing, compaction, vegetation for erosion control, control of air-borne particulate matter, etc.

4. Any soil erosion control measures, in addition to those outlined in the plans and which are deemed necessary by the VEM inspector, shall be implemented immediately by the Contractor.

B. UNDERGROUND UTILITIES

1. Where trenches cross proposed roads, the contractor shall backfill and compact with an approved aggregate material per IDOT standards under the supervision of a representative of the VEM. Where trenches cross an existing paved surface, the contractor shall backfill with Flowable Fill which meets IDOT standards for Controlled Low Strength Material (CLSM), Mixture 1.
2. The Contractor shall not backfill around fire hydrants, valve vaults, manholes, bends and other underground fittings or appurtenances until they have been inspected and approved by a representative of the VEM.
3. Contractors are to open and close fire hydrants and watermain valves under the supervision of a representative of the VEM. A water meter and permit must be obtained to use hydrants for construction water.
4. After a watermain has been installed and before the watermain has been placed into operation, the contractor shall “bag” or otherwise cover all fire hydrants. The bags shall not be removed until after the main has become operational. All hydrants shall be installed so as to face the adjacent roadway.
5. The contractor shall, after installation of the watermain system, or parts thereof, pressure test and chlorinate the new system. Individual pressure tests shall be performed for those portions of the watermain from valve to valve. A two hour pre-test must be made and passed by the Contractor before scheduling the pressure test with the Village. The VEM shall be advised, by advance notice of no less than twenty-four (24) hours when the pressure pre-test is to be performed (call 847.904.4320). The main shall then be pressure tested at 150 psi for duration of one hour in the presence of a representative of the VEM. If a scheduled pressure test does not pass because of failure of the Contractor to hold a pre-test, the Village will charge reinspection fees to the Contractor. All other watermain work will be halted until the reinspection fees have been paid.

After a successful pressure test, the watermain shall be chlorinated by gas injection methods only, by a qualified technician. Samples shall be taken on two (2) consecutive working days, Monday through Friday, twenty-four (24) hours after chlorination, and after the main has been flushed. The number of samples taken shall be determined by a representative of the VEM. A Village representative must be present for the pressure testing, chlorination, flushing, and drawing of the sample. The contractor shall bear the costs of these tests and reinspection fees.

If after four (4) samplings, the results do not yield two (2) consecutive satisfactory readings, rechlorination will be necessary.

The watermain system shall be made operational only by the Public Works Water Department after receiving satisfactory test reports from a qualified testing laboratory.

6. Upon completion of the project, the B-boxes will be adjusted to grade, and checked to see if they are operational without altering the shut-off key.
7. Upon completion of the project the contractor shall clean all sewer lines and associated structures. The developer shall bear the cost of all cleaning.
8. The contractor shall make video records of the storm and/or sanitary sewer lines, rotating the camera lens to view all services and connections with a DVD color video record upon completion of the system. The developer shall submit the video record and a typewritten report to a representative of the VEM, prior to requesting refunding site improvement escrow retention monies for sewer work held by the Village. The developer/contractor shall bear all costs for this work.
9. In all cases, it shall be the responsibility of the developer, or his designated representative, to ensure construction of the proposed utility in accordance with the approved plans. If during routine or final inspections utilities are found to be in locations other than approved or not in accordance with the approved plans or the engineering standards, the developer shall cause the utility to be replaced or relocated at the developer's expense. Certificate of Occupancies and/or final acceptance of the public improvements shall not be approved until all proposed utilities are constructed and approved the VEM.

C. PAVEMENT

1. Contractors shall provide the VEM at least forty-eight (48) hours notice before the start of any work; including sidewalk, curb and gutter, PC Concrete and bituminous concrete paving operations. Paving work shall not begin before the subgrade, subbase and/or the base course has been inspected and approved by the VEM (also refer to closeout requirements).
2. Compaction tests of the subbase, base, and surface courses of the pavement shall be made by a qualified testing lab (furnish copies of Certificate of Testing from IDOT, CCHD or testing laboratory which has been pre-qualified by IDOT), and must be made in the presence of a representative of the VEM. Tests and evaluations shall include but not be limited to Soil Borings, IBR determination, Field Density Tests, Concrete Cylinder Tests, In-Place Bituminous Concrete Density Tests, and Plant Inspections as requested by the VEM. The developer/contractor shall bear the cost of this testing. The shape and thickness of the pavement base and subbase must be checked and approved by a representative of the VEM before placement of the next course. Prior to the placement of the surface course, all punch list items generated by the Village Public Works Department and VEM must be completed and approved.

3. The subgrade shall consist of the following:
 - a. Subgrade will be rolled and moisture added (if needed) to ensure compaction of the roadway subgrade.
 - b. A proof roll of subgrade shall be conducted with a standard loaded semi tractor/trailer or tandem wheel dump truck with a minimum weight of not less than 50,000 lbs. All failures shall be corrected before a final proof roll is conducted. A soils consultant shall be onsite during the proof roll to verify the results.
 - c. If the VEM disagrees with the results of the proof roll, a separate test will be scheduled at a later date with a testing consultant of the VEM's choice at the applicant's expense, using either a dynamic cone penetrometer or static cone penetrometer. This method will be used for the acceptance of the subgrade. A one-quarter (1/4) inch deflection in the roadway subgrade is acceptable in isolated areas. If questioned by any party, the area will be checked with either the dynamic cone penetrometer or static cone penetrometer for acceptance. Corrective measures will be the responsibility of the applicant/contractor and additional proof rolls conducted until the subgrade passes.
 - d. A proof roll shall be performed again after a rain or at the VEM's request at any time to assure the above requirements are met.
 - e. Final structure adjustment in paved areas shall be in accordance with "Structure Frame and Grate Adjustment Detail".
4. The aggregate base shall consist of the following:
 - a. Aggregate base course will be brought to within one-quarter (1/4) inch of finished grade for the base course.
 - b. Copies of State of Illinois approved material tickets will be submitted to VEM immediately upon placement of aggregate. There will be no placement of bituminous material until the inspector has approved the base course material.
 - c. The aggregate base will be checked for compliance (with a string line or other approved method) to ensure proper grades.
 - d. The aggregate base will be rolled and moisture added (if needed) to ensure compaction of the base course.
 - e. The applicant/contractor will conduct a proof roll over the proposed base course of the new road with a standard loaded semi tractor/trailer or tandem wheel dump truck. All failures will be corrected before a final proof roll is conducted. A soils consultant will be onsite during the proof roll to verify the results.

- f. If the proof roll fails, the base course and subgrade will be checked and corrected if necessary and a second proof roll performed. If the problem is determined to be with the subgrade, procedures for subgrade will be followed to ensure proper density has been achieved. A maximum one-quarter (1/4) inch deflection in the road base is acceptable. Corrective measures will be the responsibility of the applicant/contractor and proof rolls conducted until the base course passes the proof roll.
 - g. A proof roll will be performed again after a rain or at the VEM's request at any time to assure the above requirements are met.
5. The bituminous asphalt binder course shall consist of the following:
 - a. A bituminous asphalt binder course will be obtained from an IDOT approved asphalt plant.
 - b. A materials consultant will be at the plant for testing of the asphalt materials to ensure the quality of the mix. A copy of this report and material quantity reports will be filed with the VEM inspector within thirty (30) days of placement. Failure to file will result in noncompliance for the sign-off.
 - c. All materials and the placement of the bituminous binder will follow Section 406 of the IDOT "Standard Specifications for Road and Bridge Construction", current edition and all current supplements associated with the Standard Specifications. **Placing of materials will be at the VED's approval in relation to weather and temperature.**
 - d. It is the Applicant's responsibility to have their testing service check for appropriate temperature and density according the IDOT standards.
6. The bituminous asphalt surface shall consist of the following:
 - a. Bituminous asphalt surface will be obtained from an IDOT approved asphalt plant.
 - b. A materials consultant will be at the plant for testing of the asphalt materials to ensure the quality of the mix. A copy of this report and material quantity reports will be filed with the VEM inspector within thirty (30) days of placement. Failure to file will result in non-compliance for the sign-off. It is the Applicant's responsibility to have their testing service ensure that the paving contractor applies the material at the appropriate temperature and density according to IDOT standards. All materials and the placement of them will follow Section 406 in The Standard Specifications for Road and Bridge Construction, current edition and all current supplements associated with the Standard Specifications. **Placing of material will be at the VEM's approval in relation to weather and temperature.**
 - c. Deficient pavement crown (determined by elevation survey) may be corrected by:
 - Removal and replacement of pavement materials.
 - A fee in lieu of the actual deficient quantity at the Village's current unit cost.

D. GENERAL CONDITIONS

1. Contractor is responsible to have a set of “APPROVED” engineering plans with the latest revision date on the job site at all times. Inspectors may require inspection rescheduling if plans are not available onsite.
2. The Contractor shall notify the VEM at least two (2) working days before the initial start of operations and also prior to any temporary stop or resumption of operations.
3. The Contractor/Developer shall provide the Village with periodic, updated schedules for construction.
4. The contractor shall notify the Village and any residence, business or institution at least forty-eight (48) hours prior to any work which will partially or completely block access to such location, indicating the approximate beginning time and duration of the blocked access, provided, however, that in cases involving emergency repairs, the Contractor shall provide such notice as is practical under the circumstances.
5. The Contractor is to verify all elevations prior to the start of construction and if there are any discrepancies, is to notify the VEM inspector and design engineer at once. No work affected by the discrepancy is to be done until the discrepancy is resolved to the satisfaction of the VEM.
6. The Contractor shall be responsible for the installation and maintenance of adequate signs, traffic control devices, and warning devices to inform and protect the public during all phases of construction. The contractor shall take immediate action to correct any deficiencies in traffic protection requirements that are brought to the contractor’s attention by the VEM.
7. The latest revision of the IDOT *Standard Specifications for Road and Bridge Construction*, and the *Standard Specifications for Water and Sewer Main Construction in Illinois*, shall govern construction of proposed improvements, unless superceded by special provisions included in the Engineering Standards.
8. A copy of the Village (stamped) approved plans, specifications and other agencies' permits (i.e., State Transportation Department, Metropolitan Water Reclamation District, Illinois Environmental Protection Agency, etc.) certification statements, weekly erosion control reports, Notice of Intent, Request for Inspection, Incident of Non-Compliance, notice of termination, etc. must be kept on the job site during all phases of construction of the project. Failure to keep these documents on site will prohibit further inspections and approvals of the development.
9. Changes in the engineering plans must be approved by the Village Engineer. A written request, accompanied by (previously approved) revised engineering plans is to be submitted and approved **before** changes are initiated. Submittal of ten (10) complete sets of plans is required.

10. Where conflicts exist between the plans and specifications, the contractor shall notify the Village Engineer who will decide which will govern.
11. Upon completion of the project, the contractor shall submit “as-built” drawings of the completed project. The drawings shall contain all field changes, additions, omissions, elevations, and locations of all improvements.
12. Emergency procedures:

Emergencies may justify non-compliance with normal procedures for securing a permit, construction or inspections:

- a. If an emergency creates a hazard on the traveled portion of the right-of-way or to the general public, the utility shall take immediate steps to provide all necessary protection for traffic on the highway or the general public including the use of signs, lights, barricades or flaggers.
 - b. In an emergency, the utility shall, as soon as possible, notify the Village Engineer / Director of Public Works or his or her duly authorized agent of the emergency, informing him or her as to what steps have been taken for protection of the traffic and/or public and what will be required to make the necessary repairs. If the nature of the emergency is such as to interfere with the free movement of traffic, the Village police shall be notified immediately.
 - c. In an emergency, the utility shall use all means at hand to complete repairs as rapidly as practicable and with the least inconvenience to the traveling public.
 - d. The utility must file in writing with the Village a description of the repairs undertaken in the right-of-way within forty-eight (48) hours after an emergency repair.
13. A Certificate of Insurance shall be filed with the Village by the developer and/or contractor prior to issuance of a construction permit. Each certificate shall be reviewed by the Village and shall bear an endorsement precluding cancellation, reduction, or change in coverage, without providing the Village at least thirty (30) days prior notice thereof, in writing. Nothing contained in the insurance requirements shall be construed as limiting the extent of the developer's and/or contractor's responsibility for payment of damages resulting from construction operations. All certificates of insurance shall include and cover the Village as an additional name insured.
 14. A Hold Harmless and Indemnification Agreement with the Village shall be drafted and notarized by the developer and/or contractor prior to issuance of a construction permit. The agreement must be reviewed and approved by the Village. A typical agreement is as follows:

“The Developer, Contractor and all subcontractors, hereby agree to defend, indemnify and hold harmless the Village of Glenview, their agents, officials and

employees, against all injuries, deaths, losses, damages, claims, suits, liabilities, judgment costs, and expenses, etc., which may accrue against the Village in consequence of granting permission to work within the Village. The developer/contractor shall, at their own expense, appear, defend and pay all attorney fees and all costs and other expenses arising therefore or incurred in connection therewith, and satisfy and discharge any judgment which shall be rendered against the Village, their agents, officials and employees.”

15. Violations of any portion of the engineering standards may be ticketed at the discretion of VEM.

Section IX

CLOSE-OUT REQUIREMENTS

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CLOSE-OUT REQUIREMENTS

The final step in the development process is the acceptance of the infrastructure installed as part of the development. All underground utilities and infrastructure, including pavement and stormwater detention/retention facilities, will not be accepted by the Village until a Certificate of Occupancy has issued for at least ninety (90) percent of the homes or the construction threshold of three (3) years from the date of the site plan approval by the Village Board has been met or at the written discretion of the Village Engineer. After the VEM acknowledges either of these thresholds has been met, the surface course of the roadways shall be placed. It is the intent of the Village to accept the development without visible pavement patches in the final surface course. Depending on the occupancy progress of the development, the VEM will determine the timing of the pavement testing. The pavement testing can be performed before or after surface course placement.

Any maintenance and/or repair to the utilities and infrastructure, from the period of time between installation and Village acceptance, shall be the sole responsibility and burden of the Owner or Developer. In all cases, it shall be the responsibility of the Owner or Developer, or their designated representatives to ensure construction of the proposed utilities in accordance with the design plans. If, during routine or final inspections, utilities are found to be in locations other than approved or not in accordance with the approved plans, the Owner or Developer shall cause the utility to be replaced or relocated at his own expense. Certificates of Occupancies and/or final acceptance of the public improvements shall not be issued until all proposed utilities are constructed in accordance with the approved design plans.

The Village shall have the right, but not the obligation, to enter the development, prior to Village acceptance, at any time it deems necessary, to inspect, repair or maintain the utilities and infrastructure which the developer fails or refuses to maintain, following written notice to do so from the Village.

In the event of performance by the Village or its agents of any such repair or maintenance work, the cost thereof (including both direct and indirect costs) shall be paid by the Owner or Developer, and shall constitute a lien upon the entire real estate which the utilities and infrastructure serve. Such lien may be enforced by the Village, which may also recover all reasonable costs and attorney's fees in doing so, in the manner provided by law or enforcement and foreclosure of liens.

The following outlines major items which must be completed prior to the Village Board's formal acceptance of the project.

- A. The Owner or Developer shall submit a written request for acceptance of the development's infrastructure in advance of the construction threshold set by the Village.
- B. The VEM and other village departments will create a punch list of deficiencies, if any, related to the project. All punch list items must be corrected to the satisfaction of the Village Engineer prior to acceptance of infrastructure improvements.

- C. The Licensed Professional Engineer who has taken responsibility for the project, must submit to the Village Engineer a written certification (with map and calculations based on as-built conditions) of the actual volume of water that can be stored in the stormwater detention/retention facility. Determination of detention/retention volume, including the critical section (and elevation) of the overland flow route, as well as the actual on-site location, will be based on measurements certified by an Illinois Professional Land Surveyor. The stormwater detention/retention facility must also have its final soil stabilization method in place and established.
- D. The MWRDGC's request for final inspection (RFI) will not be signed by the Village Engineer until the detention/retention basin volume certification has been received and the volume is found to be equal to, or greater than, the volume approved for the project. Volume certification must include signed, sealed and dated calculations confirming the design volume and the record volume. Restrictor size and location must also be certified as in-place and of correct size.
- E. All sanitary sewers and storm sewers must be cleaned (including structures), televised, and recorded on DVD and a typewritten report submitted, reviewed and approved by the VEM and Public Works Department. The television camera lens must rotate towards all services to view the condition of the services and connections, which must also be noted in the report.
- F. The pavement condition must be evaluated by a representative of the Village and modified, as necessary, to meet the minimum service life of fifteen (15) years or greater after acceptance. This pavement evaluation shall be done prior to installation of the final surface course.
- G. Copies of final waivers for engineering or project related professional services, labor and materials in the amount of the payout and a sworn statement of certification of the work completed, must accompany any pay request to the VEM. Waivers must be signed. Waiver verification is the responsibility of the project Owner or Developer. Payouts shall not be recommended by the VEM for items for which waivers of lien have not been received.
- H. The final surface course shall not be placed on the streets of the project until all items listed on the punch-list are approved.
- I. The VEM must receive, review and approve "as-built" plans for the project, certified by an Illinois Licensed Professional Engineer or Professional Land Surveyor, which shall indicate, for example, all geometric changes to roadways, parking lots, entrances, all alignment changes to new or adjusted utilities, outlet structures, special structures, overflow structures, normal water surface elevation, high water surface elevation, verification of right-of-way markers/property corners, changes in benchmarks or control points, all valves and buffalo boxes, depth and location of watermains, as well as all sewer wye locations, culverts, pipes, tanks, field tile (abandoned or not), manholes, catch basins, inlets, stubs, sidewalks, driveways, aprons, curbs, berms, channels, swales, utility poles/boxes, mailboxes, etc. All design plan elevations, size, length, width, locations and

materials shall be field verified and revised to show actual conditions. VEM will review the “as-built” drawings and compare them with the approved final engineering drawings. In addition, the Village will conduct any field inspections necessary to ensure the validity of the “as-built” plans. If in the opinion of the Village Engineer there are unacceptable differences in these two drawings, the developer will correct these differences. The approval of the “as-built” plans shall occur prior to release of the Letter of Credit, or other securities. Show revised 100 year flood limits due to as-built conditions. Due to as-built conditions, the VEM may require revised drainage calculations prior to final acceptance and approval of the Village. This may include but not be limited to storm sewers, overflow routes, weir locations, detention, and other critical locations per direction of the VEM.

- J. The Developer must submit a written request to the Village Engineer for the return of all escrow monies not paid out.
- K. Digital submittals must be provided as a MicroStation V8 2004 (DGN) file, with all layers, features, and symbology clearly defined. All cell libraries, color tables, and other symbology should accompany the drawing submission. An Excel file should list an accurate description of levels and their name/number, cell libraries, cells used and any resource or reference files to be attached for each drawing. All files above are to be provided on a CD-ROM or DVD-R. In addition, all drawings and sheets must be provided separately as an Adobe Acrobat 7 (PDF) file on a single CD-ROM or DVD-R.

All digital files must be tied to the Illinois East State Plane Coordinate System North American Datum 1983, using feet as standard units of measurement as directed by the VEM.

- L. The VEM will release the unused portion of the escrow monies upon satisfactory completion of all of the above (and final Village Board acceptance of all) public improvements.
- M. Prior to the final close-out of a project, if there has been the drafting of a recapture agreement for any off-site utilities that were required to be installed to service the development, then it is solely the developer’s responsibility to draft and obtain approval of a recapture agreement by the Village.
- N. After final development close-out, the Village will not consider the recapture agreement.
- O. Prior to final acceptance of a project by the Village, evidence must be provided, in writing, that the Owner(s), Homeowners Association, or other affected parties will be responsible for maintaining the stormwater detention/retention facilities and its appurtenances, and any other privately owned and maintained infrastructure.
- P. Prior to final acceptance, all applicable permit requirements must be completed or finalized. The developer/owner shall submit copies of the finalization of each permit or notification of its present disposition.

- Q. The Engineer/Developer shall submit the final quantities and actual costs of each of the following publicly maintained items:
1. Storm sewers by pipe type, size (inches) and length (feet).
 2. Storm structures by type and size (inches) includes frames and grates.
 3. Sanitary sewers by pipe type, size (inches) and length (feet).
 4. Sanitary structures by type and size (inches) includes frame and grates.
 5. Watermains by pipe type, size (inches) and length (feet).
 6. Water structures by type and size (inches) includes frames and grates where applicable.
 7. Sidewalk and bike path by material type and area (square feet) includes base course.
 8. Curb and gutter by size (inches) and length (feet) includes base course.
 9. Street and parking lots by material type and area (square yards) includes base course.
 10. Right -of -way by area (acres to nearest hundredth).
 11. Other information as requested by VEM.

Section X

DETAILS

<u>File</u>	<u>Detail Description</u>	<u>Additional Required Details</u>
ER-1	Erosion Control Blanket Detail	
ER-2	Flared End Section Erosion Control Detail	
ER-3	Silt Fence Detail	
ER-4	Stabilized Construction Entrance Detail	
ER-5	Straw Bale Filter Detail	ER-8, ER-9
ER-6	Temporary Ditch Check Detail	
ER-7	Temporary Topsoil Stockpile Detail	
ER-8	Filter for Beehive Grate (Type 8) Detail	
ER-9	Filter for Round Open Grate Frames (Type 1) Detail	
C-1	Curb and Gutter For R-3250A Frame Detail	
C-2	B-6.12 Curb and Gutter Detail	
C-3	M-3.12 Curb and Gutter Detail	
C-4	Curb Structure Detail	
P-1	Commercial Driveway Detail	
P-2	Residential Driveway Detail	
P-3	Driveway Replacement Detail	
P-4	Pavement Patch Detail	U-25
P-5	Paver Installation Detail	
P-6	Concrete Walk Joint Detail	
U-1	Structure Frame and Grate Adjustment Detail	
U-2	Chimney Seal Detail	
U-3	Sanitary Manhole Detail	U-5, U-23

<u>File</u>	<u>Detail Description</u>	<u>Additional Required Details</u>
U-4	Drop Manhole Detail	U-5
U-5	Pipe Connection To Structure Detail	
U-6	Storm Manhole Detail	U-5
U-7	Storm Manhole With Restrictor Detail	U-5
U-8	Special Restrictor Storm Structure Detail	
U-9	Catch Basin Detail	U-5
U-10	Type C Catch Basin Detail	U-5
U-11	Inlet Detail	U-5
U-12	Overflow (Weir) Structure Detail	
U-13	Sump Pump Discharge Connection Detail	
U-14	Storm Sewer Piping In "Unsewered Areas" Detail	
U-15	Valve Vault Detail	U-5
U-16	Butterfly Valve Vault Detail	U-5
U-17	Pit-Set Meter Vault Detail	U-5
U-18	Pressure Connection Detail	U-5
U-19	Thrust Block Detail	
U-20	Copper Water Service Connection Detail	
U-21	Watermain Crossing Detail	
U-22	Hydrant Detail	
U-23	Pipe Coupling Detail	
U-24	Utility Trench In Non-Paved Areas-Detail	
U-25	Utility Trench In Pavement Areas Detail	P-4
U-26	Sanitary and Storm Service Detail.....	U-23

<u>File</u>	<u>Detail Description</u>	<u>Additional Required Details</u>
U-27	Pipe Underdrain Detail	
U-28	Casing Pipe Details	
U-29	Storm Sewer Connection to Existing Pipe Detail	
G-1	Lot Grading Detail	
G-2	Legend and Abbreviations	
G-3	Rain Garden Detail	