RESOLUTION FOR THE
UNITED CITY OF YORKVILLE
STANDARD SPECIFICATIONS FOR IMPROVEMENTS

Resolution No. 2004-39

These Standards apply to all infrastructure improvements, and may be modified as needed upon the advice of the City Engineer for special identified situations or conditions. All contractors shall give the City Engineer's office a minimum 48-hour notice of all work and of all required approvals. Failure to obtain these required approvals will require extensive testing, removal and replacement, and a ban for a minimum of one year, from working on the City's right-of-way. Subdividers that have been unfaithful in previous City agreements or developments, or who owe the City payments, will not be allowed to have work performed for them within the public right-of-way. Resident engineering inspection shall be provided through the City Engineer's office, and all such costs shall be charged to the developer by the United City of Yorkville. Required written approvals will not be given until outstanding bills are paid in full. The developer's improvement Letter of Credit or other subdivision securities will also be liable for all such costs. The developer shall be responsible for layout and staking engineering, as well as for record drawings by a registered Professional Engineer. These Specifications for Improvements shall become a part of each and every project approved by the United City of Yorkville, and no other specifications will take precedence.

All improvements included in the United City of Yorkville's Standard Specifications for Improvements, unless noted herein, shall conform to the latest editions of the State of Illinois "Standard Specifications for Road and bridge Construction", the "Manual on Uniform Traffic Control Devices", and all amendments thereto. These documents shall be considered as included within the City of Yorkville Standard Specifications for Improvements, and in the case of a conflict of requirements, the most stringent shall apply.

Prior to starting construction of any project, the developer shall attend a pre-construction meeting and bring a representative from each contractor, a list of all contact persons that can be reached at any time, and a complete schedule of all work to be performed.

No work is to start until the City Engineer and the City Administrator have approved the engineering plans, and the pre-construction meeting has been held. The City Engineer must approve any changes to the approved plans in writing. The City Engineer or a representative will, upon discovery of improper material or installation practices, issue a written document to the contractor, stating that failure to stop and correct such deficiencies will result in the City's refusal to accept such improvements or to issue any further building permits, or to perform required inspections.

The subdivider shall obtain and keep in force insurance coverage for Worker's Compensation, and Employer's Liability, Commercial General Liability, Commercial Automobile Liability, and Umbrella Liability, as described in IDOT's "Standard Specifications for Road and Bridge Construction". The United City of Yorkville shall be named as an additional insured. The insurance coverage shall remain in effect until the City accepts the entire development.

The City will not consider acceptance of the public improvements in a development until it is at least fifty (50) percent built out, or three years after the roadway binder course is paved, whichever is sooner.

Blasting will not be allowed.

September 27, 2004

ROADS

All roadways shall conform to the Illinois Department of Transportation (hereinafter termed IDOT) "Standard Specifications for Road and Bridge Construction", unless modified herein. Horizontal and vertical geometric for right-of-ways and roadways shall conform to the City Standards, listed in Figure 2.

Surface course must not be placed until at least seventy- (70%) percent of the adjacent, private improvements are in place. However, in no case shall the surface course be placed until the binder course has been in place for at least one full winter season. In no case shall the surface course be delayed more than three (3) years after the binder course has been installed.

The subgrade shall be graded and compacted to a hard, uniform surface, matching the slopes of the surface course. It shall have no rutting and shall completely drain to the outer edges. It shall be proof rolled by the contractor with a fully loaded (gravel) 10-cubic yard dump truck and witnessed by and approved in writing by the City Engineer's representative (hereafter termed City Engineer) before proceeding to build the roadway. All unsuitable subgrade shall be removed and replaced with compacted, stable clay material or shall be replaced with compacted CA6 limestone on an approved, non-woven roadway fabric (6.5 oz. minimum). Other geo-grids may be required for certain conditions. All bituminous mixtures shall be delivered and handled so that the bituminous mixture immediately behind the paver screen is at or above 270 degrees F. All asphalt delivered to the project shall be covered when the temperature is at or below 70 degrees F.

All subgrades, other than approved granular subgrades, shall be completely covered with a subgrade fabric (Amoco 4551 or approved equal), with a full 18 inches of overlap. Subgrade Fabric shall also be used on lime-stabilized sub grades. It shall be placed neat and tight, without wrinkles, tears, or defects. Construction equipment shall not be allowed to drive on the fabric until it has a minimum of four inches cover of granular base material. The City Engineer shall approve in writing the subgrade fabric installation prior to placing base material. The subgrade fabric shall extend a minimum of twelve inches beyond the back of each curb.

In areas where undercutting of the subgrade is required, the bottom of the excavation shall be lined with a woven geotextile (Amoco 2002 or approved equal), and backfilled with CA-3 aggregate.

The aggregate base course shall be compacted to a minimum of 95% Modified Proctor and shall be free of all dirt and debris. The course shall be proof rolled, as described above, and witnessed by and approved in writing by the City Engineer before proceeding to build the roadway. A bituminous prime coat shall be applied to the aggregate base course prior to paving.

The bituminous concrete binder course shall be placed only upon the written approval of the City Engineer. All asphalt must be laid utilizing a good-quality, properly-functioning, tracked or wheeled asphalt laying machine, utilizing fully-automatic, electronic sensing control from a stringline for the initial course, and from a minimum fifteen (15') foot ski for all other lifts. The bituminous binder course shall be proof rolled as described above, and witnessed by, and approved in writing, by the City Engineer before proceeding with the surface course. All repairs must be made as directed by the City Engineer. All bituminous pavement patches shall be at least fifty (50%) percent thicker than the pavement being patched.

Also, the binder course shall be bump tested by the contractor, and witnessed by the City Engineer, and all areas exceeding one-half inch (1/2") bumps, including header joints and any patch joints, shall receive a leveling course prior to surfacing. Areas of excessive patching will automatically receive a level course prior to surfacing. Prior to any leveling course or surface course, the streets shall be flushed clean and free of all dirt and debris. A bituminous tack coat will be required. Minimum temperature requirements for laying asphalt will be 5 degrees F higher than that allowed by IDOT specifications.

The bituminous concrete surface course shall be placed only upon the written approval of the City Engineer. All asphalt must be laid utilizing good-quality, properly functioning, tracked or wheeled asphalt laying machine, utilizing fully automatic, electronic sensing control from a minimum 15-foot ski. The surface course shall be bump tested by the contractor, and witnessed by the City Engineer. All bump test penalties specified by IDOT specifications shall be quadrupled, and areas that have an excessive amount of one-half inch (1/2") bumps shall be completely removed and replaced, not just the bump itself. Minimum temperature requirements for laying bituminous surface course will be five (5) degrees F higher than that allowed by IDOT specifications. The surface elevation of the asphalt at the concrete gutter shall be ¼ inch higher than that of the adjacent concrete. All streets shall have a cross slope of 2% from the centerline to the concrete curb.

Areas of segregated binder course and/or surface course shall be removed and replaced at the direction of the City Engineer. Segregated asphalt is the uneven distribution of course and fine materials in the asphalt characterized by pavement textures different from the surrounding material, and can usually be seen by the naked eye.

Pavements constructed from Portland Cement Concrete shall be designed in conformance with American Concrete Pavement Association Publications IS 184P and IS 061P, as amended.

Combination concrete curb and gutter will be required on all roadways. All curb and gutter shall be placed on an aggregate base with a minimum thickness of four inches, but in no case shall the curb and gutter subgrade be higher than one inch below the adjacent roadway subgrade. The height of the gutter flag shall be ten (10") inches, unless directed otherwise by the City Engineer. As noted previously, the roadway subgrade fabric will extend over the curb and gutter subgrade, and beyond by a minimum of twelve (12") inches. The concrete curb and gutter shall be reinforced with two #4 deformed bars, placed three (3") inches from the bottom, spaced twelve (12") inches apart, centered on the total width of the curb and gutter. Machine-placed concrete curb and gutter is to be utilized wherever practical, utilizing a minimum Class X concrete, and a five (5%) percent minimum air-entrainment. Plastizers will be allowed, but chlorides will not. An approved spray-on curing compound with red fugitive coloring shall be applied immediately after finishing, and a sealer, WR Meadows TIAC, or approved equal, shall be applied after seven days. The resident engineer shall be notified of these applications, and proof of purchase, with material specifications, will be required. The concrete curb and gutter shall have the required slip bar expansion joints, and ¾ inch deep sawed contraction joints will be required every 15-20 feet, within 24 hours after each pour. Minor honeycombing on the two outer, vertical surfaces will be allowed, but they must be patched in an approved manner, and witnessed by the City Engineer, prior to backfilling. The clay backfill behind the curb shall be placed and compacted prior to placing aggregate base course.

Roadway extensions and stubs will be required as part of the development, with full improvements where needed, for future growth. Additional lanes, access improvements, traffic signalization, etc., may be required, at the developer's expense. The developer shall reimburse the City for two of each street name and regulatory signs and posts required, and the City will install them. All signs shall be high-intensity, as approved by the Director of Public Works. All pavement markings shall be thermoplastic. The developer shall reimburse the City for the cost of replacing any signs that are missing, stolen, or damaged prior to final acceptance.

The developer, to comply with these Standard Specifications for Improvements, shall improve existing roadways running through, or adjacent to, the development.

Half-streets are discouraged, but where they are necessary, on advice of the City Engineer, the minimum width street will be twenty-four (24') feet from the edge of pavement to the back of curb, on the development side of the roadway. Street lighting, sidewalk, and landscaping on the development side will be required. Temporary tee turn-arounds will be required on all streets stubbed for future roadway extension, as recommended by the City Engineer, and shown on the Final Plat. Paving for the tee will extend from right-of-way line to right-of-way line, to a length of fifteen (15') feet, and two radii of fifteen (15') feet. The pavement beyond the road edge shall be three (3") inches of bituminous concrete surface course, on a ten- (10") inch CA6 aggregate-compacted base, with pavement fabric. Concrete curb and gutter will not be required around the tee, and sidewalk will not required through the tee. The developer extending the street in the future shall remove the excess paving and base, place topsoil, and seed the area disturbed, construct the additional curbing so that the curb and gutter is continuous and uninterrupted from one development to another, and resurface for a distance of thirty (30') feet, including header joints, as approved by the City Engineer.

When a development includes construction along State and County highways, or other heavily traveled road, the developer shall post advance-warning signs. The developer shall consult with the Yorkville Police Department concerning the types and locations of signs, and shall obtain a permit from the appropriate jurisdictional agency prior to erecting the signage.

The City may require the roadway design to include traffic-calming measures. These measures may include, but not be limited to, curvilinear roadway layout, landscaping beyond the requirements of the Landscape Ordinance, traffic tables, and fog lines.

If a development includes the construction or modifications of traffic signals, the new signals shall be designed to have light-emitting diode (LED) lights. The traffic signal shall also have a battery backup device.

All new roadways shall be designed in accordance with IDOT Circular 95-11, or the most recently adopted IDOT standard for the design of flexible and full-depth bituminous pavements. The following minimum design criteria shall be used when applying the design method:

Design period = 20 years	Class II Roadway
Traffic Factor Equations for 80,000 lb. Vehicles	2.0% traffic growth rate
AC viscosity of AC-20	Subgrade Support Rating of Fair

Local Residential Roadways

Local Residential Roadways are intended to carry an average daily traffic (ADT) volume of less than 1000. The right-of-way width shall be 66 feet. The bituminous concrete surface course shall be a minimum of 1.5 inches in thickness of Class "I" Superpave mixture. The bituminous concrete binder course shall be a minimum of 2.5 inches in thickness. The aggregate stone base shall be 10 inches in thickness of clean, crushed CA-6 gradation gravel or limestone. The roadways shall be bound with B-6.12 combination concrete curb and gutter to a width of thirty feet from back of curb to back of curb (B-B). The street radius for all intersecting streets shall be a minimum of thirty feet to the back of curb. The edge of pavement shall be cleaned and sealed with rubberized asphalt cement hot-poured joint sealer.

Estate Residential Roadways

Estate Residential Roadways are intended to carry an average daily traffic (ADT) volume of less than 1000. The right-of-way width shall be 70 feet. The bituminous concrete surface course shall be a minimum of 1.5 inches in thickness of Class "I" Superpave mixture. The bituminous concrete binder course shall be a minimum of 2.5 inches in thickness. The aggregate stone base shall be ten inches in thickness of clean, crushed CA-6 gradation gravel or limestone. The roadway surface shall be 28 feet wide with two 12.5-foot wide through-lanes. The lane edges shall be striped with a four-inch thermoplastic pavement marking. The roadway up to and including the aggregate stone base shall be 32 feet wide to provide a 2-foot wide aggregate shoulder (nominal thickness of at least 12 inches), and also to allow for future widening. Mailbox turnouts will be paved, using driveway specifications to determine thickness.

Minor Collector Roadways

Minor Collector Roadways are intended to carry 1000-2500 ADT. The right-of-way width shall be 70 feet. The bituminous concrete surface course shall be a minimum of 1.5 inches in thickness of Class "I" Superpave mixture. The bituminous concrete binder course shall be a minimum of 4.5 inches in thickness. The aggregate stone base shall be 12 inches in thickness of clean, crushed CA-6 gradation gravel or limestone. The roadways shall be bound with B-6.12 combination concrete curb and gutter to a width of 34 feet B-B. The street radius for all intersecting streets shall be a minimum of thirty feet to the back of curb. Minor collector roadways may provide direct access to adjacent private lots. The edge of pavement shall be cleaned and sealed with rubberized asphalt cement hot-poured joint sealer.

Collector Roadways and Commercial/Industrial Roadways

Collector Roadways are intended to carry 2500-12,000 ADT. The right-of-way width shall be 80 feet. These design standards shall also apply to all roadways directly serving commercial or industrial zoned areas. The bituminous concrete surface course shall be a minimum of 1.5 inches in thickness of Class "I" Superpave mixture. The bituminous concrete binder course shall be a minimum of 4.5 inches in thickness. The aggregate stone base shall be 12 inches in thickness of clean, crushed CA-6 gradation gravel or limestone. The roadways shall be bound with B-6.12 combination concrete curb and gutter to a width of 39 feet B-B. The street radius for all intersecting streets shall be a minimum of 40 feet to the back of curb. Collector roadways shall not provide direct access to adjacent lots in residential-zoned areas. The edge of pavement shall be cleaned and sealed with rubberized asphalt cement hot-poured joint sealer.

Major Collector Roadways

Major Collector Roadways are intended to carry more than 12,000 ADT. The right-of-way width shall be 100 feet. The bituminous concrete surface course shall be a minimum of 1.5 inches in thickness of Class "I" Superpave mixture. The bituminous concrete binder course shall be a minimum of six inches in thickness (2 lifts required). The aggregate stone base shall be 16 inches in thickness of clean, crushed CA-6 gradation gravel or limestone. The roadways shall be bound with B-7.18 combination concrete curb and gutter to a width of 51 feet (four 12-foot lanes) B-B. The City Engineer may require an additional 12-foot center turn lane, as deemed appropriate. The street radius for all intersecting streets shall be a minimum of 50 feet to the back of curb. The edge of pavement shall be cleaned and sealed with rubberized asphalt cement hot-poured joint sealer.

An alternative bituminous base course may be approved by the City Engineer, and B6-18 or B6-24 combination concrete curb and gutter may be required, based upon specific site drainage needs.

Boulevards

Boulevard-style roadways shall have a minimum width of 28 feet B-B for approaches to intersections. The minimum pavement width in other areas shall be 20 feet B-B.

SIDEWALK

Non-reinforced, concrete sidewalks will be required on both sides of all roadways. They shall be a minimum of four (4') feet wide where four (4') feet wide walks now exist, and five (5') feet wide in all other locations. All sidewalks shall be five (5") inches in thickness. They will be a minimum of six (6") inches in thickness across driveway approaches. All sidewalks shall have an aggregate base of CA 7, with a minimum thickness of two inches (five inches across driveway approaches). All concrete shall be Class X, with a minimum of five (5%) percent air-entrainments. Sidewalks shall slope two (2%) percent towards the street. Approved curing and sealing compounds are required, as specified previously for concrete curb and gutter. The back of the sidewalk shall be placed twelve (12") inches from the right-of-way line, unless directed otherwise. The sidewalk shall have a light broom finish. Formed contraction joints are required, at a spacing of five (5') feet. Expansion joint material, one-half inch in thickness, and full-depth, shall be placed every 100 feet. The subgrade for the sidewalk shall be uniform, neat, and compacted to a minimum 90% modified proctor.

Spalling or chips will not be allowed to be patched. All such areas will be removed from contraction joint to contraction joint, and replaced. All sidewalks will be in place prior to acceptance of the public improvements by the City, which includes in front of vacant lots. These areas must be protected during future construction.

No sidewalks are required in Estate-residential subdivisions. However, in the event sidewalks are not provided, a paved trail that abuts every lot must be provided, that meets the City's standards, specifically a ten (10') foot width, with an exit and entrance identification, consisting of two (2") inches of asphalt on eight (8") inches of CA6 aggregate. Dedicated easements at least fifteen (15') feet wide must be provided for the trail.

DRIVE APPROACHES

Drive approaches must be constructed to one of the following:

1. Six inches, minimum of Class X concrete, with a minimum of five (5%) percent air-entrainment, over six inches minimum CA6 aggregate base over a 90% modified proctor compacted subgrade, with curing and sealing treatments, as specified above, under concrete curb and gutter. Expansion joint material, one-half (1/2") thick and full-depth, shall be installed at the curb and at the sidewalk.

2. Two inches, minimum of Class I bituminous concrete surface course, over a minimum base of eight (8") inches of CA6 aggregate over a 90% modified proctor compacted subgrade. The concrete sidewalk will be constructed through the drive approach, and any construction damage to the concrete sidewalk or curb will cause removal and replacement of those improvements. Drive approaches will not be constructed steeper than eight (8%) percent.

3. In Estate-residential subdivisions, all driveways must be paved with brick, asphalt, or concrete, and must have a concrete culvert with flared end sections. Culvert diameter shall be twelve (12") inches or greater, as required by the City.

PARKWAYS AND PARK SITES

All parkways, park sites, and other open spaces shall be landscaped and designed in accordance with the City of Yorkville's Landscape Ordinance and the Park Development Standards, as amended from time to time.

Any existing trees within a development deemed by the Parks Department and Public Works Department to be dead, dying, or of an undesirable species shall be removed by the developer. The developer shall not remove or cut down any trees without the prior consent of the Parks Department and Public Works Department, or as indicated in the approved landscape plan.

STREET LIGHTING SYSTEM

All streets shall have a complete street lighting system designed by a professional engineer. A street light will be required at all intersections, all curves, at all ends of cul-de-sacs, and at a maximum spacing of 300 feet. In Estate-residential subdivisions, street lights shall be required at intersections, and at a maximum spacing of 500 feet, with lights also placed at curves and a he end of dead-end streets. The poles shall be concrete with butt-type foundations. The City Engineer may require a streetlight to be placed at other points, as may be necessary in the public interest in unusual or special conditions. They shall be located at side lot lines, and on the opposite side of the street from the water main, wherever possible, and shall be set two feet from back of curb to face of pole. Occupancy permits cannot be issued until all streetlights in that phase of the development are installed, complete, and operational.

All exterior lighting of private property in new developments shall be designed, located, and mounted at heights no greater than twenty (20') feet above grade for non-cutoff lights, and forty- (40') feet above grade for cutoff lights. The lighting plan, photometrics, and shop drawings for lighting equipment shall be submitted prior to issuance of a building permit. Glare shall be minimized to the extent practical by orienting lights away from the public right-of-way and abutting properties, or by planting vegetation to provide screening. Exterior lighting shall be designed, located, and mounted so that the maximum illumination measured horizontally at the lot line does not exceed one (1') foot-candle.

Light Distribution: Luminaries of the Type II distribution as approved by the Illuminating Engineering Society (herein termed IES) shall be used, except at intersections where Type II or Type IV IES distribution shall be used. The City Engineer may designate the IES Type V distribution luminaries be used in the public interest under unusual or special conditions.

Individual Control: On individual control of lights, the photoelectric control shall be mounted on top of the luminare.

Line Drop: Voltage drop shall be no greater than three (3%) percent from power supply to the last pole, with no wire size smaller than No. Six (6) Type RHH or RHW Underground Service Cable (USC). All streetlights shall operate at 120 volts, except for those on major streets.

Power Supply Location: Connection to the power supply shall be made to comply with Commonwealth Edison Company rules and regulations, as amended fro time to time.

Conduit: All driveways, street, and sidewalk crossovers shall have two (2") inches of HD PVC conduit, used as raceways for underground cable.

Underground Cable: All underground cable shall be direct-buried cable, placed at a depth at least thirty- (30") inches below the normal finished grade. Three cables (Black, White, Green) shall be run from the pole to the power supply. Any underground cable broken more than once prior to Final Acceptance shall be replaced from the power source to the pole or from pole to pole.

Splices: All cable on the underground cable section shall be continuous, and no splicing shall be made underground. All necessary splices shall be made above ground level.

Underground Cable Location: Underground cable shall be installed in a trench not less than two feet from the back of the curb, except that in no case shall the underground cable be installed under the sidewalk.

Grounding: A copper-clad ground rod shall be placed at each pole. The rod shall be minimum 5/8-inch diameter, and ten (10') feet long.

Fusing: All underground feeders shall be fused at or below their rated capacity. Each standard shall contain in-line fuse holders, with proper fusing in series with each underground conductor to protect the luminare located on that pole.

Maintenance Prior to Acceptance: Once streetlights are operational, the Yorkville Public Works Department shall perform normal maintenance, even though the Yorkville City Council has not accepted the streetlight system. Normal maintenance consists of investigating the cause of an outage, and repairing it if the cause is a burned out lamp, fuse, or photocell. All other repairs shall be referred to the developer. The cost of performing normal maintenance prior to acceptance by the Yorkville City Council shall be paid from a "Streetlight Normal Maintenance" deposit established by the developer prior to recording the Final Plat. The deposit shall be $300.00 per pole, or other such amount, as may be determined by the Yorkville City Council, from time to time. If the deposit proves insufficient, the developer shall replenish the deposit within thirty- (30) days of written request by the City Engineer. The Yorkville City Council shall return any unused funds to the developer upon acceptance of the streetlight system.

Streetlight Standard and Bracket: Local streets shall use 906 B19-AD4, American Concrete Company pole and bracket, or approved equal. Luminare shall be mounted 19'9" above the street, shall have a four-(4') foot arm. The pole shall be buried a minimum of five (5') feet below grade and backfilled with crushed CA6 limestone, watered, and compacted around the butt of the pole. The bracket is to be furnished with the pole.

The luminare shall be a General Electric Company No. M2RR1551N2AMS3F, or approved equal with the 1-1/4" side mount built-in ballast. The luminaries shall be fitted with General Electric Company "Lucalox" high-pressure sodium lamps LU 150/55/D, or approved equal, with GE Company ANSI specification "S55" high-pressure sodium ballasts (or approved equal) or American Electric 115 15-S-RN-120-R2-DA-4B.

Major Collector Streets: The lighting pole shall be Stress Crete E340-BPO-G, with Style 210 low rise tapered aluminum davit, or approved equals. The davit outreach length shall be eight (8') feet. The luminare shall be mounted thirty- (30') feet above the street. The pole shall have an embedment depth of five (5') feet, and be backfilled with CA 6 limestone.

The streetlight system shall be operated through controller(s) in ground-mounted cabinets. The controller and luminare shall operate at 240 volts. The controller shall be housed in a pad-mounted Type NEMA 3R enclosure. The exterior of the cabinet shall have a bronze tone powder-coat finish. The approximate dimensions of the cabinet shall be 42"H x 36"W x 12"D. A Com Ed meter socket shall be provided on the exterior of the cabinet.

The manufacturer or distributor shall guarantee streetlight standards, luminaries, ballast, lamps, and cables for their proper use, for one year, from the date of acceptance.

Testing: The subdivider shall manually trigger the photocell in order to have each street light burn continuously for at least 48 hours. During this burn test, amperage readings shall be taken, and must be within ten (10%) percent of the connected load, based on equipment ratings.

Parking Lot Lighting: Parking lots in areas zoned Business, Residential, or Office-Research, shall be provided with lighting necessary to achieve a minimum average of 2.0 foot-candles, as measured across the entire parking lot, and a maximum of 1.0 foot-candles, as measured at the adjoining property lines. Parking lots in areas zoned Manufacturing shall have a minimum average lighting intensity of one foot-candles, per square foot. Lighting shall be designed to avoid casting direct light or glare onto adjacent residential property.

STORM SEWER SYSTEM

A complete storm sewer system shall be required, consisting of closed conduits to an approved storm water storage system. All storm sewers within the public right-of-way and easements parallel to and adjacent to public right-of-way shall be reinforced concrete pipe (RCP), with a twelve (12") inch minimum diameter. Storm sewers in rear yards and side yards may be high-density polyethylene (H.D.P.E.) of a manufacturer and design, to be approved by the City of Yorkville. All roadways will have a system of inlets/catch basins, tied directly to the storm sewer. These storm water collection locations will be on both sides of the street, with a maximum longitudinal flow interval of 300 feet. All such collection points will be an inlet except the last structure before entering a storm sewer main shall be a catch basin with a two-foot sump. Catch basins or open-lid structures shall not be located over the sewer main. All backfill is to be a CA7 aggregate. All storm sewer roadway crossings from structure to structure must be backfilled with CA7 aggregate and completely encapsulated in an approved drainage fabric. In this manner, the curb subgrade, the storm crossings, and the inlets and catch basins create a roadway underdrain system for longer roadway life.

The City may require that storm sewers be constructed along the centerline of individual roadways at certain locations. Those locations shall normally be limited to within 100 feet of the lowest sag vertical curve of a roadway. Where these locations occur within a horizontal curve of the roadway, storm manholes shall be placed at the centerline of individual roadways.

If subgrade conditions are excessively sensitive to moisture or other special conditions, a capped, perforated, plastic underdrain may be required under the curb and gutter. All storm water conduits 12" diameter and larger shall be internally televised in color just prior to City acceptance, and shall be free of defects, sags, dirt, and debris. All non-RCP storm sewers shall also be mandrel tested (similar to sanitary sewer testing) just prior to City acceptance. All parking lots shall be drained internally, and directed by pipe to the storm sewer. Storm sewers shall extend to the limits of the development with proper sizing, as approved by the City Engineer, based upon current and future runoff conditions, to pick up and safely carry through the development any and all upstream bypass flows.

All new homes with basements or crawl spaces shall have a direct, underground conduit to the storm sewer system. Fill-in lots in areas with no storm sewer within 500 feet shall not be required to have this direct connection. Minimum depth of cover for these lines shall be 30 inches. All discharges shall have an approved automatic diverter calve immediately outside the house and a check valve inside the house. Multiple collection lines of four inch and six inch HD PVC will be allowed by an approved design. Terminal and junction points shall be at two-foot diameter precast concrete inlets with open-lid castings. The pipe from the house shall be a 2" minimum HD PVC with cemented joints. The connection to the storm sewer shall be through a neat, tight fitting, bored hole into the concrete pipe. After insertion of the sump pump discharge pipe into the concrete storm sewer pipe, the joint shall be sealed with hydraulic cement. In no case shall the sump pump discharge pipe extend beyond the inner surface of the concrete storm sewer pipe. Connections, however, shall be into a structure wherever practical.

Individual storm sewer services shall not be required in areas of the development where soil and ground water conditions indicate that sump pumps would run very infrequently. If the developer does not wish to install storm sewer services, he shall perform soil borings at regular intervals (300' to 400' grid typical) during the Final Plan preparation stage, to determine soil types and ground water elevations. Boring locations are subject to approval by the City. Each boring shall extend at least 20 feet below existing ground elevations and be referenced to the development benchmarks. If the boring logs show granular soil and also show ground water elevations at least five (5') feet below planned basement floor elevations, then individual storm sewer services shall not be required in that area of the development. During excavation of every basement in that area, the developer shall verify (with City representative present) that the granular soil and deep ground water conditions exist. If either condition is found not to exist at a building location, the developer shall construct a storm sewer service to that building, in conformance with these Standard Specifications.

The design of the storm water collection system shall be for a ten (10) year storm, running just full. The only exception to this is where the receiving storm water system has less capacity and here the new system of conduits shall be designed for a five (5) year event, running just full. The minimum velocity shall be 2.5 fps and the maximum shall be 8 fps. The storm sewer pipe shall have a minimum cover of three (3') feet. Storm sewer manholes shall be five (5') feet internal diameter, constructed of reinforced concrete, and shall be placed at a maximum spacing of 500 feet. Storm sewer manholes may be four (4') feet internal diameter when the largest sewer entering/leaving the manhole is 18" diameter, and the orientation of sewers connecting to the manhole is such that there is at least 12" of precast wall between the openings provided for sewers. The use of adjusting rings is limited in height to eight (8") inches. Inlet and/or catch basin frames and grates shall be Neenah No. 3015, East Jordan No. 7010, or approved equal. Whenever possible, castings for curb drains shall have a fish logo to discourage dumping of oils, pesticides, and other inappropriate items into the storm sewer system.

Where a continuous grade is carried across an inlet or catch basin casting, the open-vaned cover shall be used, Neenah No. R-32868V, East Jordan No. EV-7520, or approved equal. All manhole castings shall be Neenah No. R-1030, East Jordan No. 105123, and Type B cover, or approved equal. All type B covers shall have "City of Yorkville" and "Storm" cast into the top, and shall be concealed pickhole type. All sections of the manholes shall be completely sealed and butyl rope, including the casting. Manholes shall no be allowed in the pavement, curb, gutter, or sidewalk. All flared end sections 15" or larger shall have grates.

In Estate residential developments, a ditch shall be required on both sides of the street, and shall have a minimum profile slope of one (1%) percent (side slope 4:1 on the street side, and 3:1 on the lot side).

For developments ten acres in size or larger, the developer may use computer-based methods to determine stormwater storage volumes. The specific method and parameters used in employing the method shall be subject to the approval of the City Engineer.

For developments less than ten acres in size, the storm water storage system shall be designed utilizing a Modified Rational Method, as described below:

1. Q = (Cm) iA, where a run-off co-efficient or Ca is calculated for the site based upon actual proposed surface coverage. Cm then equals 1.25 times Ca.

2. The following run-off co-efficient shall be utilized as minimums:

Surface	C
Grass	.50
Asphalt/Concrete	.98
Roof	1.00
Detention	1.00

3. The maximum release at the designated 100-year level is 0.15 cfs/acre. The City Engineer shall reduce this allowable release rate where the downstream accepting system is experiencing drainage problems such as the Elizabeth Street swale where all receiving discharges are limited to 0.10 cfs/acre. The outlet structure design shall address the two-year (0.04 cfs/acre) and the 25-year (0.08 cfs/acre) storm control, in addition to the 100-year event.

4. When depressional compensatory storage is provided by increasing the volume of a stormwater detention basin, the maximum allowable release rates of the basin shall be reduced, as directed by the City of Yorkville to approximate the pre-development release of the depressional area, and realize the full storage potential of the enlarged basin.

5. The minimum size restrictor shall be a four-inch by twelve-inch long HD PVC pipe. The design must be designed for easy maintenance and cleaning during a storm event. The discharge shall be directly to a downstream storm sewer if one is available within a reasonable distance. If not, the discharge will be to the surface, with approved energy dissipation and downstream erosion protection.

6. The rainfall intensities to be utilized are those established by the Illinois State Water Survey's Bulletin #70, as amended for the specific City of Yorkville area. In designating the required storm water storage volumes, the maximum value calculated using the various events should be utilized. See Figure 3 for a sample calculation.

7. The storm water storage areas must have containment for twelve inches of additional storm water storage, with an approved calculated overflow area at six inches above calculated 100-year elevation. This overflow shall have an erosion concrete curtain wall, with a minimum thickness of 8 inches, a minimum depth of three feet below grade, and a length to extend a minimum of four feet beyond the limits of the overflow on either end. This wall is not to be formed, but is to be trenched or excavated into natural soil, or into the compacted fill, and is to be finished flush to the ground.

8. Storm water storage areas shall be covered by an easement, including access thereto, such that should the owner not maintain said area as necessary, the City can cause such corrections and bill the owner, including any and all administrative costs.

9. The engineering plans shall have a full sheet dedicated to the soil erosion and sedimentation control requirements for the development, including silt fencing, straw bales, drainage fabric, etc. Failure to properly maintain this system may result in major storm sewer cleaning within the site and in the offset storm system. The City reserves the right to place a hold on all building permits and inspections if the soil erosion and sedimentation control plan is not properly maintained. Keeping the streets clean is part of this plan, and failure to do so will result in these actions. The developer shall establish a Street Cleaning deposit with the City of Yorkville, in the amount of $5000.00. If the streets are not cleaned within 48 hours of a written request by the Director of Public Works, the City shall have the streets cleaned, and subtract that cost from the deposit. The developer shall replenish the deposit to the full amount if it falls to less than $1000.00. The Yorkville City Council shall return any unused portion of the deposit to the developer upon acceptance of the streets.

10. The developer shall establish basins onsite where concrete ready-mix trucks must wash out after delivering their load. Signs shall be posted at each entrance to the development to warn truck drivers of the requirement to wash out at specific sites, and notify them of the fine for non-compliance (up to $100.00 for each offense). Each entrance sign shall include a simplified map of the development, to show the locations of the washout basins in the development. A sign shall also be posted at each washout basin, to identify the site. The developer shall maintain all signs, basins, and appurtenances in good condition until the City accepts the public improvements.

    Washout basins shall be located outside of the public right-of-way, parks, and all public utility easements. They shall be located in relatively low-traffic areas, and be at least fifty- (50') feet from storm drains, open drainage facilities, and watercourses, unless approved otherwise by the City Engineer. Basins shall have a minimum twelve (12") inch thick CA-3 aggregate approach of sufficient width over a woven geotextile fabric, to reduce tracking of mud onto roadways. The washout area shall be contained by an earthen berm, and be at least ten (10') wide by ten (10') long. The maximum depth of a washout basin shall be three feet. When the volume of a washout basin is 75% full, the developer shall remove the hardened concrete and transport it to a legal landfill. Burying waste concrete onsite shall not be permitted.

    The developer shall incorporate the items necessary to comply with this requirement, as well as provisions for maintenance, onto the erosion and sediment control plan sheet. All signage, washout basins, and appurtenances shall be in place before the first building permit is issued.

11. The engineering plans shall have one or more full sheets dedicated to the Final Grading of the entire site. The minimum grade for all grass areas shall be two (2%) percent, except that swale areas may be at one (1%) percent if it is over an approved, piped underdrain. Slopes shall be shown with arrows at all locations from all break points. A grading plan on an 8-1/2" x 11" paper for the actual building must be submitted for each building permit submitted, and will become a part of the building permit. All top of foundation elevations will be a minimum of two (2') feet, and a maximum of three (3') feet above the street centerline elevation, measured at the center of the lot in question, unless the City Engineer directs otherwise, based on site-specific conditions. Drives must be at a minimum slope of two (2%) percent, and maximum slope of eight (8%) percent towards the curb flow line from the garage. When the forms for the foundation are ready to pour, a top of foundation elevation and location certification of a registered surveyor or engineer, as approved by the building inspector, is required prior to pouring the concrete into the forms. The tolerance here is 0.15 feet lower and 0.5 feet higher, and behind all applicable setback and easement lines.

12. Requests for an occupancy permit must include an as-built grading plan, signed and sealed by a registered land surveyor, showing the original, approved grades and slopes, along with the actual grades, just prior to the occupancy permit request. The actual grades must fall within a tolerance of 0.15 feet in order to receive an occupancy permit. Top soiling and seeding or sodding, if applicable, must be in place prior to the final grading plan. All City-incurred costs of reviewing these grading plans shall be the responsibility of the developer. Note that specific building codes, ordinances, and permitting procedures, which may be established by the United City of Yorkville, shall supersede these requirements.

13. General grading and landscaping of the storm water areas shall be designated according to the Park Development Standards, Landscape Ordinance, and these Standard Specifications. The City may require that storm water detention and retention facilities, as well as grading, landscaping, and stormwater collection systems, incorporate currently acknowledged Best Management Practices to improve storm water quality. These may include, but are not limited to, naturalized detention basins, bio-swales, low impact design standards, perforated storm sewer, designs that reduce the degree of connected impervious areas, designs that encourage infiltration of stormwater, etc.

    Wet ponds shall have a maximum allowable depth of two feet between the normal water level and the high water level corresponding to the Ten-Year Frequency Storm. The City may require wetland-type plantings and appropriate grading around the perimeter of wet ponds.

    The developer shall provide a soil report, prepared by a licensed professional engineer, to determine whether or not lake lining will be required. Vertical or nearly vertical edge treatment will require an approved method, allowing a child to easily climb out of the water.

    Storm sewers discharging to a stormwater basin shall be designed such that the sewer invert at the discharge point is no lower than 6" below the normal water level of the basin, and the top of sewer is no lower than the ten-year high water level of the basin.

14. Storm water storage basins shall operate independently of any watercourse or water body receiving the discharge from the basins. Bypass flows from upstream areas should bypass the storm water storage facility, where practical. The entire development shall be examined under the premise that all storm sewers are blocked and full when a 100-year event occurs, and the development can pass these flows without flooding homes. All overflows are to be contained within the right-of-way, or where absolutely necessary, through special drainage easements. All buildings shall have the lowest water entry a minimum of 18 inches above the elevations determined for this bypass situation.

15. Storm water detention shall not be required under the conditions listed below. The City reserves the right to require detention on any parcel of land if special circumstances exist, and to require that sewer be constructed as necessary, to carry away the storm water.

    a) Proposed development or re-development of the existing lots zoned single-family detached, or duplex residential, less than 2.5 acres in gross area.

    b) Proposed development or re-development of existing lots zoned other than single-family detached or duplex residential, that are less than 1.25 acres in gross area.

WATER SYSTEM

1. All water mains shall be Class 52 ductile iron pipe, conforming to the latest specification requirements of ANSI A21.5.1. Mains shall be cement lined, in accordance with ANSI A21.4. Fittings shall conform to ANSI 21.10. Gate valves shall be resilient wedge type, conforming to the latest revised requirements of AWWA specification C509. All water mains are to be polyethylene wrapped. Main line valves 10" diameter and larger are to be installed in a vault. Smaller main-line valves shall either be installed in a vault, or have a Trench Adapter valve box, similar to those used at fire hydrants. No vaults or valve boxes shall be in the pavement or sidewalk.

2. Water services up to 3" diameter shall be type "K" copper, conforming to the latest revised specification requirement of ASTM B88. Minimum size for residential units shall be one inch in diameter. Corporation stops shall be McDonald No. 4701, Mueller H-15000, or Ford F-600. Curb stops shall be McDonald No. 6104, Mueller H-15154, or Ford B22-333m, with Minneapolis patter B-boxes, similar to McDonald N.5614 or Mueller H-10300.

3. Minneapolis type B-boxes shall be installed in the right-of-way, but not in the sidewalk or driveway.

4. Fire hydrants shall be one of the following:

    1. Clow F-2545 (Medallion)
    2. Mueller A-423 Super Centurian
    3. Waterous WB-67-250

    Hydrants shall have a 5-1/4" main valve assembly, one 4-1/2" pumper nozzle, and two 2-1/2" hose nozzles, with national standard threads, a national standard operating nut, and above ground break flange. The installation of the hydrant shall conform to AWWA 600 standards. Auxiliary valve boxes shall either be Trench Adapter Model Six by American Flow Control, Clow F-2546 with F-2493 cover, or approved equal. For valve boxes other than those by American Flow Control, the box shall be attached to the hydrant barrel with grip arms, as manufactured by BLR Enterprises, or approved equal.

5. Inspections and Installation: All water mains shall be designed and installed in accordance with the Standard Specifications for Water Mains in Illinois. Upon completion, water mains shall be subjected to hydrostatic pressure test of 150-psi average for up to 4 hours. Allowable recovery shall conform to the Standard Specifications for Water & Sewer Main Construction in Illinois. The water operator in charge or person authorized by the water operator in charge shall be present during all testing. The developer shall use the pressure gauge supplied by the City for the test.

6. New water main shall be disinfected in accordance with AWWA standard C601. Water will be tested to assure that 50 mg/l of CL2 is in disinfected water. Sampling shall be taken by water operator in charge or persons authorized by the water in charge. Water must pass two consecutive days of sampling tests by a state approved lab.

7. Water mains shall be minimum eight inches internal diameter, with a cover of five feet, six inches below finished grade. Watermain stubs to hydrants shall be at least six inches internal diameter. City water mains and hydrants shall be placed of the North and West sides of the streets, unless approved otherwise the City Engineer. Valves shall be installed each second consecutive hydrant, at intersecting lines, and other locations as required, such that a minimum number of services will be affected during a main isolation.

Fire hydrants shall be installed throughout the subdivision at each intersection and at intervals not exceeding the requirements of two fire hydrants serving any point of any building, or 300 feet along the roadway, whichever is more stringent. Special conditions may dictate a closer spacing, as approved. Fire hydrants shall be located on the property line, except at corners, and shall be set two feet minimum and three feet maximum from the curb back to the face of the pumper nozzle. Where there is no curb and gutter, the face of the pumper nozzle shall be between 18 inches to 20 inches above finished grade line (sidewalk to curb).

Base elbow of hydrant shall be properly thrust blocked, and shall be provided with clean, washed CA7 aggregate and polyethylene covering. All hydrants and any adjustment fittings shall receive one field coat of red paint, as recommended by the manufacturer, prior to final acceptance.

8. All tees, bends, fire hydrants, and valves shall be adequately blocked with pre-cast blocks and poured in place thrust blocking against undisturbed earth.

9. Services shall be equipped with corporation stop, curb stop, and buffalo box. The buffalo box shall be set in the parkway, on the centerline of the property, approximately centered between the back of sidewalk and the adjacent right-of-way line. Service trenches beneath or within two feet of proposed driveways, sidewalks, or other pavements shall be backfilled full-depth with aggregate. Except as permitted below, the underground water service pipe and the building drain, or building sewer, shall be not less than ten feet apart horizontally, and shall be separated by undisturbed or compacted earth. The water service pipe may be placed in the same trench with the building drain and building sewer if the conditions listed below are met:

    A. Local conditions prevent a lateral separation of ten feet;
    B. The bottom of the water service pipe at all points shall be at least 18 inches above the top of the sewer line at its highest point. All water and sewer services must be inspected an approved by the building inspector prior to backfilling.
    C. The water service pipe shall be placed on a solid shelf, excavated at one side of the common trench, and shall have no joints from the buffalo box to the water meter inside the house; and
    D. The material and joints of sewer and water service pipe shall be installed in such a manner, and shall posses the necessary strength and durability to prevent the escape of solids, liquids, and gasses there from under all known adverse conditions, such as corrosion, strains due to temperature changes, settlement, vibrations, and superimposed loads.

10. Depth of bury shall be 5'6" below finish grade. No joints will be allowed between the corporation stop and the curb stop.

11. All watermain shall be looped and double fed, and shall be extended to the far limits of the development, and in size appropriate for future development, as directed by the City Engineer. Recapture and over-sizing may be applicable.

12. The developer shall reimburse the City of Yorkville for the cost of water to fill and test new watermains, and also for the cost of laboratory tests after chlorination. The water cost shall be at the bulk rate charged by the City of Yorkville at that time. The volume of water shall be calculated as the volume of two and one-half times the lengths and diameters of new watermains.

13. Watermain proposed to cross existing city streets shall be constructed by directional boring. Open-cut construction shall not be allowed without consent from the Public Works Director.

14. Connections to existing watermains shall employ line stops to minimize the disruption of service to existing residents.

SANITARY SEWER SYSTEM

A complete sanitary sewer system is required for all new development. The minimum internal size of sanitary sewer main shall be eight inches in diameter. The top of the sewer main shall be a minimum of three feet lower than the lowest floor elevation at all service connection locations, but not less than eight feet below finished grade, wherever possible. Should the sewers serving a particular development not be deep enough to serve the basement, as noted above, then overhead plumbing will be required. However, all levels of the building must be served by gravity, with only the below-grade levels being served by a pump unit. The City Engineer may require that certain buildings not have subgrade levels due to special situations.

The sanitary sewer shall be extended to the development's far extremes, as directed by the City Engineer, for proper and orderly growth. The city Engineer will also direct the sizing and grades for the sewer, so as to fit the overall plan for the City. The City strongly discourages the use of lift stations, but if the City Engineer approves the use of a public lift station, the following shall be required as a minimum:

A. The pumps shall be submersible, with a back up pump and well-designed wet well.

B. The station building shall be a brick structure with conventional-pitched roofing and paved access. The building shall comply with all International Building Code regulations, and shall be heated and ventilated. The subdivider shall follow normal building permit procedures, and pay the normal fees for construction of the lift station building.

C. The unit will be equipped with a back-up power source, utilizing natural gas as a fuel, and can operate on manual or fully automatic mode, complete with a variable exercise mode.

D. The motor control center shall have a solid-state duplex logic. Sewage level in the wet well shall be measured with a pressure transducer. A dial-out alarm system matching that currently in use in the City shall be provided.

E. The City Engineer must approve any and all lift stations, and may require other improvements.

F. There shall be good-quality noise control, and all electronic components shall be explosion-proof.

G. Force mains shall be sized to carry the initial, intermediate, and ultimate flow rates from the tributary area, at a velocity of between 3.0 and 6.0 feet per second. Material shall be watermain quality Ductile Iron with polyethylene encasement. Gate valves in vaults shall be constructed in the force main at intervals not exceeding 600 feet, to allow quick isolation in the event of a leak. Blow-off valves in vaults shall be constructed at high points in the force main, and shall discharge to sanitary sewers, where possible. Force mains shall be tested at 150-psi for two hours, similar to watermain testing.

H. The sub-divider shall maintain an inventory of each size and type fuse, relay, and other plug-in type devices used in the lift station motor control center, as recommended by the manufacturer. These items shall be housed in a wall mounted metal cabinet. The subdivider shall also supply a heavy-duty free standing metal shelf with not less than square feet of shelf space, and one (1) fire extinguisher rated for Type A, B, and C fires.

I. The sub-divider shall provide start-up training to the Public Works Department personnel, and shall provide three sets of Operations and Maintenance Manuals for all equipment at the lift station.

J. Underground conduit shall be heavy-wall PVC.

K. The exterior of the wet well shall be waterproofed. The City may require the wet well to have a minimum internal diameter of up to eight feet.

Sewer construction cannot start until the Illinois Environmental Pollution Agency (IEPA) has notified the City Engineer that approvals have been secured. Sanitary sewer pipe shall be PVC plastic pipe, with a minimum SDR 26. All pipe and fittings shall be pressure rated in accordance with ASTM D-2241 and ASTM D-3139 (per AWWA C-900) for sizes 6-15 inches. Solvent joints are not permitted.

All public sanitary sewers will be air and mandrel tested (7-point minimum) by the developer, at his expense, under the supervision of the City Engineer. One copy of the report shall be forwarded to the Yorkville-Bristol Sanitary District, and one report shall be forwarded to the City Engineer.

All testing will be done in conformance with the "Standard Specifications For Water and Sewer Main Construction in Illinois", current edition.

All public sanitary sewers shall be internally televised in color and recorded on videotape and written log by the developer, at his expense, under the supervision of the City Engineer, to ensure that the sewers are straight, unbroken, tight, and flawless. There must be good-quality lighting for a sharp and clear image of all sewer segments. Poor quality images will result in re-televising the system, at the developer's expense. The videotape must clearly mark the segment being televised through manhole numbering, and the image must clearly identify the footage as it progresses through the pipe. One copy of the complete videotapes and written log shall be forwarded to the Yorkville-Bristol Sanitary District, and one complete set shall be forwarded to the City Engineer.

All manholes will be required to be internally vacuum tested by the developer, at his expense, under the supervision of the Engineer. This test will check the integrity of the complete structure, from the invert to the casting, including all adjusting rings. One copy of the test results shall be forwarded to the Yorkville-Bristol Sanitary District, and one copy shall be forwarded to the City Engineer. Vacuum testing of each manhole shall be carried out immediately after assembly backfilling, and rough grading, and shall be witnessed and approved by the City Engineer. All lift holes shall be plugged with an approved non-shrinking grout. No grout will be placed in the horizontal joints before testing. All pipes entering the manhole shall be plugged, taking care to securely brace the plugs from being drawn into the manhole. The test head shall be placed at the inside of the top of the casting and the seal inflated in accordance with the manufacturer's recommendations. A vacuum of ten inches of mercury shall be drawn and the vacuum pump shut off. With the valve closed, the time shall be measured for the vacuum to drop to nine inches. The manhole shall pass if the time is greater than 60 seconds for a 48-inch diameter manhole, 75 seconds for a 60-inch manhole, and 90 seconds for a 72-inch manhole. All manhole castings shall be Neenah No. R-1030 frame, East Jordan No. 105123, and Type B cover, or approved equal.

If the manhole fails the initial test, necessary repairs shall be made with a non-shrink grout, while the vacuum is still being drawn. Retesting shall proceed until a satisfactory test result is obtained. If the rim of a sanitary manhole needs to be reset or adjusted after successful vacuum testing, but before the expiration oft eh one-year warranty period, it shall be sealed and adjusted properly in the presence of the City Engineer. Failure to do so will require the manhole to be vacuum tested again.

All manhole frames shall be Neenah No. R-1030, East Jordan No., 105123, or approved equal, with Type B covers. All Type B covers shall have "City of Yorkville" and "Sanitary" cast into the lid, and shall have concealed pick holes with a machined surface and watertight rubber gasket seals. All manhole segments, including the frame and adjusting rings, shall be set with butyl rope joint sealant. Manholes shall be minimum four-foot diameter, and shall not be located in pavement, curb, gutter, or sidewalk.

All sanitary sewer manholes shall be provided with approved cast in place rubber boots (flexible manhole sleeve), having a nominal wall thickness of 3/16" with a ribbed concrete configuration and with stainless steel binding straps, properly sized and installed for all conduits.

All manholes shall be reinforced precast concrete, and shall be located at intersections and spaced at a maximum interval of 300 feet, except that a closer spacing may be required for special conditions. The maximum allowable amount of adjusting rings shall be eight inches in height using as few rings as possible. All manholes shall be marked at the time of construction with a four-inch by four-inch hardwood post neatly installed vertically and with a minimum three-feet bury and a minimum four-foot exposed. The top one-foot of the post shall be neatly painted white.

Wells and septic systems are allowed in Estate-residential developments that are not within 250 feet of water and/or sewer service. When each lot is within 250 feet of water and/or service, that lot may maintain their septic and/or well only until failure of the septic or well. At that time the lot must, if within 250 feet of the sewer and/or water line hook-up to the sewer and/or water, as the case may be, connect to the City utilities at the lot owner's sole expense. After connection to the City Sanitary Sewer System, individual septic fields shall be abandoned by pumping out the tank, knocking in the cover, and filling with dirt or stone in accordance with Health Department regulations.

TRAFFIC STUDY

A traffic study may be required, and shall include:

1. Levels of service for existing conditions;
2. Levels of service for post-construction conditions;
3. All calculations shall be conducted according to the "Highway Capacity Manual";
4. Recommendations as to additional/limited access, additional lanes, signalization, etc.

If the City of Yorkville requires a traffic study for a development, that study will be contracted for by the City, and paid for by the developer. The developer shall establish a Traffic Study deposit with the City of Yorkville, in an amount to be determined by the City Engineer. The City shall return any unused portion of the deposit to the developer upon approval of a Final Plat or Site Plan.

If the land use plan of the development changes during the approval process, the developer may be required to make additional deposits to fund re-analysis and revisions to the Traffic Study.

The need or requirement for a traffic impact study shall be determined during the concept or preliminary planning stage of the proposed development. The developer/subdivider shall meet with City of Yorkville officials during one of these stages for the purpose of determining the traffic study requirements. When the City of Yorkville requires that a traffic study be prepared based upon the above, the study shall include, but not be limited to, addressing the following issues:

INTRODUCTION: A general description of the proposed development, including it's size, location, the political jurisdiction in which the site is located, the boundary limits of the study area, and any other information needed to aide in the review of the development's traffic impacts.

PROJECT DESCRIPTION: A description of the existing and proposed land uses of the development. If alternative land uses are being proposed, the highest trip generation uses shall be assigned for each land use.

SITE ACCESSIBILITY: A clear and concise description of the proposed ingress/egress points to the proposed development, including a sight distance analysis.

EXISTING EXTERNAL ROADWAY NETWORK: A description of the existing external roadway networking the vicinity of the proposed development, to include functional classification, primary traffic control devices, signalized intersections, roadway configurations, geometric features (curves and grades), lane usage, parking regulations, street lighting, driveways servicing sites across from or adjacent to the site, and right-of-way data. The area of influence shall be determined by the traffic generated from the site, the trip distribution of traffic, and the trip assignment of the traffic generated by the development over the surrounding area road network.

EXISTING AM, PM, & TOTAL DAILY TRAFFIC VOLUMES: Existing AM, PM, and total daily traffic volumes for access driveways (if existing), intersections, and the roadway network in the site vicinity shall be determined and displayed on a graphic(s) in the final report. To determine AM and PM existing traffic volumes, machine counts and/or manual counts shall be conducted during a three-hour period of the morning, between approximately 6:00 AM to 9:00 AM of an average or typical weekday, and also between approximately 3:00 PM to 6:00 PM, on an average or typical weekday. Peak hour counts may be required on Saturday and/or Sunday, depending on the proposed land use. All AM and PM peak hour counts shall be recorded and summarized in fifteen-minute increments, and be included in the Appendix of the final report. Manual counts shall include vehicle classifications, i.e. passenger cars, single-unit, multi-unit trucks and buses. Traffic counts shall show both entering and exiting traffic at the proposed access points (if existing), in addition to turning and through traffic movements at critical intersections.

TRIP GENERATION RATES AND VOLUMES: Trip generation rates and volumes for each type of proposed land use shall be determined for the AM and PM peak hours, and total daily volumes may be required on Saturday and/or Sunday, depending on the proposed land use. The trip generation rates shall be calculated from the latest data available contained in the Institute of Transportation Engineer's "Trip Generation Manual". If trip generation rates for a specific land use are not available from the "Trip Generation Manual", the United City of Yorkville shall approve the substitute rates.

SITE-GENERATED TRIP DISTRIBUTION & ASSIGNMENT: The most logically traveled routes in the vicinity of the development shall be used for trip distribution and assignment purposes. The directional distribution of site-generated traffic approaching and departing the development should be shown in both graphic and tabular form. All assumptions used in the determination of distribution and assignment shall be clearly stated.

EXISTING, PLUS SITE-GENERATED TRAFFIC VOLUMES: Existing, plus site-generated traffic volumes for the AM and PM peak hours, and total daily traffic for access drives, intersections, and the roadway network in the site vicinity shall be determined and displayed on a graphic(s) in the final report. Traffic volumes shall show both entering and exiting traffic at the proposed access points, in addition to turning and through traffic movements at critical intersections.

FUTURE TRAFFIC (EXISTING, PLUS SITE-GENERATED) VOLUMES: Future traffic (existing, plus site-generated traffic volumes) for the AM and PM peak hours, and the total daily traffic for access drives, intersections, and roadway network in the site vicinity shall be determined and displayed on a graphic(s) in the final report. Projected increases in the external (non site-related) roadway traffic must also be determined. The selection of a horizon year for which traffic operation conditions are to be characterized may be considered as the date full build-out and occupancy is achieved. If the project is a large multi-phased development in which several stages of development activity are planned, a number of horizon years may be required, that correspond to the bringing on line of major development phases. Horizon dates should be times to coincide with major stages of the overall project, or to coincide with increments of area transportation system improvements.

INTERSECTION CAPACITY ANALYSIS: Proposed access driveways and influenced intersections shall be subject to an existing, plus projected, capacity analysis. Projected traffic conditions shall include the effects of any committed developments within the influenced area. The existing and projected levels of service derived from the analysis shall be used to aid in the evaluation of design and operation alternatives of the access driveways and influenced intersections. The capacity analysis shall be in accordance with the techniques described in the most recent edition of the Transportation Research Board's "Highway Capacity Manual", Special Report 209.

SIGNALIZATION WARRANTS: If it is anticipated that the development's driveway(s) or existing external non-signalized intersections will satisfy signalization warrants, a warrant analysis shall be conducted, using the projected volumes determined from the trip generation. The results of such an analysis shall be tabulated in the traffic impact study.

CONCLUSIONS AND RECOMMENDATIONS: Clear and concise descriptions of the findings shall be presented in the final report. These findings shall include all recommended improvements for access facilities, internal roadways and intersections, and external roadway and intersection improvements.

DRIVEWAY AND PARKING LOT PAVING

ALL DRIVEWAYS AND PARKING LOTS SHALL BE PAVED AS PER THE FOLLOWING SPECIFICATIONS:

1. **ASPHALT:**

   A. RESIDENTIAL

   Two-inch I-11 bituminous concrete surface, over eight-inches (minimum) of compacted CA6 limestone or crushed gravel.

   B. COMMERCIAL/INDUSTRIAL

   Three-inch I-11 bituminous concrete surface, over ten-inches (minimum) of compacted CA6 limestone or crushed gravel.

2. **CONCRETE:**

   A. RESIDENTIAL

   Six-inch Class X, over six-inches (minimum) of compacted CA6 limestone or crushed gravel.

   B. COMMERCIAL/INDUSTRIAL

   Eight-inch Class X, over eight-inches of compacted CA6 limestone or crushed gravel.

3. **PAVING BRICK:**

   A. RESIDENTIAL

   Paving brick over one inch of sand and eight inches of compacted CA6 limestone or crushed gravel.

4. **SEALCOAT:**

   A. COMMERCIAL/INDUSTRIAL

   An A3 seal coat, as defined by the IDOT's Standard Specifications for Road and Bridge Construction, may be allowed on areas behind the building, when used as a temporary surface, not to exceed three years, after which it must be paved to the above specifications. The same base should be ten inches (minimum) of compacted CA6 limestone or crushed gravel.

This Resolution shall be in full force and effect form and after its due passage, approval, and publication, as provided by law.

Passed and approved by the Mayor of the United City of Yorkville, Kendall County, Illinois,

This 12 day of Oct, 2004

Mayor

Passed and approved by the City Council of the United City of Yorkville, Kendall County, Illinois,

This 12 day of October, 2004

ATTEST:

City Clerk

SEAL

RICHARD STICKA	Y	WANDA OHARE	Y
VALERIE BURD	Y	LARRY KOT	Y
MARTY MUNNS	Y	PAUL JAMES	—
JOE BESCO	Y	ROSE SPEARS	Y