

CITY OF LEAWOOD, KANSAS
PUBLIC WORKS IMPROVEMENT CONSTRUCTION STANDARDS

The intent of the Public Works Improvement Construction Standards, adopted by the City of Leawood, is to ensure the standardization and integrity for all Public Works improvement projects, including design, construction, and materials.

The Construction Standards, Specifications and other pertinent data contained in this document are to be utilized and adhered to as though fully included in all construction plans for streets, storm sewers, street lighting and sidewalks. The Title sheet for all construction plans shall note that all work shall comply with this Document.

The Construction Specifications for the City of Leawood shall be the following: all applicable standards and specifications for the City of Leawood, all applicable standards and specifications for the State Road and Bridge Construction, Kansas Department of Transportation, and all amendments thereto. Design criteria of the City of Leawood include the following:

- The most current addition of A Policy on Geometric Design of Highways and Street (AASHTO).
- Division II Section 2600 and Section 5600 of the Kansas City Metropolitan Chapter of the American Public Works Association's Storm Sewer Specifications and Standards, and all amendments thereto.
- Hydraulic Performance of Set Back Curb Inlets prepared by Dr. Bruce M. McEnroe and Reuben P. Wade, Department of Civil and Environmental Engineering, University of Kansas, July 1998. Capacity for sizes not shown may be interpolated from the figures.

These shall be a part of all Construction Plans as though fully set forth therein.

Engineers and contractors preparing construction plans or performing the construction are required to have and to utilize those applicable standards and specifications at all times while work is being performed. Copies of the Public Works Improvement Construction Standards can be obtained at the Department of Public Works, Leawood City Hall, 4800 Town Center Drive, Leawood, Kansas, for a nominal fee.

In accordance with various Federal and State civil rights legislation, the City of Leawood does not discriminate against individuals regardless of race, ethnicity, color, religion, gender, national origin, age, marital status, medical condition, or disability.

LEAWOOD PUBLIC WORKS DEPARTMENT
LEAWOOD, KANSAS
(913) 339-6700 X130

**PLAN PREPARATION
FOR
SUBDIVISION STREET AND STORM DRAINAGE PLANS
CITY OF LEAWOOD**

GENERAL: All plans for street and storm drainage improvements shall be prepared and sealed by a Professional Engineer licensed in the State of Kansas and submitted for review to:

Public Works Department
City Engineer
4800 Town Center Drive
Leawood, KS 66211

Two complete sets of the plans shall be submitted for review. The engineer will be notified of approval or any outstanding comments that need to be addressed. Plans that need to be resubmitted shall contain a revision block with identifying notations, date, and marks for the revision.

Five sets of final construction plans for street and storm drainage are required for final approval. One set of as-built plan is required for the street and storm drainage plans. The distribution is as follows:

2 sets to the contractors
1 set to the consulting engineer
2 sets to the City

Plans are approved and permits for construction issued once all contractors have submitted their performance and maintenance bond, provide proof of insurance, and the City has a copy of the recorded plat. All necessary easements and applicable fees must also be submitted prior to issuance of permits. It is the responsibility of each contractor to have a copy of the approved plan on site.

Final construction plans are approved for a period of one year. If after the one year, construction does not begin, the City may request plans too be resubmitted for review and request changes made based on current standards.

Plans, which are submitted for review, that are incomplete in accordance with this policy and/or not sealed, signed and dated will be returned to the engineer without further review.

SCALE: Plans shall be drawn at the following minimum scales. Larger scales may be needed to clearly present the design. Bar scales shall be shown on each sheet for each scale.

Plan: 1 inch = 50 feet

Profile

Vertical: 1 inch = 10 feet

Horizontal: 1 inch = 50 feet

Drainage Area Map:

On site: 1 inch = 100 feet

Off site: 1 inch = 1,000 feet

Structural Detail Plans: ¼ inch = 1 foot

Grading Plans: 1 inch = 50 feet

Graphic Drawings: Varies

SHEET SIZE: The plan sheet size is 24 inches x 36 inches with all sheets in a given set of plans being of the same size. Plan and profile shall be drawn on combined or separate plan and profile sheets to minimum scales shown above.

TYPES OF SHEETS IN PLANS: The plans shall consist of:

1. Title sheet
2. General layout sheet
3. Plan and profile sheets for street and storm sewers
4. Cross-section sheets if required
5. Drainage area map
6. Standard and special detail sheets
7. Grading plan sheet
8. Intersection detail sheet
9. Traffic control plans (if required)
10. Erosion and sediment control plan

Each sheet shall contain a sheet number, including the individual sheet number and the total number of sheets, proper project identification and date.

TITLE SHEET: Refer to Exhibit A for the layout of the title sheet.

Other information required is listed as follows:

- A location map adequately showing project location in relation to major streets.
- Elevation and location of all applicable benchmarks shall be tied to the Johnson County vertical coordinate system established in 1998 for Johnson County's GIS. This shall be shown and noted on the plans.
- The plans shall state, "All construction shall be in conformance with the standards and specification adopted by the City of Leawood".
- Engineer's seal, signed and dated.
- General notes.
- Legends of symbols to be used throughout the plans.

GENERAL LAYOUT SHEET: The General Layout sheet will consist of the following:

- An exact copy of the plat (scale 1 inch = 100 feet).
- General notes.
- North arrow and graphic scale.
- Street layout including street names.
- Boundary line of the project area.
- Layout of all proposed sidewalks, storm sewers, water and sanitary sewer lines.
- Legends

PLAN AND PROFILE SHEETS: These sheets at a minimum will consist of the following:

- North arrow and bar scale.
- Elevation and location of all applicable benchmarks shall be tied to the Johnson County vertical coordinate system established in 1998 for Johnson County's GIS. This shall be shown and noted on the plans
- Existing and proposed streets with names and pavement widths.
- Property lines properly identified with the Lot and Block number.
- Survey base line with adequate ties to landlines.
- All existing and proposed utilities and other items shall be properly located in conformance with the best information available in the records of the owner of such facilities.
- All existing and known improvements, structures, channels, etc. adjacent to the project within a distance of 200 feet of the plat boundary shall be accurately shown unless otherwise approved by the City.
- All existing and proposed easements and right-of way information.
- Location of existing and proposed sidewalks.
- Horizontal curve and vertical curve data. At a minimum the plans shall note the stopping sight distance and K value.
- Street centerline profile elevations shall be shown at a minimum interval of 25.

- Street profile shall show existing grades as a dashed line and finished grades or established street grades by solid lines.
- Street centerline stations shall be marked at 100-foot intervals, at all PVC, PI, PVT and at other pertinent points.
- The top of curb elevation shall be shown at maximum increments of 15 feet along the curb return at street intersections. (For street intersections on steep grades a curb profile may be required).
- Location of storm sewers.
- Grading limits.
- Location of test borings if taken.
- Construction notes.

STORMSEWER PROFILE SHEETS: The storm drainage system shall be drawn in profile view and shall contain at a minimum the following:

- Existing and finish profile grade along the centerline of the pipe (except street profile grade may be used when construction includes street).
- Length, size and slope of each line or channel segment. Slope shall be expressed in percent.
- Headwater elevation at the inlet end of each structure or culvert.
- Top of structure elevation.
- Invert elevation of each pipe coming in and going out at the inside front face of the structure.
- Each existing and proposed utility line crossing. The alignment shall be properly located and identified as to type, size and material.
- Location of all test borings if applicable.
- All station locations for manholes, junction boxes, inlet structures and other structures. Plans shall note offsets for each structure from property corners.
- The profile shall show existing grade above the centerline as a dashed line, proposed finished grades or established street grades by solid lines.
- The plans shall show the flow line of any drainage channel, either improved or unimproved, within 50-feet of an enclosed drainage system.
- The proposed sewer shall be shown as a double line properly showing the top of the pipe
- The hydraulic table shown in Exhibit B shall be completed as part of the construction plans.

CROSS-SECTION SHEETS: Cross Sections are not normally required but may be included if desired to better show details or if requested. If cross-sections are needed the following will apply:

- Street cross section at each station showing existing grade by dashed lines and proposed grade by a solid line. Cross sections to show existing grade lines a minimum of ten (10) feet beyond right-of-way lines or grading limit, whichever is further.
- The centerline and location of the right-of-way shall be shown.
- Centerline elevation of top of pavement. Centerline cross sections shall be shown at all intersecting streets and driveways.
- Additional cross-sections shall be shown as required to clearly describe the extent of the grading operations.

DRAINAGE AREA MAP: At a minimum the following information shall be included:

- The plans shall include a storm drainage map to scale with contours denoting the drainage area in acres to each inlet or point of interest.
- The plat of the proposed development shall overlay the drainage map.
- The drainage map will show the entire basin draining through the development.
- Each structure shall be denoted by a number to be used throughout the plans when the storm sewer is referenced.

STANDARD AND SPECIAL DETAIL SHEET:

- The detail sheet shall include all the City Standard Details, which may include typical street section, curb, storm sewer structures, sidewalk, and other details necessary to construct the project as required by the City.

GRADING PLAN SHEET:

- A detailed grading plan is required for all developments. Refer to Leawood's Stormwater Management Ordinance, Article 5, Section 15-521 through 15-524 Plans for Grading.

STREET LIGHTING PLANS:

- The street lighting plans shall be in conformance with Leawood's Street Lighting Specifications.

TRAFFIC CONTROL PLANS: The traffic control plans shall include the following at a minimum:

- All traffic control shall be designed in accordance with the Manual of Uniform Traffic Control Devices latest revision (MUTCD).
- Limits of any road closure shall be shown along with the traffic control devices to affect the closure. Length of time for road closures shall be indicated.
- Detour plan shall be designed for traffic affected by road closure. Detour signing used to direct motorist over the detour route shall be included.

EROSION AND SEDIMENT CONTROL PLANS:

- All construction plans shall include a detail erosion and sediment control plan in accordance with the City's Stormwater Management Ordinance, Article 5, Section 15-525 through 15-524 Erosion and Sediment Control Regulations.

INTERSECTION DETAILS:

- Station/elevation where typical section ends.
- Flow arrows.
- Top of curb elevations.
- Location of tip-out curbs/dry curbs where applicable.
- Include all curb inlets and provide top of structure elevation.
- Identify high/low point in curb return and cul-de-sacs.

AS-BUILT PLANS:

- As-built plans shall be submitted to the City of Leawood Public Works Department for all public storm sewers constructed within the City.
- As-built plans shall be reproducible Mylar's and electronic format. Plans shall be corrected by drawing a single line through the design information and indicating the as-built information above it.
- As-built information shall be determined by completing an as-built field survey. As-built plans compiled from construction records maintained by Contractor or Engineer will not be acceptable.
- Storm sewer revisions shown on the as-built plans shall include, but not limit to, the following:
 - a. Invert elevations
 - b. Top of casting elevation
 - c. Pipe slope
 - d. Pipe length
 - e. Horizontal data (station/offset)
 - f. Hydraulic data including Q-full, V-full, etc., if revised considerably
 - g. Quantities for as-built structures and linear feet of pipe
- As-built plans shall clarify that storm sewers were constructed within dedicated drainage easements and street right-of-way. At locations where storm sewers run parallel with lot lines, the as-built plans shall indicate a horizontal land tie from the lot corner to the pipe centerline or structure. As-built station and offset shall be provided to compare with the designed station and offset within public street right-of-way.
- All sheets from the original construction plans shall be stamped "As-Built", dated, and sealed by a professional Engineer registered in the state of Kansas.
- If sewers and structures are constructed outside the existing easements or right-of-ways, or to close to their boundaries for maintenance, they shall be reconstructed, or additional easements shall be dedicated to the City prior to acceptance of the sewers.
- Acceptance of the "As-Built" drawings does not constitute acceptance of the sewer or commencement of the Maintenance Bond period.
- As-built plans shall be submitted within Thirty- (30) days from the date the construction is completed and all punch list items resolved.

CITY OF LEAWOOD

STANDARDS FOR STREET DESIGN

GENERAL: Any person, firm or corporation proposing to construct any street improvements within the City shall apply to the Director of Public Works for approval of the location, dimensions, design and construction methods and material of such street. The application shall be in the form of plans for approval, and shall contain information as outlined in the previous section, “Plan Preparation for Subdivision Street and Storm Drainage Plans”.

All streets constructed within the City shall be in accordance with the following minimum design standards and specification, the latest addition of, A Policy on Geometric Design of Highways and Street (AASHTO). All Street construction shall be in conformance with these standards unless specifically noted in the following.

STREET CLASSIFICATIONS: Street widths shall be measured from the back of curb to back of curb. Refer to the standard details for street width, cross slope and pavement thickness. The classifications of streets are generally defined as follows:

1. **Primary Arterial Street:** A street providing for through traffic movement with intersections at grade and access to abutting property except on which geometric design and traffic control measures are used to expedite the safe movement of through traffic or where access is to be provided at other locations determined through the platting process. Generally this type of street is located along areas planned for high intense uses.
2. **Secondary Arterial Street:** A street providing for through traffic movement with intersections at grade and access to abutting property except on which geometric design and traffic control measures are used to expedite the safe movement of through traffic or where access is to be provided at other locations determined through the platting process.
3. **Primary Collector Street:** A street providing for the collection and distribution of traffic to and from Primary Arterial Streets.
4. **Residential Collector Street:** A street providing for the collection and distribution of traffic to and from a Secondary Arterial Street through a residential area or direct access to abutting land.
5. **Residential Street:** A street providing direct access to abutting land and local traffic movement.

GEOMETRIC DESIGN STANDARDS: The following geometric standards shall be used based on the street classification:

1. Primary Arterial Streets:

- A. Minimum width of right-of-way - 120 feet.
- B. Street Width – 82 feet back of curb to back of curb
- C. Maximum gradient - 6 percent.
- D. Minimum gradient - 1 percent.
- E. Minimum radii of horizontal curves - 500 feet.
- F. Design speed is 50 mph.
- G. Minimum stopping sight distance - 425.
- H. Curb return radius - 30 feet.

2. Secondary Arterial Street:

- A. Minimum width of right-of-way - 100 feet.
- B. Street Width – 52 feet back of curb to back of curb
- C. Maximum gradient - 6 percent.
- D. Minimum gradient - 1 percent.
- E. Minimum radii of horizontal curves - 500 feet.
- F. Design speed is 45 mph.
- G. Minimum stopping sight distance - 325.
- H. Curb return radius - 30 feet.

3. Primary Collector Streets:

- A. Minimum width of right-of-way - 80 feet.
- B. Street Width – 36 feet back of curb to back of curb
- C. Maximum gradient - 6 percent.
- D. Minimum gradient - 1 percent.
- E. Minimum radii of horizontal curves - 500 feet.
- F. Design speed is 40 mph.
- G. Minimum stopping sight distance - 310.
- H. Curb return radius - 30 feet.

4. Residential Collector Street:

- A. Minimum width of right-of-way - 60 feet.
- B. Street Width – 36 feet back of curb to back of curb
- C. Maximum gradient - 8 percent.
- D. Minimum gradient - 1 percent.
- E. Minimum radii of horizontal curves - 300 feet.
- F. Design speed is 35 mph.
- G. Minimum stopping sight distance - 225.
- H. Curb return radius - 25 feet.

5. Residential Streets:

- A. Minimum width of right-of-way - 50 feet.
- B. Street Width - 26-feet back of curb to back of curb
- C. Maximum gradient - 10 percent.
- D. Minimum gradient - 1 percent.
- E. Minimum radii of horizontal curves - 200 feet.
- F. Design speed is 30 mph.
- G. Minimum stopping sight distance - 200.
- H. Curb return radius - 25 feet.

All streets shall have a minimum 1.5% slope across intersections. Longitudinal street slopes for intersections with stop conditions shall be in accordance with the applicable section of, A Policy on Geometric Design of Highways and Street (AASHTO).

CUL-DE-SACS: Cul-de-sacs design shall meet the following requirements:

1. **Radius:** Minimum radius for pavement on a cul-de-sac shall be thirty-eight (38) feet to the back of curb for residential streets
2. **Islands:** When islands are constructed in the center of cul-de-sacs, the maximum radius shall be twelve (12) feet to the back of curb. The minimum paved width shall be 22 feet. All islands constructed shall have under-drains tied into the nearest storm drainage system.

STORMSEWER DESIGN REQUIREMENTS:

1. All stormsewer design shall comply with Section 5600 of the Kansas City Metropolitan Chapter of the American Public Works Association's Storm Sewer Specifications and Standards, and all amendments thereto with the following modifications:
 - a. All public storm sewers shall be constructed to the limits of the plat.

CONSTRUCTION STANDARDS

SUBGRADE PREPARATION:

- Subgrade preparation shall comply with all applicable standards and specifications for State Road and Bridge Construction, Kansas Department of Transportation, and all amendments thereto, Division 200 and 300.
- A soil report is required identifying the types of soils, characteristics of the soils, and the requirements for compaction.
- Soil properties for liquid and plastic limits shall be limited to the following values:

Liquid limit	less than 50
Plastic limit	less than 25

If the soils report shows these properties outside these ranges, the soils engineer shall provide a recommendation on soil stabilization methods.

- The Developer shall employ and pay for all services of an independent testing laboratory to complete the soils report.
- The testing laboratory shall be staffed with experienced technicians, properly equipped, and fully qualified to perform the required services. A Professional Engineer licensed in the State of Kansas shall seal the report.

ASPHALTIC CONCRETE:

General: The Standard Specifications, Sections 601, 602, and 603 shall govern the asphaltic concrete work except as otherwise modified herein. All testing required by this specification including mix design and field verification of the mix shall be the responsibility of the Contractor. This work shall be subsidiary to other bid items.

Asphalt Cement: Asphalt cement shall conform to the requirements of AASHTO-MPI Performance Graded Asphalt Binder PG 64-22. The grade of the asphaltic binder shall not be changed without a laboratory remix design. It shall also comply with KDOT Special Provisions 90M-197-R2 and 90M-0196-R02. A certified refinery analysis from the proposed source shall be submitted to the City Engineer's office a minimum of 30 days prior to any asphalt construction operations. Asphalt cement shall not be paid for directly but shall be considered a subsidiary bid item.

Aggregates General: The total aggregate (coarse aggregate, fine aggregate, and the material passing the 75um (No. 200 sieve) shall contain not less than 80 percent crushed material for intermediate course and surface course. The job mix single point gradation may have to fall outside of the gradation band shown for the gradations in order to meet the test properties of the mixture specified. It shall be noted that when the gradation varies appreciably from the single point gradation used in the mix-design, the test properties of the mix will be out of specifications. This condition can occur even though the gradation meets the tolerances below.

Requirements of Combined Aggregated for Bituminous Mixtures

Aggregate passing No. 4 sieve or larger	± 5 percent
Aggregate passing Nos. 8, 16, 30, and 50 sieves	± 4 percent
Aggregate passing Nos. 100 and 200 sieves	± 2 percent

Aggregate for Asphaltic Concrete Surface Course:

<u>Sieve Size</u>	<u>Percent Passing Master Grading Limits</u>
12.5 mm (1/2 inch)	100
9.5 mm (3/8 inch)	86 – 100
4.75 mm (No. 4)	41 – 61
2.36 mm (No. 8)	28 – 43
1.18 mm (No. 16)	15 – 30
600 um (No. 30)	9 – 22
300 um (No. 50)	1 – 13
150 um (No. 100)	1 – 10
75 um (No. 200)	2 – 8

Forty percent of the plus 4.75 mm sieve material in the mixture shall be chat, crushed sandstone, crushed gravel, crushed steel slag, or crushed porphyry (rhyolite, basalt, granite, and Iron Mountain Trap Rock are examples of crushed porphyry).

Aggregate for Asphalt Concrete Intermediate Leveling Course:

<u>Sieve Size</u>	<u>Percent Passing Master Grading Limits</u>
19 mm (3/4 inch)	100
12.5 mm (1/2 inch)	79 – 95
9.5 mm (3/8 inch)	70 – 90
4.75 mm (No. 4)	46 – 72
2.36 mm (No. 8)	28 – 58
1.18 mm (No. 16)	18 – 45
600 um (No. 30)	12 – 36
300 um (No. 50)	7 – 22
150 um (No. 100)	4 – 14
75 um (No. 200)	2 – 7

Asphaltic Concrete Mix Design Method: The finished mixture shall meet the requirements described below when tested in accordance with ASTM D 1559 and the volumetric properties of compacted paving mixtures as calculated by ASTM procedures using Chapter 4 of the Mix Design Methods for Asphalt Concrete and other Hot-Mix types (MS-2), Sixth Edition, Asphalt Institute referred hereafter as “MS-2”. The Marshall procedure and the Voids in the Mineral Aggregate (VMA) shall be as specified in Chapter 5 of the MS-2. The automatic Marshall Hammer may be used when it has been calibrated with a manual hammer. The material for the theoretical specific gravity ASTM D 2041 and the material for the Marshall specimens (pucks) shall be cured at 135°C (275°F) for two hours in a closed oven after the mix is produced in the laboratory. Also, the plant-produced mixture shall be tested when the mix is two hours old. The mixture shall be transported to the laboratory in an insulated container and then stored in a laboratory oven at 135° C (275° F) for the remainder of the curing period. This procedure shall be used when the water-absorption as determined by ASTM C 127 and ASTM C 128 of any aggregate in the mixture exceeds 1.25 percent.

Marshall Test Properties: Each end of the specimens (pucks) shall be compacted with 75 blows.

Test Property

Stability, minimum		8000N (1800 lbs)
Flow, maximum, 0.254 mm (1/100-inch) units		3.56 (14)
Voids, total mix, percent	See Note 1	3-5
Percent Voids in Mineral Aggregate (VMA)	See Note 2	
Voids filled with asphalt; percent (VFA)		65-75
The ratio of minus 75µm (No. 200) material to % effective asphalt cement based on the weight of the aggregate		0.6-1.2

Note 1: The laboratory job mix formula shall have the percent voids in the total mix between 4 and 4.5 percent air voids.

Note 2: The minimum VMA percent shall conform to the requirements specified in Table 5.3, Chapter 5 of MS-2. To insure that the VMA is not too high, the asphalt content should be just to the left-hand side of the low point on the VMA versus Asphalt Content percent curve, not on the wet or right-hand increasing side of the curve (See Figure 5.8, MS-2).

When the aggregate absorption is high, the produced mixture will be tender until the asphalt is absorbed into the aggregate. Therefore, it may be beneficial to silo the mixture at the plant for a time before delivering to the project site. This is more important when the truck haul is short.

Resistance of Compacted Bituminous Mixture to Moisture Induced Damage: The index of retained strength must be greater than 80 percent as determined by AASHTO T 283-89. Specimens shall be conditioned by freezing and thawing. When the index of retained strength is less than 80, the aggregate stripping tendencies may be countered by the use of hydrated lime or by treating the bitumen with an approved anti-stripping agent. The hydrated lime is considered as mineral filler and should be considered in the gradation requirements. The amount of hydrated lime or anti-stripping agent added to bitumen shall be sufficient, as approved, to produce an index of retained strength of not less than 80 percent. No additional payment will be made to the Contractor for addition of anti-stripping agent required.

When it has been determined by the AASHTO T 283-89 testing that the mix has to contain an anti-stripping agent, no source of material (especially asphalt) shall be changed without re-testing and approval by the City Engineer.

Method of determining the retained strength of plant-produced mixtures. Sample the plant produced mixture at the plant site in accordance with ASTM D 979 or behind the paver using the procedure specified herein. Transport the mixture to the laboratory and determine the theoretical specific gravity as specified in paragraph "Asphaltic Concrete Mix Design Method". Prepare the specimens for the AASHTO T 283 test using the same two-hour cured material and compact to 7 ± 1.0 percent air voids. Allow the samples to cool and cure overnight at room temperature and

proceed with testing by determining the thickness and bulk specific gravity, then separating the specimens into subsets and preconditioning as specified herein. Then proceed with the testing as specified in AASHTO T 283.

Gradation and asphalt content of the mix shall be performed using ASTM PS 90-97 Provisional Test Methods for Asphalt Content of Hot Mix Asphalt by the Ignition Method and ASTM C-136-96a.

Asphaltic Concrete mix design shall be the responsibility of the Contractor's laboratory. The laboratory shall be a commercial testing laboratory meeting the requirements of ASTM D 3666-96a. The manager of the laboratory shall submit a signed certificate stating that the laboratory has a current certificate stating that the laboratory meets the ASTM D 3666-96a requirements. The laboratory shall have past experience in testing materials and making Marshall mix designs. The City Engineer shall approve the laboratory. The laboratory shall establish the mix design using the criteria specified herein. Certified test results of the mix design and materials shall be submitted 30 days prior to commencing construction for review by the City Engineer. The test results shall include all detailed raw calculations for the composition of the mix design and shall include all specific gravity calculations. The calculations must be legible but not necessarily typed.

Verification of the Mix Design by the Contractor's Laboratory: All test properties of the mix shall be verified by sampling and testing the uncompacted mix placed and not compacted behind the paver. The test shall be a Marshall test performed in accordance with paragraph "Asphaltic Concrete Mix Design Method" and shall indicate the test properties of the mix shown in paragraph "Marshall Test Properties". Also, a gradation shall be made using the ignition oven. The contractor's laboratory shall adjust the mix design entering the plant to obtain the test properties behind the paver.

Material for the sample shall be from the following locations: one from each side of the placed bituminous mat and one from the center of the mat. A square, pointed shovel shall be used for taking the sample and for evenly laying material back into the disturbed mat. Care shall be taken not to get foreign material or tack oil into the sample.

The first test shall be taken when the plant has produced a minimum of 75 metric tons (83 tons) each 12-hour shift or day. The second test shall be taken at approximately 835 metric tons (1000 tons) but not later than 5 hours after the first test with a maximum of two tests per 12-hour shift or day.

Test shall consist of one gradation test of hot bin material for conventional plants, or total aggregate material from the final feed belt for dryer-drum plants. Also a Marshall test consisting of a set of 3 specimens and a gradation test shall be made from material sampled behind the paver at the same time.

NOTE: The result of the gradation test is very important in determining how to adjust the mix. After the gradation or the bitumen content has been adjusted to obtain the properties of the mix, this verified mix design becomes the project mix design. The plant settings may have to be adjusted again whenever the gradations of the materials change. When a change is made it shall be reported on the Asphaltic Concrete Test Report form.

Laboratory test results shall be shown on the test report form "Asphaltic Concrete Test" shown at the end of this specification section. Test results shall be received by the contractor and the City Engineer field representatives within 4 hours after the samples are obtained. Also the test results shall indicate whether the plant needs adjusting and recommendations shall be provided on correcting the problem.

Asphaltic Concrete Surface: Paving shall stop and the mixture shall be redesigned whenever any of the following occurs: three consecutive sets of Marshall tests show the percent voids in the total mix are less than 3 percent or more than 5 percent; two consecutive sets of Marshall tests show the percent voids in the total mix are less than 2.5 percent or greater than 5.5 percent; or two consecutive Marshall tests show the voids filled with asphalt exceed 78 percent.

Asphalt concrete Intermediate leveling course: Paving shall stop and the mixture shall be redesigned whenever any of the following occurs: three consecutive sets of Marshall tests show the percent voids in the total mix are less than 3 percent or more than 5 percent; two consecutive sets of Marshall tests show the percent voids in the total mix are less than 2 percent or greater than 6.0 percent; or two consecutive Marshall tests show the voids filled with asphalt exceed 79 percent.

Resistance of Compacted Bituminous Mixture to Moisture Induced Damage: One set of tests shall be made as the final test for the mix design. Additional tests shall be made whenever there is any change in the source of materials or the laboratory has to redesign the mix design in the laboratory.

Pre-Construction test strips: 75 metric ton (83 tons) test strips shall be constructed by the Contractor off city property at the contractor's expense. However, the city shall observe the sampling and testing. The Contractor's laboratory shall test the final belt gradation if the plant is a dryer-drum plant or the hot bin material if the plant is a conventional plant, and adjust the feeds to insure the plant is producing the single point gradation of the mix design, before hot mix production begins.

Test strips shall contain at least 75 metric tons (83 tons) of asphaltic concrete. A Marshall Test sample shall be taken behind the paver at 73 metric tons (80 tons). The paver shall be set 3.7 meters (12 feet) wide and at plan depth when the sample is taken. Care shall be taken not to get foreign material or tack oil into the sample.

If the laboratory test results indicate the mix can be adjusted to meet the Marshall properties stated in paragraph "Marshall Test Properties", project paving may begin. However, this has to be agreed upon by the Contractor's laboratory, the Contractor, and the City Engineer. Otherwise, another test strip shall be constructed. Test strips will not be required on other projects, which use this mix design. However, all materials have to be from the same sources and geological units.

The City Engineer will take verification tests at random times, at the City's expense.

Mixing Plants: Mixing plants shall meet the requirements of KDOT's latest specification in effect when this project's bids are received by the City, except the mixture discharged from the plant shall not exceed 157.2°C (315°F).

Asphalt mixtures having temperatures less than 121°C (250°F), when dumped into the mechanical spreader will be rejected.

All bituminous mixtures shall be delivered to the paver at a temperature sufficient to allow the material to be placed and compacted to the specified density and surface tolerance.

Placing: Asphaltic concrete intermediate and surface courses shall not be placed in compacted lifts greater than 75 mm (3 inches) deep. Asphaltic concrete surface course shall not be placed thinner than the dimension (depth) shown on the drawings.

The Contractor shall schedule and route his hauling operation to minimize hauling over a final course as much as feasible.

Bituminous-Materials Spreaders: Bituminous-materials spreaders shall be the self-propelled type equipped with hoppers, tamping, or vibrating devices, distributing screws, adjustable screeds operated either manually or automatically, equipment for heating the screeds and equalizing devices. The spreader shall be capable of spreading hot bituminous mixtures without leaving indented areas, tearing, shoving, or gouging and capable of confining edge of strips to true lines without use of stationary side forms and capable of placing the course to the required thickness. It shall also be capable of producing a finished surface conforming to the smoothness requirements specified. Spreaders shall be designed to operate forward at variable speeds and in reverse at traveling speeds of not less than 100 feet per minute. If an automatic grade control device is used on the spreader for two-lane paving operations, it shall consist of sensing device for control of one end of the screed and a slope-control mechanism for control of the other end of the screed, or a sensing device on each side of the paving machine. Where the paver is used on multiple paving lanes (more than two paving lanes), sensing devices shall be used on each side of the spreader for control of the screed. The slope-control mechanism shall not be used for grade control in multiple paving lane operations.

Steel-Wheel Rollers: Steel-wheel rollers shall be self-propelled, tandem (two-axle) types, weighing not less than 9071.8 kg (20,000 pounds). Wheels shall be equipped with adjustable scrapers, water tanks, and sprinkling apparatus for keeping the wheels wet, thereby preventing the bituminous mixture from sticking to the wheels. Rollers shall be capable of reversing without backlash and free from worn parts. Roller wheels with flat and pitted areas or projections that leave marks in the pavement will not be permitted.

Heavy Pneumatic-Tired Rollers: Heavy pneumatic-tired rollers shall be self-propelled and shall consist of two axles on which are mounted multiple pneumatic-tire wheels in such manner that the rear group of wheels will not follow in the tracks of the forward group, but spaced to give essentially uniform coverage with each pass. Axles shall be mounted in a rigid frame provided with a loading platform or body suitable for ballast loading. Tires shall be smooth, inflated to 620 kPa (90 p.s.i.). Construction of the roller shall be such that each wheel can be loaded to a minimum of 1043 kg (2,300 pounds).

Cul-de-sac: Steel rollers weighting not less than 8,000 lbs may be used in cul-de-sacs in lieu of 20,000 lbs steel rollers.

Blowers and Brooms: Blowers and brooms shall be power type and suitable for cleaning the surface to be paved.

Compaction of Mixture:

General: Compaction of the mixture shall be accomplished using a minimum of two steel-wheel rollers and a pneumatic-tired roller, specified above. Rolling shall begin as soon after placing, as mixture will bear the roller without undue displacement. Delays in rolling freshly spread mixture will not be permitted. After initial rolling, preliminary tests of crown, grade, and smoothness shall be made by the Contractor under supervision of the City Engineer. Before rolling is continued, deficiencies shall be corrected so that finished course will conform to requirements for grade and smoothness specified. Further smoothness checks shall be made by the Contractor as directed by the City Engineer. After preliminary smoothness tests, rolling shall be continued until density is obtained in all portions of each course of not less than 95 percent of density of laboratory compacted specimens of same mixture.

Sampling Pavements:

Samples of finished pavement shall be obtained by the City Engineer. A minimum of one test (three cores or sawed samples) shall be taken for each tonnage lot represented by a Marshall test. The three cores or sawed samples shall be taken at locations throughout the tonnage lot. The locations shall not be previously marked. Sample shall be taken at locations determined by the City Engineer. Cores shall be at least 4 inches in diameter and sawed samples at least 5 inches on each side. The samples shall be tested by the City Engineer to determine conformance to density, thickness and, if directed, other specified requirements.

Density Tests: Density of the compacted mixture of the surface or intermediate course shall be determined by tests made on specimens taken from the compacted course in accordance with the requirements of paragraph: SAMPLING PAVEMENTS. Specimens shall be tested in accordance with the requirements of ASTM D 2726.

Weather Limitations: Weather limitations in Section 603.06 of KDOT Standard Specifications shall apply except that 1) bituminous mixtures may only be placed when both the ambient air temperature and the road surface temperature are equal to or greater than that shown in Table 3 of section 603.06, and 2) surface temperatures listed in Table 3 of section 603.06 shall be increased by 3°C (5°F).

Road Surface Preparation: When the bituminous mixture is placed on an existing bituminous surface, Section 603.03 (b) (2) of the Standard Specifications shall apply, except that in addition to brooming, a high pressure type water truck, capable of washing all fines, dirt, and debris from the surface, may be required prior to overlaying as directed by the City Engineer. Equipment compliance with this specification shall be visual observation by the City Engineer at the commencement of washing operations. Unless specified, no direct payment shall be made for this item, as it shall be considered subsidiary to other bid items.

Measure and Payments: Measurement shall be in accordance with Section 109.01 of the Standard Specifications and as modified herein after. The asphalt mixture shall be weighed on approved, certified scales at the contractor's expense. Scales shall be inspected and sealed at least annually by an approved calibration laboratory. The City Engineer will verify the weights at random times, at the City's expense.

Payment will be made at the contract unit price bid per metric ton for "Asphaltic Concrete Intermediate Course" and "Asphaltic Concrete Surface Course." This shall be considered

payment for all items of work specified in this section. No separate payment will be made for tack coat and asphalt cement.

Tack Coat: Emulsified Asphalt (SS-1h) or CSS-1h meeting the requirements of Section 1202 of the Standard Specifications shall be used for tack coat. All existing asphaltic concrete surfaces shall receive a tack coat not more than six hours prior to placing the asphaltic concrete. Previously placed asphaltic concrete surfaces not covered with new asphaltic concrete for more than six hours shall be retacked. The rate of application shall be 0.25 L/sq m to (0.50 gal./sy) to 0.50 L/sq m (0.12 gal./sy), or as otherwise directed by the City Engineer. At locations where asphalt is being placed on top of existing concrete pavement, or night work where temperatures warrant, the emulsified asphalt shall be diluted 10 percent with water versus a normal 50 percent dilution with water. Tack coat shall not be paid for directly but shall be considered subsidiary to other bid items.

ASPHALTIC CONCRETE TEST

(Verified Mix Design)

LOT

REPORT OF TEST RESULTS

Belt _____ tons

LAB I.D. _____ SAMPLE DATE: _____ SAMPLE I.D.: Hot Mix _____ tons

Sieve Size	Belt Sample	Hot-Mix Sample *	Single Point Job-Mix Formula	Job-Mix Formula Tolerances
19mm (3/4")	_____	_____	_____	_____
12.5mm (1/2")	_____	_____	_____	_____
9.5mm (3/8")	_____	_____	_____	_____
4.75mm (No. 4)	_____	_____	_____	_____
2.36mm (No. 8)	_____	_____	_____	_____
1.18mm (No. 16)	_____	_____	_____	_____
600 µm (No. 30)	_____	_____	_____	_____
300 µm (No. 50)	_____	_____	_____	_____
150 µm (No. 100)	_____	_____	_____	_____
75 µm (No. 200)	_____	_____	_____	_____

EXTRACTION DATA-ASTM PS 90-97 Behind Paver
Plant Setting ** _____ Sample * _____ *Uncompacted
 % AC _____

AGGREGATE TYPE	% **	AGGREGATE TYPE	% **	**State whether
_____	_____	_____	_____	Plant is on
total	_____	_____	_____	Mix or total
_____	_____	_____	_____	
aggregate	_____	_____	_____	
_____	_____	_____	_____	

MARSHALL CHARACTERISTICS

75 Compaction Blows (average of 3 specimens)

	<u>Sample *</u>	<u>Specifications</u>
Stability, lbs	_____	_____ min
Flow, 0.254 mm (1/100 in)	_____	_____ max
% Voids	_____	3-5
% VMA	_____	_____
% VFA	_____	_____
Density, pcf	_____	
% Retained	_____	
Strength Test	_____	80% min retained
% Moisture (Asphaltic Mix)	_____	0.5 max
Ratio (-) 75 µm (No. 100) to % Asphalt	_____	0.6 – 1.2

LOT DENSITY SHALL BE TIED TO THE LOT AND DATE
 FORM SHALL BE HAND WRITTEN (TIME OF DELIVERY AND CORRECTION OF MIX IS IMPORTANT)

CONCRETE STANDARDS:

All concrete work for Public Improvements within City Right-of-Way shall use the following standards. This shall include streets, sidewalks, curbs, inlet tops, inverts, driveway approaches, and as called out in the standard details.

All concrete material shall comply with the requirements of the Kansas City Metro Materials Board. This site may be accessed at www.kcmmb.org.

All other requirements shall comply with Sections 402 of the Standard Specifications for State Road and Bridge Construction, Kansas Department of Transportation, current edition and any Addendum's thereto that are not in conflict with Johnson County Concrete Board Specifications.

CONCRETE STREET CONSTRUCTION STANDARDS:

All construction shall comply with Section 502 of the Standard Specifications for State Road and Bridge Construction, Kansas Department of Transportation

SIDEWALK CONSTRUCTION STANDARDS:

All sidewalk construction shall comply with Section 815 of the Standard Specifications for State Road and Bridge Construction, Kansas Department of Transportation.

CURB AND GUTTER CONSTRUCTION STANDARDS:

All curb and gutter construction shall comply with Section 810.06 Curb and Gutter, of the Standard Specifications for State Road and Bridge Construction, Kansas Department of Transportation.

REMOVABLE FLOWABLE FILL:

1. Description: This item shall govern the back filling of stormsewer pipes, sanitary sewer, conduits and other crossing under public streets.
2. For stormsewer and sanitary sewers, the contractor has the option of using flowable fill or suitable soil material. All other crossing within the street shall use flowable fill as the backfill. The limits of flowable fill shall be from back of curb to back of curb.
3. The use of removable flowable backfill may be used in lieu of soil backfill. If soil backfill is to be used in street right-of-way, compaction tests shall be taken on each lift to ensure proper compaction is obtained. The results of the tests shall be submitted to the City for final acceptance. Testing shall be done by an independent, competent testing laboratory and sealed by a registered engineer licensed in the State of Kansas.

4. A quick setting removable flowable fill material shall be allowed in lieu soil backfill. Prior to any placement of flowable fill an approved mix design shall be submitted for approval and on file in the City Engineer's office. Removable flowable fill shall consist of Portland Cement and/or Class C fly-ash (optional), fine aggregate, air entrainment admixture, non-chloride accelerating admixture, and water. The cement shall be Type I, II, or III Portland Cement. Type III cement may be used in lieu of non-chloride accelerating admixture. Fly-ash, when used shall conform to the requirements of ASTM C 618 Class C. Air entrainment admixture shall consist of an organic compound which when added to the mix in accordance with the manufacture's recommendation will result in air contents as prescribed in ASTM C 173 or C 231. Non-chloride accelerating admixture shall conform to ASTM C 494 Type C. Fine aggregate shall conform to Section 1102 of the Standard Specifications, except aggregate shall be natural sand with 100 percent passing the one half inch sieve and 0 to 10 percent passing the number 200 sieve. This material shall have a compressive strength greater than 150 pounds per square inch, but less than 250 pounds per square inch in 28 days.

STORM SEWER CONSTRUCTION STANDARDS:

All storm sewer construction shall be in compliance with 2600 of the Kansas City Metropolitan Chapter of the American Public Works Association's Storm Sewer Specifications and Standards, and all amendments thereto with the following exceptions:

- Section 2602.2 Materials. The following subsections shall not apply to the City of Leawood: B, C, D, E, F, and H.
- All stormsewer lines shall be extended through the end of the plat.

**PLAN PREPARATION
FOR
STREET LIGHTING PLANS
CITY OF LEAWOOD**

GENERAL: All plans and specifications for street light installation improvement plans shall be prepared and stamped by a Professional Engineer licensed in the State of Kansas and submitted for review to:

Public Works Department
City Engineer
4800 Town Center Drive
Leawood, KS 66211

Two complete sets of the plans shall be submitted for review. The engineer will be notified of approval or any outstanding comments that need to be addressed. Plans that need to be resubmitted shall contain a revision block with identifying notations, date, and marks for the revision.

Five sets of final construction plans for street lighting plans are required for final approval. The distribution is as follows:

- 2 sets to the contractors
- 1 set to the consulting engineer
- 2 sets to the City

Plans are approved and permits for construction issued once all contractors have submitted their performance and maintenance bond, provide proof of insurance and record the plat.

Final construction plans are approved for a period of one year. If after the one year, construction does not begin, the City may request plans too be resubmitted for review and request changes made based on current standards.

Plans, which are submitted for review that are incomplete in accordance with this policy and/or not sealed, signed and dated will be returned to the engineer without further review.

SCALE: Plans shall be drawn at the following minimum scales. Larger scales may be needed to clearly present the design. Bar scales shall be shown on each sheet for each scale.

Plan: 1 inch = 50 feet

SHEET SIZE: The plan sheet size is 24 inches x 36 inches with all sheets in a given set of plans being of the same size.

Types of Sheets in Plans: The plans shall consist of:

- 11. Title sheet
- 12. Plan Sheet(s)
- 13. Standard Detail Sheets

Each sheet should contain a sheet number, including the individual sheet number and the total number of sheets, proper project identification and date.

TITLE SHEET: The Title sheet shall include the project title as follows:

STREET LIGHTING PLANS

NAME OF DEVELOPMENT
(Same name as the plat)

CITY OF LEAWOOD

JOHNSON COUNTY, KANSAS

In addition to the above, the following shall also be included.

The responsible engineer shall sign the following statement:

“I certify that this project has been designed, and these plans meet or exceed the design criteria of the City of Leawood, Kansas, current standards, except as indicated below”:

Exceptions:

1. _____
2. _____
3. _____

Engineer's Signature

Date

Other information required on the title sheet is listed as follows:

- Index of all sheets.
- A location map adequately showing project location in relation to major streets.
- Elevation and location of all applicable benchmarks shall be tied to the Johnson County vertical coordinate system established in 1998 for Johnson County's GIS. This shall be shown and noted on the plans.
- The plans shall state, “All construction shall be in conformance with the standards and specification adopted by the City of Leawood.
- Name, address, and phone number of consulting engineer and developer as well as a signature block for the owner/developer.
- Engineer's seal, signed and dated.
- Signature blank for approval by the City of Leawood, Director of Public Works.
- Signature blank for approval by the City of Leawood, City Engineer.
- List of utilities and the States One-Call system.
- General notes
- Legends of symbols to be used throughout the plans
- Summary of quantities

PLAN SHEETS: These sheets at a minimum will consist of the following:

- North arrow and bar scale.
- Existing and proposed streets with names.
- Property lines properly identified as to existing or proposed and the Lot and Block number.
- All existing and proposed utilities and other items shall be properly located in conformance with the best information available in the records of the owner of such facilities.
- All existing and known improvements, structures, channels, etc. adjacent to the project within a distance of 200 feet of the project boundary shall be accurately shown unless otherwise approved by the City.
- All existing and proposed easements and right-of way information.
- Location of existing and proposed sidewalks.
- Centerline stations shall be marked at 100-foot intervals and at other pertinent points.

STANDARD DETAIL SHEET:

- The detail sheet shall include all the City Standard Details necessary to construct the project as required by the City. Details not required for the project shall have a bold “X” drawn through them.

**CITY OF LEAWOOD
STREET LIGHTING DESIGN CRITERIA**

GENERAL

- These criteria shall be adhered to for the design of street lighting systems to be installed in the public right-of-way or on other public property that is under the jurisdiction of the City of Leawood, Kansas.
- The street lighting system consists of one or more feed points, distribution system, poles, luminaries and other appurtenances required to provide a complete, operable system. Components of the system shall conform to the Street Lighting Specifications and standard details.

LIGHTING LAYOUT

- The lighting layout shall be a continuous lighting system dictated by the street classification and area classification.
- Continuous lighting shall be in conformance with the following criteria:
 1. Area Classification: The designer should consult zoning maps, available planning documents and appropriate City officials to assist in determining area classification.
 2. Pavement Classification: Pavement classification R3 shall be used in all cases.
 3. Maintenance Factors: Maintenance factors shall be in accordance with the luminaries and lamp manufacturers' recommendations but in no case shall the maintenance factor, in consideration of dirt and lamp lumen depreciation, be more than .69.
 4. Uniformity Ratios: Design criteria shall be as follows:

<u>Street and Area Classification</u>		<u>Avg.</u>	<u>Avg./Min</u>
Arterial	Commercial	1.2	3 to 1
	Intermediate	0.9	3 to 1
	Residential	0.6	3.5 to 1
Collector	Commercial	0.8	3 to 1
	Intermediate	0.6	3.5 to 1
	Residential	0.4	4 to 1
Local	Commercial	0.6	6 to 1
	Intermediate	0.5	6 to 1
	Residential	0.3	6 to 1

5. Intersections: At intersections, the average maintained pavement luminance shall be the sum of the average maintained pavement luminance of the intersecting streets. This average shall be maintained to the tangents of the curb returns.

POLE TYPE AND SETBACK:

- Pole setbacks shall be a minimum of three feet.
- Pole types used where twin arms are required for poles mounted in median areas shall be located two feet off of the section line, where applicable.

ELECTRICAL SYSTEM:

- The electrical system shall comply with the National Electrical Code; the National Electrical Safety Code and service standards issued by the utility which will be supplying power to the street lighting system.
- The feed point location shall be coordinated with the utility to insure availability of service. The load should be adjusted to take advantage of the rate schedule and secure the most economical rate.

DISTRIBUTION SYSTEM:

- The distribution system shall be underground.
- Distribution cable shall be direct bury except under streets, driveways, sidewalks or other paved areas and behind storm sewer structures and sanitary sewer structures where it shall be in conduit. Conduits under streets shall be a 3" RMC and under all other paved areas and behind storm sewer structures and sanitary sewer structures the conduit shall be a 2" PVC.
- Except where it crosses streets, distribution cables shall be behind the back of curb or outside the edge of pavement.
- Junction boxes shall be used where splices in the distribution cable are required. Type I Junction Box shall be used for a straight through cable and Type II Junction Box shall be used for more than two cables and for tees.
- The cable shall be sized so that the voltage drop does not exceed five percent at any point in the system.
- Conductors shall be no larger than No. 2 AWG and no smaller than No. 4 AWG.
- All street lighting circuits shall be 240 volt.
- All poles shall be bonded together to form a continuous system.

QUALITY CONTROL TESTING OF CONSTRUCTION MATERIAL

1. **Scope**

This section outlines and describes the quality control testing requirements of the City of Leawood for privately funded residential and commercial projects.

2. **Testing Laboratory Services**

Contractor shall employ and pay for all services of an independent testing laboratory to determine compliance with the City of Leawood construction specifications.

The testing laboratory shall be staffed with experienced technicians, properly equipped, and fully qualified to perform the required tests in accordance with the specified standards.

The testing laboratory shall be acceptable to the City of Leawood. Contractor shall obtain the City's acceptance of the testing laboratory before having any services performed. A Professional Engineer licensed in the State of Kansas shall seal the report.

3. **Suppliers**

Contractor shall submit to the City of Leawood a list of all material suppliers for review and acceptance. The list of suppliers shall be submitted prior to any material delivered or incorporated into the Work. If the City has reasonable objections to any proposed suppliers, the City may request the Contractor to submit an acceptable substitute.

4. **Field Sampling and Testing**

Sampling and testing shall be completed in accordance with Table A. The City Inspector for the project shall determine all test locations. The City Inspector may require additional sampling and testing dependent upon observations made in the field of materials delivered to the site, and the results of previous tests.

The Contractor shall make arrangements for delivery of samples and test specimens to the testing laboratory. The testing laboratory shall perform all laboratory tests within a reasonable time consistent with the specified standards and shall furnish a written report of each test.

5. **Transmittal of Test Reports**

The testing laboratory shall furnish two copies of the written report of each test performed by laboratory personnel in the field or in the laboratory. One copy of each test report shall be sent to the City Inspector and one copy to the Contractor within seven (7) working days after each test is completed.

APPEALS

Any person aggrieved by a decision of the Director of Public Works or in the enforcement of these standards shall have the right to appeal any such order, requirement, decision, or determination in accordance with the following procedures:

- a. The aggrieved party may appeal the action of the Director of Public Works or the City Administrator by filling written notice within ten calendar days of the action. The City Administrator shall consider any information offered by the aggrieved person bearing on the dispute and may recommend an appropriate course of action; either reversal, modification, or confirmation. The Director of Public Works or City Engineer shall be present at the hearing as appropriate, shall act on the recommendation in a manner consistent with his responsibilities under these regulations.

APPROVED:

Joe C. Johnson, P.E.
Director of Public Works
Leawood, Kansas