



**CONTRACT DOCUMENTS  
AND  
SPECIFICATIONS**

**DEPARTMENT OF ENVIRONMENTAL QUALITY  
LEXINGTON-FAYETTE URBAN  
COUNTY GOVERNMENT**

**FOR**

**BAKER COURT PUMP STATION  
REPLACEMENT**

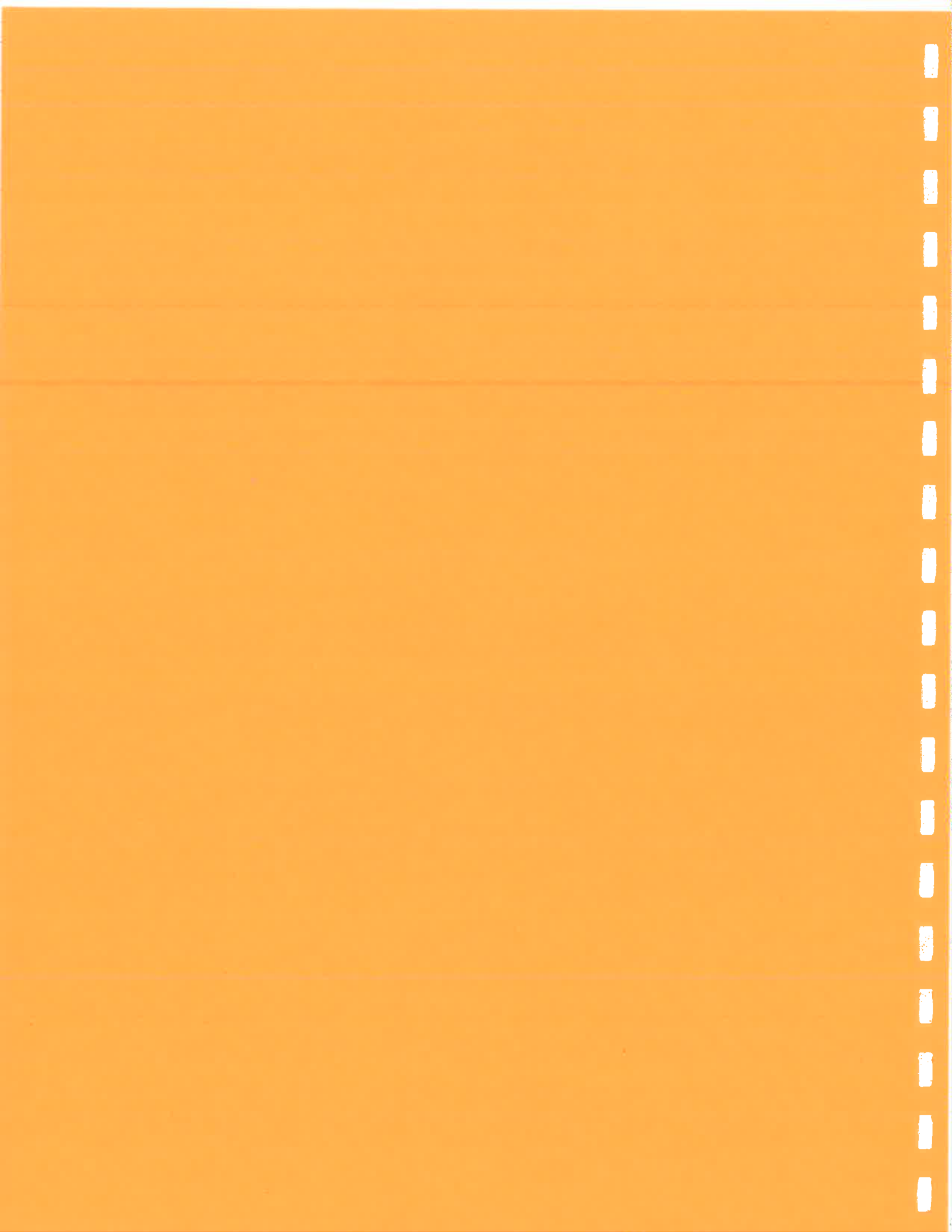
**150-2018**

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**PREPARED BY:**

**EA PARTNERS, PLC  
OCTOBER, 2018**



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**CONTRACT DOCUMENTS**  
**FOR**  
**BAKER COURT**  
**PUMP STATION REPLACEMENT**

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**ADVERTISEMENT FOR BIDS**

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## ADVERTISEMENT FOR BIDS

### 1. INVITATION

Sealed proposals for the following work will be received by the Lexington-Fayette Urban County Government until **2:00 p.m.**, local time, **Friday, November 16, 2018** for furnishing all labor and/or materials and performing all work as set forth by this advertisement, conditions (general and special), specifications, and/or the drawings prepared by and **for the LFUCG Division of Water Quality**. Immediately following the scheduled closing time for reception of bids, all proposals which have been submitted in accordance with the above will be publicly opened and read aloud.

### 2. DESCRIPTION OF WORK

The project includes providing all construction supervision, labor, materials, tools, test equipment necessary for The Baker Court Pump Station Replacement.

### 3. OBTAINING PLANS, SPECIFICATIONS, AND BID DOCUMENTS

Plans, Specifications, and Contract Documents may be obtained from the official bid document distributor, LYNN IMAGING, 328 Old Vine Street, Lexington, KY 40507, (859) 255-1021 or ([www.lynnimaging.com](http://www.lynnimaging.com)) and click on plan room for a non-refundable price of reproduction for each full set of plans and documents.

Specifications, Plans, and Bid Documents may be examined at the following places:

LFUCG

Division of Central Purchasing  
200 East Main Street, Third Floor, Rm 338  
Lexington, Kentucky 40507  
(859) 258-3320

Builders Exchange  
1035 Strader Drive, Ste 100  
Lexington, Kentucky, 40505

LFUCG

Division of Water Quality  
125 Lisle Industrial Avenue  
Lexington, Kentucky 40511  
(859) 425-2400

McGraw-Hill Co./F. W. Dodge  
2321 Fortune Drive, Ste 112-A  
Lexington, Kentucky 40509

### 4. METHOD OF RECEIVING BIDS

Bids will be received from Prime Contracting firms on a **Line Item Unit Price Basis**, for total Project Area. Bids shall be submitted in the manner and subject to the conditions as set forth and

described in the Instruction to Bidders and Special Conditions.

Sealed bids shall be clearly marked on the outside of the container as follows: Company Name and Address, Bid Invitation Number, and the Project Name. Bids are to remain sealed until official Bid closure time.

Mailed bids/proposals should be sent to the Director, Division of Central Purchasing, 200 East Main Street, Lexington, KY 40507.

**5. METHOD OF AWARD**

The Contract, if awarded, will be to the lowest, qualified responsible bidder for the total project whose qualifications indicate the award will be in the best interest of the OWNER and whose bid/proposal complies with all the prescribed requirements. No Notice of Award will be given until the OWNER has concluded such investigation as deemed necessary to establish the responsibility, qualifications and financial ability of Bidders to do the work in accordance with the Contract Documents to the satisfaction of the OWNER within the time prescribed. The OWNER reserves the right to reject the Bid of any Bidder who does not pass such investigation to the OWNER's satisfaction. In analyzing Bids, the OWNER may take into consideration alternate and unit prices, if requested by the Bid forms.

**6. BID WITHDRAWAL**

No bidder may withdraw his bid for a period of sixty (60) calendar days after the closing date for receipt of bids. Errors and omissions will not be cause for withdrawal of bid without forfeit of bid bond. Bids may be withdrawn in person prior to the closing date of receipt of bids.

**7. BID SECURITY**

If the bid is \$50,000 or greater, bid shall be accompanied by a certified / cashier's check or bid bond payable to the Lexington-Fayette Urban County Government in an amount not less than Five Percent (5%) of the base bid. Bid bond shall be executed by a Surety Company authorized to do business in the Commonwealth of Kentucky and countersigned by a licensed Kentucky Resident Agent, representing the Surety Company. Bid Bonds are not required for bids under \$50,000. A certified check or cashier's check is also acceptable forms of bid security.

**8. SUBMISSION OF BIDS**

CONTRACTORS shall submit their bids to the Lexington-Fayette Urban County Government, Division of Purchasing, Third Floor, 200 East Main Street, Lexington, Kentucky 40507. Bids shall be submitted in a sealed envelope not later than **2:00 p.m.**, local time, **Friday, November 16, 2018**. Sealed proposals shall be clearly marked on the outside of the container as follows: Company Name and Address, Bid Invitation Number, and Project Name to be opened at **2:00 p.m.** local time **Friday, November 16, 2018**. Bids received after the scheduled closing time for receipt of bids will not be considered and will be returned unopened.

**9. RIGHT TO REJECT**

The Purchasing Agent for the Lexington-Fayette Urban County Government reserves the right to reject any and all bids and to waive all informalities and/or technicalities where the best interest of the Lexington-Fayette Urban County Government may be served.

**10. NOTIFICATION TO THE LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT FOR AFFIRMATIVE ACTION PLAN AND CURRENT WORKFORCE**

The successful bidder must submit with their bid the following items to the Lexington-Fayette Urban County Government:

1. Affirmative Action Plan for his/her firm.
2. Current Workforce Analysis Form.

Failure to submit these items as required herein may result in disqualification of the Bidder from the award of the contract.

All submissions should be directed to:

Lexington-Fayette Urban County Government  
Division of Purchasing  
200 East Main Street, 3<sup>rd</sup> Floor, Room 338  
Lexington, Kentucky 40507

**11. NOTICE CONCERNING MWD BE GOAL**

Notice of requirement for Affirmative Action to ensure Equal Employment Opportunities and Disadvantaged Business Enterprises (DBE) Contract participation. Disadvantaged Business Enterprises (DBE) consists of Minority-Owned Business Enterprises (MBE), Veteran-Owned Small Businesses (VOSB) and Woman-Owned Business Enterprises (WBE).

The Lexington-Fayette Urban County Government has set a goal that not less than ten percent (10%) of the total value of this Contract be subcontracted to Disadvantaged Business Enterprises, which is made up of MBEs and WBEs. The Lexington Fayette Urban County Government also has set a goal that not less than three percent (3%) of the total value of this Contract be subcontracted to Veteran-Owned Small Businesses. The goal for the utilization of Disadvantaged Business Enterprises as well as Veteran-Owned Small Businesses as subcontractors is a recommended goal. Contractor(s) who fail to meet such goal will be expected to provide written explanations to the Director of the Division of Purchasing of efforts they have made to accomplish the recommended goal, and the extent to which they are successful in accomplishing the recommended goal will be a consideration in the procurement process. Depending on the funding source, other DBE goals may apply.



For assistance in locating Disadvantaged Business Enterprises Subcontractors contact:  
Sherita Miller, Minority Business Enterprise Liaison  
Division of Central Purchasing  
Lexington-Fayette Urban County Government  
200 East Main Street, 3rd Floor, Room 338  
Lexington, Kentucky 40507  
[smiller@lexingtonky.gov](mailto:smiller@lexingtonky.gov)

**12. PRE-BID MEETING**

A non-mandatory pre-bid meeting will be held on **Thursday, November 8, 2018 at 1:30 p.m. at the Division of Water Quality, 125 Lisle Industrial Road, Lexington, Kentucky.**

**13. CONSENT DECREE REQUIREMENTS**

There are no Consent Decree requirements in this contract.

**14. STATE REVOLVING LOAN REQUIREMENTS**

This project is not funded by the Kentucky Infrastructure Revolving Loan Fund.

Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and the Contract Work Hours Standard Act.

Bidders must comply with the President's Executive Order No. 11246 as amended, which prohibits discrimination in employment regarding race, creed, color, sex, or national origin.

Successful bidder shall comply with 41 CFR 60-4, in regard to affirmative action, to insure equal opportunity to females and minorities and will apply the time tables and goal set forth in 40 CFR 60-4.

Successful bidder shall make positive efforts to use small, minority, women-owned, and disadvantaged businesses.

Attention of bidders is particularly called to the conditions of employment to be observed and minimum wage rates to be paid under the Contract, Section 3, Segregated Facility, Section 109 and E.O. 11246 and Title VI. Minority bidders are encouraged to bid.

**Successful bidder is required to employ the six "Good Faith Efforts" as listed in EPA's Disadvantaged Business Enterprise Program when soliciting subcontractors and suppliers. Documentation of these efforts will be a required submittal prior to Contract Award.**

The Contract Award will be made in writing to the lowest responsive and responsible bidder whose qualifications indicate the award will be in the best interest of the OWNER and whose bid/proposal complies with all the prescribed requirements. No Notice of Award will be given

until the OWNER has concluded such investigation as deemed necessary to establish and responsibility, qualifications and financial ability of Bidders to do the work in accordance with the Contract Documents to the satisfactions of the OWNER within the time prescribed. The OWNER reserves the right to reject the Bid of any Bidder who does not pass such investigation to the OWNER's satisfaction. In analyzing Bids, the OWNER may take into consideration alternate and unit prices, if requested by the Bid forms.

END OF SECTION

**PART II**  
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## **PART II**

### **INFORMATION FOR BIDDERS**

#### **1. RECEIPT AND OPENING OF BIDS**

The Lexington-Fayette Urban County Government (herein called the OWNER) invites bids from firms on the project described in the Advertisement for Bids. The OWNER will receive bids at the Division of Purchasing, at the time and in the manner set forth in the Advertisement for Bids, and the Bids will then be publicly opened and read aloud. The OWNER may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within 60 days after the actual time and date of the bid opening, but OWNER may, in its sole discretion, release any bid and return the Bid Security prior to that date.

The Lexington-Fayette Urban County Government assumes no responsibility for bids that are not addressed and delivered as indicated above. Bids that are not delivered to the Division of Central Purchasing by the stated time and date will be rejected.

#### **2. PREPARATION OF BID**

Each bid must be submitted on the prescribed Form of Proposal. All blank spaces for the bid prices must be filled in, either in ink or typewritten, for both unit prices and extensions. Totals for each bid item must be added to show the total amount of the bid. Each bid must be submitted in a sealed envelope bearing on the outside the name of the bidder, their address, the name of the project, the invitation number and time and date for which the bid is submitted. Bids must be addressed to the Director of Purchasing, Lexington-Fayette Urban County Government, Third Floor, 200 East Main Street, Lexington, Kentucky 40507. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as specified above.

#### **3. SUBCONTRACTS**

The bidder is specifically advised that any person, firm, or other party to whom it is proposed to award a subcontract under this Contract must be acceptable to the OWNER. All proposed subcontractors must be identified on the Form of Proposal. Prior to the award of Contract, the OWNER or the OWNER'S representative will advise the CONTRACTOR of the acceptance and approval thereof or of any action necessary to be taken. Should any Subcontractor be rejected by the OWNER, the CONTRACTOR shall present a new name and/or firm to the OWNER at no change in the Contract Price.

#### 4. QUALIFICATION OF BIDDER

The OWNER may make such investigations as the OWNER deems necessary to determine the ability of the bidder to perform the Work, and the bidder shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the OWNER that such bidder is properly qualified to carry out the obligations of the Contract and to complete the Work contemplated therein. Conditional bids will not be accepted.

In evaluating Bids, OWNER shall consider the qualifications of the BIDDERS, whether or not the Bids comply with the prescribed requirements, and alternatives and unit prices, as requested. OWNER may consider maintenance requirements, performance data, and disruption or damage to private property. It is OWNER'S intent to accept alternatives, if requested by the bid forms, in the order in which they are listed in the Bid Form but OWNER may accept or decline them in any order or combination. The contract, if awarded, will be awarded to the lowest, qualified, responsible BIDDER based upon OWNER'S evaluation which indicates that the award will be in the best interest of OWNER and the general public.

In the event there is any question as to the bidder's qualifications and ability to complete the work, a final determination will be made in accordance with a fair evaluation by the Urban County Government of the above listed elements.

- A. If the OWNER requires filling out a detailed financial statement, the bidder may provide its current certified financial statement(s) for the required time interval.
- B. Corporate firms are required to be registered and in good standing with the requirements and provisions of the Office of the Secretary of State, Commonwealth of Kentucky.
- C. Good standing with Public Works Act - any CONTRACTOR and/or subcontractors in violation of any wage or work act provisions (KRS 337.510 to KRS 337.550) are prohibited by Statutory Act (KRS 337.990) from bidding on or working on any and all public works contracts, either in their name or in the name of any other company, firm or other entity in which he might be interested. No bid from a prime contractor in violation of the Act can be considered, nor will any subcontractor in violation of the Act be approved and/or accepted. The responsibility for the qualifications of the subcontractor is solely that of the prime contractor.
- D. Documents Required of CONTRACTOR - (1) A sworn statement signed by the President or owner of the Company regarding all current work in progress anywhere; (2) A document showing the percent of completion of each project and the total worth of each project; and (3) Documentation showing the percentage of the DBE employment levels on each project of the Bidder's current work force, and DBE participation levels for Subcontractors.

- E. Optional OWNER Requirements - The OWNER, at its discretion, may require the BIDDER/CONTRACTOR to provide: (1) a current detailed financial statement for a period including up to 3 prior years; (2) financial security or insurance in amounts and kinds acceptable to the OWNER to meet the financial responsibility requirements for the CONTRACTOR to indemnify the OWNER. (3) Additional information and/or DBE work force data, as well as DBE participation data.

**Each bidder agrees to waive any claim it has or may have against the Owner, the Architect/Engineer, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any bid.**

**5. BID SECURITY**

- A. Each bid must be accompanied by a bid bond prepared on a Form of Bid Bond and attached hereto, duly executed by the bidder as principal and having as surety thereon a surety company approved by the OWNER, in the amount of 5% of the bid. Such bid bond will be returned to the unsuccessful bidder(s) only upon written request to the Director of Central Purchasing within seven (7) days of opening of bids. Bid bond shall be made payable to the Lexington-Fayette Urban County Government. Bid security is not required for projects under \$50,000.
- B. Bonds shall be placed with an agent licensed in Kentucky with surety authorized to do business within the state. When the premium is paid for such coverage, the full commission payable shall be paid to such local agent who shall not divide such commission with any person other than a duly licensed resident local agent.

**6. LIQUIDATED DAMAGES FOR FAILURE TO ENTER INTO CONTRACT**

The successful bidder, upon his failure or refusal to execute and deliver the Contract and bonds required within ten (10) days after he has received notice of the acceptance of his bid, shall forfeit to the OWNER, as liquidated damages for such failure or refusal, the security deposited with his bid.

**7. TIME OF COMPLETION AND LIQUIDATED DAMAGES**

Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" from the OWNER and to fully complete the Project within the time as specified in the Contract. Bidder must agree also to pay \$1,000 per day as liquidated damages for each consecutive calendar day thereafter as hereinafter provided in the General Conditions.

## **8. EXAMINATION OF CONTRACT DOCUMENTS AND SITE**

- A. It is the responsibility of each Bidder before submitting a Bid, to (a) examine the Contract Documents thoroughly, (b) visit the site(s) to become familiar with local conditions that may affect cost, progress, performance or furnishing of the work, (c) consider Federal, State and Local laws and regulations that may affect cost, progress, performance or furnishing of the work, (d) study and carefully correlate Bidder's observations with the Contract Documents, and (e) notify Engineer of all conflicts, errors or discrepancies in the Contract Documents.
  
- B. Bidders should examine the requirements of section 4 of the General Conditions for information pertaining to subsurface conditions, underground structures, underground facilities, and availability of lands, easements, and rights-of-way. The completeness of data, presented in the Contract Documents, pertaining to subsurface conditions, underground structures, and underground facilities for the purposes of bidding or construction is not assured. The Bidder will, at Bidder's own expense, make or obtain any additional examinations, investigations, explorations, tests and studies and obtain any additional information and data which pertain to the physical conditions (surface and subsurface) which may affect cost, progress, performance or furnishing of the Work and which Bidder deems necessary to determine its Bid for performing and furnishing the Work in accordance with the time, price, and other terms and conditions of the Contract Documents. On request in advance, OWNER will provide access to the site to conduct such explorations and tests as each Bidder deems necessary for submission of a bid. Bidder shall fill all holes, clean up and restore the site to its former condition upon completion of such explorations.
  
- C. The submission of a Bid will constitute an incontrovertible representation by the Bidder that Bidder has complied with every requirement of this paragraph 8; that without exception the Bid is premised upon furnishing and performing the Work required by the Contract Documents and such means, methods, techniques, sequences or procedures of construction as may be indicated in or required by the Contract Documents; and that the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

## **9. ADDENDA AND INTERPRETATIONS**

No interpretation of the meaning of the Contract Documents will be made to any bidder orally. Every request for such interpretation should be in writing addressed to the Director of Central Purchasing, who in turn will have an Addendum issued for the Lexington-Fayette Urban County Government, and to be given consideration must be received prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications. Acknowledgement of the receipt of addenda must be included with all submitted bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the Contract Documents.

**10. SECURITY FOR FAITHFUL PERFORMANCE**

- A. Simultaneously with his delivery of the executed Contracts, the CONTRACTOR shall furnish a surety bond or bonds as security for the faithful performance of this Contract and for payment of all persons performing labor on the Project under this Contract and furnishing materials in connection with this Contract, as specified in the General Conditions. The surety on such bond or bonds shall be a duly authorized surety company satisfactory to the OWNER and authorized to do business in the Commonwealth of Kentucky.
- B. All bonds required by this Contract and laws of this State shall be placed with agents licensed in the State of Kentucky. When the premium is paid for such coverage's, the full commission shall be paid to such local agent who shall not divide such commission with any person other than a duly licensed resident local agent.
- C. **Contractor shall use standard Performance and Payment Bond forms such as documents provided with this contract book or AIA form A312-1984 (or later). Each document will be for 100% of the Contract Bid Amount.**

**11. POWER OF ATTORNEY**

Attorney-in-fact who signs bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

**12. TAXES AND WORKMEN'S COMPENSATION**

The CONTRACTOR and subcontractor will be required to accept liability for payment of all payroll taxes, sales and use tax, and all other taxes or deductions required by local, state or federal law, such as old age pension, social security, or annuities measured by wages. Each shall carry Workmen's Compensation Insurance to the full amounts as required by Statutes and shall include the cost of all foregoing items in the proposal. The CONTRACTOR will not otherwise be reimbursed or compensated for such tax payments. The CONTRACTOR is urged to ascertain at his own risk his actual tax liability in connection with the execution or performance of his Contract.

**13. LAWS AND REGULATIONS**

The bidder's attention is directed to the fact that all applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the Project shall apply to the Contract throughout, and they will be deemed to be included in the contract, the same as though herein written out in full.



**14. EROSION AND SEDIMENT CONTROL AND PERMITS**

The CONTRACTOR and Subcontractors performing work on projects on behalf of the OWNER shall also comply with all applicable federal, state, and local environmental regulations and all requirements and conditions set forth in "special" permits including but not limited to Corp of Engineers 404 permits, 401 Water Quality Certifications, Stream Crossing and Floodplain Encroachment Permits as described in Part 4 General Conditions Paragraph 5.17.

**15. PREVAILING WAGE LAW AND MINIMUM HOURLY RATES**

Federal or state wage rates and regulations, if required for this Project, will be as described in the Special Conditions.

**16. AFFIRMATIVE ACTION PLAN**

The successful Bidder must submit with their bid, the following items to the Urban County Government:

1. Affirmative Action Plan of the firm
2. Current Work Force Analysis Form
3. Good Faith Effort Documentation
4. List of Disadvantaged Business Enterprise Subcontractors and the Dollar Value of each Subcontract

A Work Force Analysis Form shall be submitted for each Contract. Failure to submit these items as required herein may result in disqualification of the Bidder from award of the Contract.

All submissions should be directed to:

Director, Division of Central Purchasing  
Lexington-Fayette Urban County Government  
200 East Main Street, Third Floor  
Lexington, KY 40507

**17. CONTRACT TIME**

The number of calendar days within which the Work is to be substantially completed and ready for final payment (the Contract Time) is set forth in the Form of Proposal and the Agreement.

**18. SUBSTITUTE OR "OR-EQUAL" ITEMS**

The Contract, if awarded, will be on the basis of materials and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "or-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that a substitute or "or-equal" item of material or equipment may be furnished or used by the CONTRACTOR if acceptable to the ENGINEER and OWNER, application for such acceptance will not be considered by the ENGINEER and OWNER until after the effective date of the Agreement. The procedure for submission of any such application by the CONTRACTOR and consideration by the ENGINEER and OWNER is set forth in the General Conditions.

**19. ALTERNATE BIDS**

**Bidders shall submit alternate bids/proposals only if and when such alternate bids/proposals have been specifically requested in an Invitation for Bids.** If alternate bids/proposals are requested in an Invitation for Bids, the form of submission of such alternate bid and the conditions under which such alternate bids will be considered for award of a contract will be established in the Invitation.

Any Bidder who submits a bid incorporating an alternate proposal when alternate bids/proposals have not been requested in the Invitation for Bids shall have his/her bid rejected as non-responsive.

Any Bidder who submits a bid incorporating two (2) or more prices for an item or groups of items (unless such method of pricing is requested in the Invitation for Bids), or which imposes conditions for acceptance other than those established in the Invitation for Bids, shall have their bid rejected as non-responsive.

**20. SIGNING OF AGREEMENT**

When OWNER gives a Notice of Award to the successful Bidder, it will be accompanied by the required number of unsigned counterparts of the Agreement with all other written Contract Documents attached. Within ten days thereafter, CONTRACTOR shall sign and deliver the required number of counterparts of the Agreement and attached documents to OWNER with the required Bonds, Certificate of Insurance, and Power of Attorney. The OWNER will deliver one fully signed counterpart to CONTRACTOR at such time as it has been signed by the Mayor.

**21. ASSISTANCE TO BE OFFERED TO DISADVANTAGED BUSINESS ENTERPRISE (MWDBE) CONTRACTORS**

**A. Outreach for MWDBE(s)**

The Lexington-Fayette Urban County Government (LFUCG) maintains a database of MWDBE contractors and organizations. When a LFUCG construction project is advertised for bidding, notices are sent to companies registered at <https://lexingtonky.ionwave.net>. The notices describe the project and indicate the deadline for submitting bids.

If you wish to be added to the LFUCG MWDBE contractor database, please contact:

Sherita Miller, Minority Business Enterprise Liaison  
Division of Central Purchasing  
Lexington-Fayette Urban County Government  
200 East Main Street, Room 338  
Lexington, Kentucky 40507  
[smiller@lexingtonky.gov](mailto:smiller@lexingtonky.gov)

**B. Bid Bond Assistance for MWDBE(s)**

For those MWDBE contractors who wish to bid on LFUCG project, bid bond assistance is available. This bid bond assistance is in the form of a "Letter of Certification" which is accepted by the LFUCG's Division of Purchasing, in lieu of a bid bond. The "Letter of Certification" must be included in the bid package when it is submitted to the Division of Purchasing. The "Letter of Certification" will reference the specific project for which the bid is being submitted, and the time and date on which the bid is due. Bid bond assistance must be requested from the Lexington-Fayette Urban County Government's Division of Central Purchasing.

**C. Eligibility for Bid Bond Assistance for MWDBE(s)**

In order to be eligible for any Bid bonding assistance, a MWDBE construction company must be owned or controlled at the level of 51% or more by a member or members of a minority group or females. Prior to receiving assistance, a statement providing evidence of ownership and control of the company by a member or members of a minority group or females must be signed by the Owner or corporate officer and by an attorney or accountant submitted to:

Sherita Miller, Minority Business Enterprise Liaison  
Division of Central Purchasing  
Lexington-Fayette Urban County Government  
200 East Main Street, Room 338  
Lexington, Kentucky 40507  
[smiller@lexingtonky.gov](mailto:smiller@lexingtonky.gov)

D. MWDBE and Veteran Subcontractors

The LFUCG will, upon request, assist prime contractors in the procurement of eligible DBE subcontractors in an effort to achieve 10% minimum MWDBE and 3% minimum veteran goal.

For a list of eligible subcontractors, please contact:

Sherita Miller, Minority Business Enterprise Liaison  
Division of Central Purchasing  
Lexington-Fayette Urban County Government  
200 East Main Street, Room 338  
Lexington, Kentucky 40507  
[smiller@lexingtonky.gov](mailto:smiller@lexingtonky.gov)

**PART III**

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**PART III**

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**Invitation to Bid No. 150-2018**

**Baker Court Pump Station Replacement**

**1. FORM OF PROPOSAL**

Place: Lexington, Kentucky

Date: \_\_\_\_\_

The following Form of Proposal shall be followed exactly in submitting a proposal for this Work.

This Proposal Submitted by \_\_\_\_\_

\_\_\_\_\_  
(Name and Address of Bidding Contractor)

(Hereinafter called "Bidder"), organized and existing under the laws of the State of \_\_\_\_\_, doing business as \_\_\_\_\_  
\_\_\_\_\_ "a corporation," "a partnership", or an "individual" as applicable.

To: Lexington-Fayette Urban County Government  
(Hereinafter called "OWNER")  
Office of the Director of Purchasing  
200 East Main Street, 3rd Floor  
Lexington, KY 40507

Gentlemen:

The Bidder, in compliance with your Invitation for Bids for Baker Court Pump Station Replacement having examined the Plans and Specifications with related documents, having examined the site for proposed Work, and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the lump sum and/or unit prices stated hereinafter. These prices are to cover all expenses incurred in performing the Work required under the Contract Documents, of which this proposal is a part. The OWNER will issue work orders for work to be performed under this Contract.

BIDDER hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete the project within the time provided in the Purchase Order or Work Orders issued by the OWNER. BIDDER further agrees to pay liquidated damages, the sum of \$1,000 for each consecutive calendar day thereafter.

The Bidder hereby acknowledges receipt of the following addenda:

- Addendum No. \_\_\_\_ Date \_\_\_\_\_
- Addendum No. \_\_\_\_ Date \_\_\_\_\_
- Addendum No. \_\_\_\_ Date \_\_\_\_\_
- Addendum No. \_\_\_\_ Date \_\_\_\_\_
- Addendum No. \_\_\_\_ Date \_\_\_\_\_
- Addendum No. \_\_\_\_ Date \_\_\_\_\_
- Addendum No. \_\_\_\_ Date \_\_\_\_\_
- Addendum No. \_\_\_\_ Date \_\_\_\_\_

Insert above the number and the date of any Addendum issued and received. If none has been issued and received, the word "NONE" should be inserted.

**2. LEGAL STATUS OF BIDDER**

Bidder \_\_\_\_\_

Date \_\_\_\_\_

\* 1. A corporation duly organized and doing business under the laws of the State of \_\_\_\_\_, for whom \_\_\_\_\_, bearing the official title of \_\_\_\_\_, whose signature is affixed to this Bid/Proposal, is duly authorized to execute contracts.

\* 2. A Partnership, all of the members of which, with addresses are: (Designate general partners as such)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\* 3. An individual, whose signature is affixed to this Bid/Proposal (please print name)

\_\_\_\_\_  
\_\_\_\_\_

\*(The Bidder shall fill out the appropriate form and strike out the other two.)



3. **BIDDERS AFFIDAVIT**

Comes the Affiant, \_\_\_\_\_, and after being first duly sworn, states under penalty of perjury as follows:

1. His/her name is \_\_\_\_\_ and he/she is the individual submitting the bid or is the authorized representative of \_\_\_\_\_, the entity submitting the bid (hereinafter referred to as "Bidder").
2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.
3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.
4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.
5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.
6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as the "Ethics Act."
7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.

Further, Affiant sayeth naught.

\_\_\_\_\_  
(Affiant)

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

The foregoing instrument was subscribed, sworn to and acknowledged before me by

\_\_\_\_\_ on this the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

My Commission expires: \_\_\_\_\_

\_\_\_\_\_  
NOTARY PUBLIC, STATE AT LARGE

**4. BID SCHEDULE – SCHEDULE OF VALUES**

The Bidder agrees to perform all the Work described in the Specifications and shown on the Plans for the following proposed lump sum and/or unit prices, if applicable, which shall include the furnishing of all labor, materials, supplies, equipment and/or vehicle usage, services, all items of cost, overhead, taxes (federal, state, local), and profit for the Contractor and any Subcontractor involved, within the time set forth herein. If unit prices are applicable, Bidder must make the extensions and additions showing the total amount of bid.

Form of proposal must include unit bid prices written in words, unit price written in numbers and total amount bid (unit price x quantity) per line item OR bid may be considered non-responsive. In case of price discrepancy, unit bid price written in words will prevail followed by unit price written in numbers then total amount bid per line item.

If a discrepancy between the unit price and the item total exists, the unit price prevails except:

If the unit price is illegible, omitted, or the same as the item total, item total prevails and the unit price is the quotient of the item total and the quantity.

If the unit price and the item total are illegible or are omitted, the bid may be determined nonresponsive. If a lump sum total price is illegible or is omitted, the bid may be determined nonresponsive.

For a lump sum based bid, the item total is the bid amount the Division uses for bid comparison.

For a unit price based bid, the sum of the item totals is the bid amount the Division uses for bid comparison.

The LFUCG’s decision on the bid amount is final.

The contract, if awarded, will be on the basis of materials and equipment specified in the specifications without consideration of possible substitute or “or equal” items.

The estimated quantities of items of unit price work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract price. Determination of the actual quantities and classification of unit price work performed by the Contractor will be made by the Engineer in accordance with the General Conditions.

<b>Item No.</b>	<b>Description w/Unit Bid Price Written in Words</b>	<b>Estimated Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Bid Amount</b>
1.	Project Sign	1	EA	\$ _____	\$ _____
2.	Mobilization	1	LS	\$ _____	\$ _____
3.	Bonds and Insurance	1	LS	\$ _____	\$ _____
4.	General Requirements	1	LS	\$ _____	\$ _____

Item No.	Description w/Unit Bid Price Written in Words	Estimated Quantity	Unit	Unit Price	Total Bid Amount
5.	Staking	1	LS	\$ _____	\$ _____
6.	Clearing and Grubbing	1	LS	\$ _____	\$ _____
7.	Silt Fence	220	LF	\$ _____	\$ _____
8.	Modified Stone Silt Check	2	EA	\$ _____	\$ _____
9.	Construction Entrance	1	EA	\$ _____	\$ _____
10.	Concrete Washout Pit	1	EA	\$ _____	\$ _____
11.	Maintenance of BMP Plan	1	EA	\$ _____	\$ _____
12.	Bypass Pumping Set Up	2	EA	\$ _____	\$ _____
13.	Bypass Pumping	20	HR	\$ _____	\$ _____
14.	8" PVC SDR 35 Sanitary Sewer	58	LF	\$ _____	\$ _____
15.	4' Diameter Manholes (0-6 Feet)	2	EA	\$ _____	\$ _____
16.	Extra Depth to 4' Diameter Manholes	6.5	VF	\$ _____	\$ _____
17.	4" PVC SDR 21-PR 200 Force Main	102	LF	\$ _____	\$ _____
18.	Tie to Existing Manhole	1	EA	\$ _____	\$ _____
19.	Tie to Existing Force Main	1	EA	\$ _____	\$ _____
20.	Trench Rock	33	CY	\$ _____	\$ _____
21.	Exist Pump Station Abandonment	1	LS	\$ _____	\$ _____

Item No.	Description w/Unit Bid Price Written in Words	Estimated Quantity	Unit	Unit Price	Total Bid Amount
22.	Proposed Pump Station	1	LS	\$ _____	\$ _____
23.	Modular Retaining Wall	380	SF	\$ _____	\$ _____
24.	Aluminum Railing		LF	\$ _____	\$ _____
25.	Concrete Pump Station Pad	74	SY	\$ _____	\$ _____
26.	3' Concrete Slab (Below Retaining Wall)	8	SY	\$ _____	\$ _____
27.	Concrete Entrance Apron	1	LS	\$ _____	\$ _____
28.	4' Concrete Sidewalk	50	LF	\$ _____	\$ _____
29.	Concrete Curb and gutter, LFUCG Type 1	50	LF	\$ _____	\$ _____
30.	6' Chain Link Fence	1	LS	\$ _____	\$ _____
31.	16' Chain Link Double Vehicular Gate	1	LS	\$ _____	\$ _____
32.	Seeding and Protecting Method 1	350	SY	\$ _____	\$ _____

TOTAL OF ALL BID PRICES FOR Baker Court Pump Station Replacement Project (Items 1 through 30) in words and figures. In case of discrepancy, the amount shown in words will govern.

\_\_\_\_\_ (\$ \_\_\_\_\_).

Submitted by:

\_\_\_\_\_  
*Firm*

\_\_\_\_\_  
*Address*

\_\_\_\_\_  
*City, State & Zip*

***Bid must be signed:  
(original signature)***

\_\_\_\_\_  
***Signature of Authorized Company Representative – Title***

\_\_\_\_\_  
*Representative/s Name (Typed or Printed)*

\_\_\_\_\_  
*Area Code – Phone – Extension*

\_\_\_\_\_  
*Fax #*

\_\_\_\_\_  
*E-Mail Address*

**OFFICIAL ADDRESS:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
(Seal if Bid is by Corporation)

***By signing this form you agree to ALL terms, conditions, and associated forms in this bid package***

**5. STATEMENT OF BIDDER'S QUALIFICATIONS**

The following statement of the Bidder's qualifications is required to be filled in, executed, and submitted with the Proposal:

1. Name of Bidder: \_\_\_\_\_

2. Permanent Place of Business: \_\_\_\_\_

3. When Organized: \_\_\_\_\_

4. Where Incorporated: \_\_\_\_\_

5. Construction Plant and Equipment Available for this Project:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

---

(Attach Separate Sheet If Necessary)

6. Financial Condition:

If specifically requested by the OWNER, the apparent low Bidder is required to submit its latest three (3) years audited financial statements to the OWNER'S Division of Central Purchasing within seven (7) calendar days following the bid opening.

7. In the event the Contract is awarded to the undersigned, surety bonds will be furnished by:

\_\_\_\_\_ (Surety)

Signed: \_\_\_\_\_ (Representative of Surety)

8. The following is a list of similar projects performed by the Bidder: (Attach separate sheet if necessary).

<u>NAME</u>	<u>LOCATION</u>	<u>CONTRACT SUM</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

9. The Bidder has now under contract and bonded the following projects:

<u>NAME</u>	<u>LOCATION</u>	<u>CONTRACT SUM</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

10. List Key Bidder Personnel who will work on this Project.

<u>NAME</u>	<u>POSITION DESCRIPTION</u>	<u>NO. OF YEARS WITH BIDDER</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

11. DBE Participation on current bonded projects under contract:

<u>SUBCONTRACTORS (LIST)</u>	<u>PROJECT (SPECIFIC TYPE)</u>	<u>DBE</u>	<u>% of WORK</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(USE ADDITIONAL SHEETS IF NECESSARY)

12. We acknowledge that, if we are the apparent low Bidder, we may be required to submit to the OWNER within 7 calendar days following the Bid Opening, a sworn statement regarding all current work on hand and under contract, and a statement on the OWNER'S form of the experience of our officers, office management and field management personnel. Additionally, if requested by the OWNER, we will within 7 days following the request submit audited financial statements and loss history for insurance claims for the 3 most recent years (or a lesser period stipulated by the OWNER).

**6. LIST OF PROPOSED SUBCONTRACTORS**

The following list of proposed subcontractors is required by the OWNER to be executed, completed and submitted with the BIDDER'S FORM OF PROPOSAL. All subcontractors are subject to approval of the Lexington-Fayette Urban County Government. Failure to submit this list completely filled out may be cause for rejection of bid.

<b><u>BRANCH OF WORK - LIST EACH Work</u></b>	<b><u>SUBCONTRACTOR</u></b>	<b><u>DBE</u></b>	<b><u>% of</u></b>
<b><u>MAJOR ITEM</u></b> Such as: Grading, bituminous paving, concrete, seeding and protection, construction staking, etc.		<b><u>Yes/No</u></b>	
1. <u>Sitework</u>	Name: _____	_____	_____
	Address: _____		
2. <u>Sewer and Manholes</u>	Name: _____	_____	_____
	Address: _____		
3. <u>Concrete</u>	Name: _____	_____	_____
	Address: _____		
4. <u>Electric</u>	Name: _____	_____	_____
	Address: _____		
5. <u>Retaining Wall</u>	Name: _____	_____	_____
	Address: _____		
6. _____	Name: _____	_____	_____
	Address: _____		
7. _____	Name: _____	_____	_____
	Address: _____		

(Attach additional sheet(s) if necessary.)



7. **LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT MWDBE PARTICIPATION GOALS, FORMS, AND GOOD FAITH EFFORTS**

A. GENERAL

- 1) The LFUCG request all potential contractors to make a concerted effort to include Minority-Owned (MBE), Woman-Owned (WBE), Disadvantaged (DBE) Business Enterprises and Veteran-Owned Small Businesses (VOSB) as subcontractors or suppliers in their bids.
- 2) Toward that end, the LFUCG has established 10% of total procurement costs as a Goal for participation of Minority-Owned, Woman-Owned and Disadvantaged Businesses on this contract.
- 3) The LFUCG has also established a 3% of total procurement costs as a Goal for participation of Veteran-Owned Small Businesses.
- 4) **It is therefore a request of each Bidder to include in its bid, the same goal (10%) for MWDBE participation, the same goal (3%) veteran participation and other requirements as outlined in this section.**

B. PROCEDURES

- 1) The successful bidder will be required to report to the LFUCG, the dollar amounts of all payments submitted to Minority-Owned, Veteran-Owned and Woman-Owned subcontractors and suppliers for work done or materials purchased for this contract. (See Subcontractor Monthly Payment Report)
- 2) Replacement of a Minority-Owned, Veteran-Owned or Woman-Owned subcontractor or supplier listed in the original submittal must be requested in writing and must be accompanied by documentation of Good Faith Efforts to replace the subcontractor / supplier with another MWDBE Firm; this is subject to approval by the LFUCG. (See LFUCG MWDBE Substitution Form)
- 3) For assistance in identifying qualified, certified businesses to solicit for potential contracting opportunities, bidders may contact:
  - a) The Lexington-Fayette Urban County Government, Division of Central Purchasing (859-258-3320)
- 4) The LFUCG will make every effort to notify interested MWDBE and veteran subcontractors and suppliers of each Bid Package, including information on the scope of work, the pre-bid meeting time and location, the bid date, and all other pertinent information regarding the project.

C. DEFINITIONS

- 1) A Minority-Owned Business Enterprise (MBE) is defined as a business which is certified as being at least 51% owned and operated by persons of African American, Hispanic, Asian, Pacific Islander, American Indian or Alaskan Native Heritage.

- 2) A Woman-Owned Business Enterprise (WBE) is defined as a business which is certified as being at least 51% owned and operated by one or more Non-Minority Females.
- 3) A Disadvantaged Business (DBE) is defined as a business which is certified as being at least 51% owned and operated by a person(s) that are economically and socially disadvantaged.
- 4) A Veteran-Owned Small Business (VOSB) is defined as a business which is certified as being at least 51% owned and operated by a veteran and/or a service disabled veteran.
- 5) Good Faith Efforts are efforts that, given all relevant circumstances, a bidder or proposer actively and aggressively seeking to meet the goals, can reasonably be expected to make. In evaluating good faith efforts made toward achieving the goals, whether the bidder or proposer has performed the efforts outlined in the Obligations of Bidder for Good Faith Efforts outlined in this document will be considered, along with any other relevant factors.

D. OBLIGATION OF BIDDER FOR GOOD FAITH EFFORTS

- 1) **The bidder shall make a Good Faith Effort to achieve the Participation Goal for MWDBE and Veteran subcontractors/suppliers. The failure to meet the goal shall not necessarily be cause for disqualification of the bidder; however, bidders not meeting the goal are required to furnish with their bids written documentation of their Good Faith Efforts to do so.**
- 2) Award of Contract shall be conditioned upon satisfaction of the requirements set forth herein.
- 3) The Form of Proposal includes a section entitled "MWDBE Participation Form". The applicable information must be completed and submitted as outlined below.
- 4) **Failure to submit this information as requested may be cause for rejection of bid.**

E. DOCUMENTATION REQUIRED FOR GOOD FAITH EFFORTS

- 1) Bidders reaching the Goal are required to submit only the MWDBE Participation Form." The form must be fully completed including names and telephone number of participating MWDBE firm(s); type of work to be performed; estimated value of the contract and value expressed as a percentage of the total Lump Sum Bid Price. The form must be signed and dated, and is to be submitted with the bid.
- 2) Bidders not reaching the Goal must submit the "MWDBE Participation Form", the "Quote Summary Form" and a written statement documenting their Good Faith Effort to do so. If bid includes no MWDBE participation, bidder shall enter "None" on the subcontractor / supplier form). In addition, the bidder must submit written proof of their Good Faith Efforts to meet the Participation Goal:

- a. Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.
- b. Included documentation of advertising in the above publications with the bidders good faith efforts package
- c. Attended LFUCG Central Purchasing Economic Inclusion Outreach event
- d. Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned businesses of subcontracting opportunities
- e. Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses.
- f. Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).
- g. Contacted organizations that work with MWDBE companies for assistance in finding certified MWBDE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.
- h. Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.
- i. Followed up initial solicitations by contacting MWDBEs and Veteran-Owned Businesses to determine their level of interest.
- j. Provided the interested MWBDE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.
- k. Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran participation, even when the prime contractor may otherwise perform these work items with its own workforce
- l. Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a

thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

m. Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

n. Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

o. Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

p. Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

q. Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE and Veteran participation.

**Note: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to review by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.**



## MINORITY BUSINESS ENTERPRISE PROGRAM

Sherita Miller, MPA  
Minority Business Enterprise Liaison  
Division of Central Purchasing  
Lexington-Fayette Urban County Government  
200 East Main Street  
Lexington, KY 40507  
[smiller@lexingtonky.gov](mailto:smiller@lexingtonky.gov)  
859-258-3323

OUR MISSION: The mission of the Minority Business Enterprise Program is to facilitate the full participation of minority and women owned businesses in the procurement process and to promote economic inclusion as a business imperative essential to the long term economic viability of Lexington-Fayette Urban County Government.

To that end the city council adopted and implemented resolution 167-91—Disadvantaged Business Enterprise (DBE) 10% Goal Plan in July of 1991. The resolution states in part (a full copy is available in Central Purchasing):

*“A Resolution supporting adoption of the administrative plan for a ten percent (10%) Minimum goal for disadvantaged business enterprise participation in Lexington-Fayette Urban County Government construction and professional services contracts; Providing that as part of their bids on LFUCG construction contracts, general Contractors shall make a good faith effort to award at least ten percent (10%) of All subcontracts to disadvantaged business enterprises; providing that divisions of LFUCG shall make a good faith effort to award at least ten percent of their Professional services and other contracts to disadvantaged business enterprises...”*

A Disadvantaged Business Enterprise is defined as a business that has been certified as being at least 51% owned, operated and managed by a U.S. Citizen of the following groups:

- African-American
- Hispanic-American
- Asian/Pacific Islander
- Native American/Native Alaskan
- Non-Minority Female
- Economically and Socially Disadvantaged

In addition, to that end the city council also adopted and implemented resolution 167-91—Veteran-owned Businesses, 3% Goal Plan in July of 2015. The resolution states in part (a full copy is available in Central Purchasing):

*“A resolution adopting a three percent (3%) minimum goal for certified veteran-owned small businesses and service disabled veteran-owned businesses for certain of those Lexington-Fayette Urban County contracts related to*

*construction for professional services, and authorizing the Division of Purchasing to adopt and implement guidelines and/or policies consistent with the provisions and intent of this resolution by no later than July 1, 2015.”*

We have compiled the list below to help you locate certified MBE, WBE and DBE certified businesses. Below is a listing of contacts for LFUCG Certified MWDBEs and Veteran-Owned Small Businesses in (<https://lexingtonky.ionwave.net>)

<b>Business</b>	<b>Contact</b>	<b>Email Address</b>	<b>Phone</b>
<b>LFUCG</b>	Sherita Miller	<a href="mailto:smiller@lexingtonky.gov">smiller@lexingtonky.gov</a>	859-258-3323
<b>Commerce Lexington – Minority Business Development</b>	Tyrone Tyra	<a href="mailto:ttyra@commercelexington.com">ttyra@commercelexington.com</a>	859-226-1625
<b>Tri-State Minority Supplier Diversity Council</b>	Susan Marston	<a href="mailto:smarston@tsmsdc.com">smarston@tsmsdc.com</a>	502-365-9762
<b>Small Business Development Council</b>	Shirie Hawkins UK SBDC	<a href="mailto:smack@uky.edu">smack@uky.edu</a>	859-257-7666
<b>Community Ventures Corporation</b>	Phyllis Alcorn	<a href="mailto:palcorn@cvky.org">palcorn@cvky.org</a>	859-231-0054
<b>KY Transportation Cabinet (KYTC)</b>	Melvin Bynes	<a href="mailto:Melvin.bynes2@ky.gov">Melvin.bynes2@ky.gov</a>	502-564-3601
<b>KYTC Pre-Qualification</b>	Shella Eagle	<a href="mailto:Shella.Eagle@ky.gov">Shella.Eagle@ky.gov</a>	502-782-4815
<b>Ohio River Valley Women’s Business Council (WBENC)</b>	Sheila Mixon	<a href="mailto:smixon@orvwbc.org">smixon@orvwbc.org</a>	513-487-6537
<b>Kentucky MWBE Certification Program</b>	Yvette Smith, Kentucky Finance Cabinet	<a href="mailto:Yvette.Smith@ky.gov">Yvette.Smith@ky.gov</a>	502-564-8099
<b>National Women Business Owner’s Council (NWBOC)</b>	Janet Harris-Lange	<a href="mailto:janet@nwbo.org">janet@nwbo.org</a>	800-675-5066
<b>Small Business Administration</b>	Robert Coffey	<a href="mailto:robertcoffey@sba.gov">robertcoffey@sba.gov</a>	502-582-5971
<b>LaVoz de Kentucky</b>	Andres Cruz	<a href="mailto:lavokey@yahoo.com">lavokey@yahoo.com</a>	859-621-2106
<b>The Key News Journal</b>	Patrice Muhammad	<a href="mailto:paatricem@keynewsjournal.com">paatricem@keynewsjournal.com</a>	859-373-9428



**LFUCG MWDBE PARTICIPATION FORM**

**Bid/RFP/Quote Reference #** \_\_\_\_\_

The MWDBE and/or Veteran subcontractors listed have agreed to participate on this Bid/RFP/Quote. If any substitution is made or the total value of the work is changed prior to or after the job is in progress, it is understood that those substitutions must be submitted to Central Purchasing for approval immediately. **Failure to submit a completed form may cause rejection of the bid.**

MWDBE Company, Name, Address, Phone, Email	Work to be Performed	Total Dollar Value of the Work	% Value of Total Contract
1.			
2.			
3.			
4.			

The undersigned company representative submits the above list of MWDBE firms to be used in accomplishing the work contained in this Bid/RFP/Quote. Any misrepresentation may result in the termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

\_\_\_\_\_  
**Company**

\_\_\_\_\_  
**Company Representative**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Title**



**LFUCG MWDBE SUBSTITUTION FORM**

**Bid/RFP/Quote Reference # \_\_\_\_\_**

The substituted MWDBE and/or Veteran subcontractors listed below have agreed to participate on this Bid/RFP/Quote. These substitutions were made prior to or after the job was in progress. These substitutions were made for reasons stated below and are now being submitted to Central Purchasing for approval. By the authorized signature of a representative of our company, we understand that this information will be entered into our file for this project.

SUBSTITUTED MWDBE Company Name, Address, Phone, Email	MWDBE Formally Contracted/ Name, Address, Phone, Email	Work to Be Performed	Reason for the Substitution	Total Dollar Value of the Work	% Value of Total Contract
1.					
2.					
3.					
4.					

The undersigned acknowledges that any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and false claims.

\_\_\_\_\_  
**Company**

\_\_\_\_\_  
**Company Representative**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Title**





**MWDBE QUOTE SUMMARY FORM**

Bid/RFP/Quote Reference # \_\_\_\_\_

The undersigned acknowledges that the minority and/or veteran subcontractors listed on this form did submit a quote to participate on this project. Failure to submit a completed form may cause rejection of the bid.

Company Name	Contact Person
Address/Phone/Email	Bid Package / Bid Date

MWDBE Company Address	Contact Person	Contact Information (work phone, Email, cell)	Date Contacted	Services to be performed	Method of Communication (email, phone meeting, ad, event etc)	Total dollars \$\$ Do Not Leave Blank (Attach Documentation)	MBE * AA HA AS NA Female	Veteran

(MBE designation / AA=African American / HA= Hispanic American/AS = Asian American/Pacific Islander/ NA= Native American)

The undersigned acknowledges that all information is accurate. Any misrepresentation may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

\_\_\_\_\_  
Company

\_\_\_\_\_  
Company Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title



## LFUCG SUBCONTRACTOR MONTHLY PAYMENT REPORT

The LFUCG has a 10% goal plan adopted by city council to increase the participation of minority and women owned businesses in the procurement process. The LFUCG also has a 3% goal plan adopted by cited council to increase the participation of veteran owned businesses in the procurement process. In order to measure that goal LFUCG will track spending with MWDBE and Veteran vendors on a monthly basis. By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentation may result in termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims. Please submit this form monthly to the Division of Central Purchasing/ 200 East Main Street / Room 338 / Lexington, KY 40507.

**Bid/RFP/Quote #** \_\_\_\_\_

**Total Contract Amount Awarded to Prime Contractor for this Project** \_\_\_\_\_

<b>Project Name/ Contract #</b>	<b>Work Period/ From:</b> _____ <b>To:</b> _____
<b>Company Name:</b>	<b>Address:</b>
<b>Federal Tax ID:</b>	<b>Contact Person:</b>

Subcontractor Vendor ID (name, address, phone, email)	Description of Work	Total Subcontract Amount	% of Total Contract Awarded to Prime for this Project	Total Amount Paid for this Period	Purchase Order number for subcontractor work (please attach PO)	Scheduled Project Start Date	Scheduled Project End Date

By the signature below of an authorized company representative, you certify that the information is correct, and that each of the representations set forth below is true. Any misrepresentations may result in the termination of the contract and/or prosecution under applicable Federal and State laws concerning false statements and false claims.

\_\_\_\_\_  
**Company**

\_\_\_\_\_  
**Company Representative**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Title**

**LFUCG STATEMENT OF GOOD FAITH EFFORTS**

**Bid/RFP/Quote #** \_\_\_\_\_

By the signature below of an authorized company representative, we certify that we have utilized the following Good Faith Efforts to obtain the maximum participation by MWDBE and Veteran-Owned business enterprises on the project and can supply the appropriate documentation.

\_\_\_\_\_ Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.

\_\_\_\_\_ Included documentation of advertising in the above publications with the bidders good faith efforts package

\_\_\_\_\_ Attended LFUCG Central Purchasing Economic Inclusion Outreach event

\_\_\_\_\_ Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned Businesses of subcontracting opportunities

\_\_\_\_\_ Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses

\_\_\_\_\_ Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).

\_\_\_\_\_ Contacted organizations that work with MWDBE companies for assistance in finding certified MWBDE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

\_\_\_\_\_ Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

\_\_\_\_\_ Followed up initial solicitations by contacting MWDBEs and Veteran-Owned businesses to determine their level of interest.

\_\_\_\_\_ Provided the interested MWBDE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.

\_\_\_\_\_ Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran

participation, even when the prime contractor may otherwise perform these work items with its own workforce

\_\_\_\_\_ Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

\_\_\_\_\_ Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

\_\_\_\_\_ Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

\_\_\_\_\_ Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

\_\_\_\_\_ Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

\_\_\_\_\_ Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE and Veteran participation.

**NOTE: Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to approval by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.**

The undersigned acknowledges that all information is accurate. Any misrepresentations may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

\_\_\_\_\_  
Company

\_\_\_\_\_  
Company Representative

\_\_\_\_\_  
Date

\_\_\_\_\_  
Title

**8. AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND CONFLICT OF INTEREST**

I hereby swear (or affirm) under the penalty for false swearing:

1. That I am the Bidder (if the Bidder is an individual), a partner of the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the attached bid has been arrived at by the Bidder independently, and has been submitted without collusion with, and without any agreement, understanding or planned common course of action, with any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition;
3. That the contents of the bid or bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished, with the bid or bids, and will not be communicated to any such person, prior to the official opening of the bid or bids;
4. That the Bidder is legally entitled to enter into the contracts with the Lexington-Fayette Urban County Government, and is not in violation of any prohibited conflict of interest;
5. (Applicable to corporation only) That as a foreign corporation, we are registered with the Secretary of State, Commonwealth of Kentucky, and authorized to do business in the State \_\_\_\_\_ or, that as a domestic corporation, we are in good standing with the Secretary of State, Commonwealth of Kentucky \_\_\_\_\_. Check the statement applicable.
6. This offer is for 60 calendar days from the date this bid is opened. In submitting the above, it is expressly agreed that, upon proper acceptance by the Lexington-Fayette Urban County Government of any or all items bid above, a contract shall thereby be created with respect to the items accepted.
7. That I have fully informed myself regarding the accuracy of the statements made in this statement.
8. That I certify that Subcontractors have not and will not be awarded to any firm(s) that have been debarred from noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

**9. STATEMENT OF EXPERIENCE**

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\* Include all officers, office management's, Affirmative Action officials, and field management personnel. (Attach separate sheets if necessary.)

**10. EQUAL OPPORTUNITY AGREEMENT**

The Law

- \* Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.
- \* Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and subcontractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.
- \* Section 503 of the Rehabilitation Act of 1973 States:  
*The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.*
- \* Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal Contracts.
- \* Section 206 (A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:  
*The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.*

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors, and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractor may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped, and aged persons.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Name of Business

The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit



discrimination in employment because of race, color, creed, national origin, sex or age, and to promote equal employment through a positive, continuing program from itself and each of its sub-contracting agents. This program of equal employment opportunity shall apply to every aspect of its employment policies and practices.

The Kentucky equal Employment Opportunity Act of 1978 (KRS 45.560-45.640) requires that any count, city, town, school district, water district, hospital district, or other political subdivision of the state shall include in directly or indirectly publicly funded contracts for supplies, materials, services, or equipment hereinafter entered into the following provisions:

During the performance of this contract, the contractor agrees as follows:

- (1) *The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, age or national origin;*
- (2) *The contractor will state in all solicitations or advertisements for employees placed by or on behalf of the contractors that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, age or national origin;*
- (3) *The contract will post notices in conspicuous places, available to employees and applicants for employment, setting forth the provisions of the non-discrimination clauses required by this section; and*
- (4) *The contractor will send a notice to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding advising the labor union or workers' representative of the contractor's commitments under the nondiscrimination clauses.*

The Act further provides:

#### KRS 45.610. Hiring minorities – Information required

- (1) *For the length of the contract, each contractor shall hire minorities from other sources within the drawing area, should the union with which he has collective bargaining agreements be unwilling to supply sufficient minorities to satisfy the agreed upon goals and timetable.*
- (2) *Each contractor shall, for the length of the contract, furnish such information as required by KRS 45.560 to KRS 45.640 and by such rules, regulations and orders issued pursuant thereto and will permit access to all books and records pertaining to his employment practices and work sites by the contracting agency and the department for purposes of investigation to ascertain compliance with KRS 45.560 to 45.640 and such rules, regulations and orders issued pursuant thereto.*

#### KRS 45.620. Action against contractor – Hiring of minority contractor or subcontractor

- (1) *If any contractor is found by the department to have engaged in an unlawful practice under this chapter during the course of performing under a contract or subcontract covered under*

**12. WORKFORCE ANALYSIS FORM**

Name of Organization: \_\_\_\_\_

Categories	Total	White (Not Hispanic or Latino)		Hispanic or Latino		Black or African-American (Not Hispanic or Latino)		Native Hawaiian and Other Pacific Islander (Not Hispanic or Latino)		Asian (Not Hispanic or Latino)		American Indian or Alaskan Native (not Hispanic or Latino)		Two or more races (Not Hispanic or Latino)		Total		
		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Administrators																		
Professionals																		
Superintendents																		
Supervisors																		
Foremen																		
Technicians																		
Protective Service																		
Para-Professionals																		
Office/Clerical																		
Skilled Craft																		
Service/Maintenance																		
<b>Total:</b>																		

Prepared by: \_\_\_\_\_

(Name and Title)

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**13. EVIDENCE OF INSURABILITY**

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT CONSTRUCTION PROJECT  
(Use separate form for each Agency or Brokerage agreeing to provide coverage)

Names Insured: \_\_\_\_\_ Employee ID: \_\_\_\_\_  
 Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Project to be insured: \_\_\_\_\_

In lieu of obtaining certificates of insurance at this time, the undersigned agrees to provide the above Named Insured with the minimum coverage listed below. These are outlined in the Insurance and Risk Management of Part V (Special Conditions), including all requirements, and conditions:

Section Items	Coverage	Minimum Limits and Policy Requirements	Limits Provided To Insured	Name of Insurer	A.M. Best's Code	Rating
SC-3, Section 2, Part 4.1 – see provisions	CGL	\$1,000,000 per occ. And \$2,000,000 aggregate	\$			
SC-3, Section 2, Part 4.1 – see provisions	AUTO	\$2,000,000/per occ.	\$			
SC-3, Section 2, Part 4.1 – see provisions	WC	Statutory w/endorsement as noted	\$			

Section 2 includes required provisions, statements regarding insurance requirements, and the undersigned agrees to abide by all provisions for the coverage's checked above unless stated otherwise when submitting.

Agency or Brokerage \_\_\_\_\_ Name of Authorized Representative \_\_\_\_\_  
 Street Address \_\_\_\_\_ Title \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Authorized Signature \_\_\_\_\_  
 Telephone Number \_\_\_\_\_ Date \_\_\_\_\_

NOTE: Authorized signatures may be the agent's if agent has placed insurance through an agency agreement with the insurer. If insurance is brokered, authorized signature must be that of authorized representative of insurer.  
**IMPORTANT: Contract may not be awarded if a completed and signed copy of this form for all coverage's listed above is not provided with the bid.**

**14. DEBARRED FIRMS**

**PROJECT NAME:** Baker Court Pump Station Replacement

**BID NUMBER:** 150-2018

**LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT  
LEXINGTON, KY**

All prime Contractors shall certify that Subcontractors have not and will not be awarded to any firms that has been debarred for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

All bidders shall complete the attached certification in duplicate and submit both copies to the Owner with the bid proposal. The Owner (grantee) shall transmit one copy to the Lexington-Fayette Urban County Government, Division of Community Development, within fourteen (14) days after bid opening.

The undersigned hereby certifies that the firm of \_\_\_\_\_ has not and will not award a subcontract, in connection with any contract award to it as the result of this bid, to any firm that has been debarred for noncompliance with the Federal labor Standards, Title VI of the civil Rights Act of 1964, Executive Order 11246 as amended or any Federal Law.

\_\_\_\_\_  
Name of Firm Submitting Bid

\_\_\_\_\_  
Signature of Authorized Official

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

**15. DEBARMENT CERTIFICATION**

All contractors/subcontractors shall complete the following certification and submit it with the bid proposal.

The contractor/subcontractor certifies in accordance with Executive Order 12549 (Debarment and Suspension 2/18/86) that to the best of its knowledge and belief, that it and its principals:

- 1) Are not presently debarred, suspended, proposed for debarment, declared negligible, or voluntarily excluded from covered transactions or contract by any Federal department or agency for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 as amended, Executive Order 11246 as amended or any other Federal law;
  - a) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - b) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(a) of this certification; and
  - c) Have not within a three year period preceding this bid has one or more public (Federal, State or local) transactions or contracts terminated for cause or default.
- 2) Where the contractor is unable to certify to any of the statements in this certification, such prospective contractors shall attach an explanation to this certification form.

Firm Name: \_\_\_\_\_

Project: \_\_\_\_\_

Printed Name and Title of Authorized Representative: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

END OF SECTION



**PART IV**

**GENERAL CONDITIONS**

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## PART IV

### GENERAL CONDITIONS

#### 1. DEFINITIONS

Wherever used in these General Conditions or the other Contract Documents, the following terms have the meanings indicated which are applicable to both the singular and plural thereof.

##### 1.1 Addenda

Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bid Documents or the Contract Documents.

##### 1.2 Agreement

The written agreement between OWNER and CONTRACTOR covering the Work to be performed; other Contract Documents are attached to the Agreement and made a part thereof as provided therein.

##### 1.3 Application for Payment

The form accepted by ENGINEER which is to be used by CONTRACTOR in requesting progress or final payments and which is to include such supporting documentation as is required by the Contract Documents.

##### 1.4 Bid

The offer or proposal of the Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

##### 1.5 Bidder

An individual, partnership, or corporation, who submit a Bid for a prime contract with the OWNER, for the Work described in the proposed Contract Documents.

##### 1.6 Bonds

Bid, performance and payment bonds and other instruments of security.

##### 1.7 Calendar Day

A calendar day of twenty-four hours measured from midnight to the next midnight shall constitute a day.

##### 1.8 Change Order

A document recommended by ENGINEER, which is signed by CONTRACTOR and OWNER and authorizes an addition, deletion or revision in the Work, or an adjustment in the Contract Price or the Contract Time, issued on or after the Effective Date of the Agreement.

**1.9 Contract Documents**

The Advertisement for Bidders, Information for Bidders, Agreement, Addenda (which pertain to the Contract Documents), CONTRACTOR'S Bid (including documentation accompanying the Bid and any post-bid documentation submitted prior to the Notice of Award) when attached as an exhibit to the Agreement, the Bonds, these General Conditions, the Special Conditions, the Specifications and the Drawings as the same are more specifically identified in the Agreement, together with all amendments, modifications and supplements.

**1.10 Contract Unit Price**

The monies payable by OWNER to CONTRACTOR under the Contract Documents as stated in the Agreement. Unit Prices are to be firm for the term of this Contract.

**1.11 Contract Time**

The number of consecutive calendar days between the date of issuance of the Notice to Proceed and the contract completion date.

**1.12 CONTRACTOR**

The person, firm or corporation with whom OWNER has entered into the Agreement.

**1.13 Defective**

An adjective which when modifying the word Work refers to Work that is unsatisfactory, faulty or deficient, or does not conform to the Contract Documents, or does not meet the requirements of any inspection, reference standard, test or approval referred to in the Contract Documents, or has been damaged prior to ENGINEER'S recommendation of final payment (unless responsibility for the protection thereof has been assumed by OWNER).

**1.14 Drawings**

The drawings which show the character and scope of the Work to be performed and which have been prepared or approved by ENGINEER and are referred to in the Contract Documents.

**1.15 Effective Date of the Agreement**

The date indicated in the Agreement on which it becomes effective.

**1.16 ENGINEER**

The Lexington-Fayette Urban County Government Division of Water Quality or its authorized representative.

**1.17 Field Order**

A documented order issued by ENGINEER which orders minor changes in the Work, but which does not involve a change in the Contract Price or the Contract Time.

**1.18 Giving Notice**

Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

**1.19 Laws and Regulations**

Laws, rules, regulations, ordinances, codes and/or orders.

**1.20 Notice of Award**

The written notice by OWNER to the apparent successful bidder stating that upon compliance by the apparent successful bidder with the conditions enumerated therein, within the time specified, OWNER will sign and deliver the Agreement.

**1.21 Notice to Proceed**

A written notice given by OWNER to CONTRACTOR fixing the date on which the Contract Time will commence to run and on which CONTRACTOR shall start to perform CONTRACTOR'S obligations under the Contract Documents.

**1.22 OWNER**

The Lexington-Fayette Urban County Government.

**1.23 Partial Utilization**

Placing a portion of the Work in service for the purpose for which it is intended (or related purpose) before reaching Completion for all the Work.

**1.24 Project**

The total construction of which the Work to be provided under the Contract Documents may be the whole, or a part as indicated elsewhere in the Contract Documents.

**1.25 Inspector**

The authorized representative of the ENGINEER who is assigned to the site or any part thereof.

**1.26 Shop Drawings**

All drawings, diagrams, illustrations, schedules and other data which are specifically prepared by or for CONTRACTOR to illustrate some portion of the Work and all illustrations, brochures, standard schedules, performance charts, instructions, diagrams and other information prepared by a Supplier and submitted by CONTRACTOR to illustrate material or equipment for some portion of the Work.

**1.27 Specifications**

Those portions of the Contract Documents consisting of written technical descriptions of materials, equipment, construction systems, standards and workmanship as applied to the Work and certain administrative details applicable thereto.

**1.28 Standard Specifications**

The "Standard Specifications for Road and Bridge Construction", Transportation Cabinet, Department of Highways, Commonwealth of Kentucky, current edition. MUTCD shall refer to the "Manual of Uniform Traffic Control Devices.

**1.29 Subcontractor**

An individual, firm or corporation having a direct contract with CONTRACTOR or with any other Subcontractor for the performance of a part of the Work at the site.

**1.30 Special Conditions**

The part of the Contract Documents which amends or supplements these General Conditions.

**1.31 Supplier**

A manufacturer, fabricator, supplier, distributor, materialman or vendor.

**1.32 Underground Facilities**

All pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels or other such facilities or attachments, and any encasements containing such facilities which have been installed underground to furnish any of the following services or materials: electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, sewage and drainage removal, traffic or other control systems or water.

**1.33 Unit Price Work**

Not applicable

**1.34 Work**

The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

**1.35 Time Period**

When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by

the law of the applicable jurisdiction, such day will be omitted from the computation.

## **2. PRELIMINARY MATTERS**

### **2.1 Delivery of Bonds**

When the CONTRACTOR delivers the executed Agreements to OWNER, CONTRACTOR shall also deliver to OWNER, such Bonds, Insurance Certificate, and Power of Attorney as CONTRACTOR may be required to furnish.

### **2.2 Copies of Documents**

Owner shall furnish to CONTRACTOR up to three copies (unless otherwise specified in the Special Conditions) of the Contract Documents as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

### **2.3 Commencement of Contract Time; Notice to Proceed**

The Contract Time will commence to run on the day specified in the Notice to Proceed.

### **2.4 Starting the Project**

CONTRACTOR shall start to perform the Work on the date when the Contract Time commences to run, but no Work shall be done at the site prior to the date on which the Contract Time commences to run.

### **2.5 Before Starting Construction**

Before undertaking each part of the Work, CONTRACTOR shall carefully study and compare the Contract Documents and check and verify pertinent figures shown thereon and all applicable field measurements. CONTRACTOR shall promptly report in writing to ENGINEER any conflict, error or discrepancy which CONTRACTOR may discover and shall obtain a written interpretation or clarification from ENGINEER before proceeding with any Work affected thereby; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents, unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

### **2.6 Submittal of Schedules**

Within ten days after the effective date of the Agreement (unless otherwise specified) CONTRACTOR shall submit to ENGINEER for review:

**2.6.1** an estimated progress schedule indicating the starting and completion dates of the various stages of the Work;

**2.6.2** a preliminary schedule of Shop Drawing submissions; and



**2.6.3** a preliminary schedule of values for all of the Work which will include quantities and prices of items aggregating the Contract Price and will subdivide the Work into component parts in sufficient detail to serve as the basis for progress payments during construction. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work which will be confirmed in writing by CONTRACTOR at the time of submission.

**2.7 Preconstruction Conference**

Before CONTRACTOR starts the Work at the proposed site, a conference attended by CONTRACTOR, ENGINEER, EEO-Affirmative Action Officer, and other appropriate parties will be held to discuss the following issues: (1) The scheduling of the Work to be completed; (2) The procedures for handling shop drawings and other submittals; (3) The processing of applications for payment; (4) The establishment of an understanding among the involved parties in regard to the proposed project; and (5) The establishment of procedures for effectively implementing the LFUCG's 10% minimum DBE goals.

**2.8 Finalizing Schedules**

At least ten days before submission of the first Application for Payment a conference attended by CONTRACTOR, ENGINEER and others as appropriate will be held to finalize the schedules submitted in accordance with paragraph 2.6. The finalized progress schedule will be acceptable to ENGINEER as providing orderly progression of the Work to completion within the Contract Time, but such acceptance will neither impose on ENGINEER responsibility for the progress or scheduling of the Work nor relieve CONTRACTOR from full responsibility thereof. The finalized schedule of Shop Drawing submissions will be acceptable to ENGINEER as providing a workable arrangement for processing the submissions. The finalized schedule of values will be acceptable to ENGINEER as to form and substance.

**3. CONTRACT DOCUMENTS: INTENT, CONFLICTS, AMENDING AND REUSE**

**3.1 General**

The Contract Documents comprise the entire agreement between OWNER and CONTRACTOR concerning the Work. The Contract Documents are complementary; what is called for by one is as binding as if called for by all. The Contract Documents will be construed in accordance with the law of the place of the Project.

**3.2 Intent**

It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any Work, materials or equipment that may reasonably be inferred from the Contract Documents as being required to produce the intended result will be supplied whether or not specifically

called for. When words which have a well-known technical or trade meaning are used to describe Work, materials or equipment such words shall be interpreted in accordance with that meaning. Reference to standard specifications, manuals or codes of any technical society, organization or association, or to the laws or regulations of any governmental authority, whether such reference be specific or by implication, shall mean the latest standard specification, manual, code or laws or regulations in effect at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated. However, no provision of any referenced standard specification, manual or code (whether or not specifically incorporated by reference in the Contract Documents) shall be effective to change the duties and responsibilities of OWNER, CONTRACTOR or ENGINEER, or any of their consultants, agents or employees from those set forth in the Contract Documents, nor shall it be effective to assign to ENGINEER, or any of ENGINEER'S consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 8.12.3 or 8.12.4. Clarifications and interpretations of the Contract Documents shall be issued by ENGINEER as provided in paragraph 8.4.

### **3.3 Conflicts**

If, during the performance of the Work; CONTRACTOR finds a conflict, error or discrepancy in the Contract Documents, CONTRACTOR shall so report to ENGINEER in writing at once and before proceeding with the Work affected thereby shall obtain a written interpretation or clarification from ENGINEER; however, CONTRACTOR shall not be liable to OWNER or ENGINEER for failure to report any conflict, error or discrepancy in the Contract Documents unless CONTRACTOR had actual knowledge thereof or should reasonably have known thereof.

In resolving such conflicts, errors and discrepancies, the documents shall be given precedence in the following order:

1. Agreement
2. Field and Change Orders
3. Addenda
4. Special Conditions
5. Instruction to Bidders
6. General Conditions
7. Specifications and Drawings

Figure dimension on drawings shall govern over scale dimensions and detailed Drawings shall govern over general Drawings.

**3.4 Amending and Supplementing Contract Documents**

The Contract Documents may be amended to provide for additions, deletions and revisions in the Work or to modify the terms and conditions thereof by means of a Change Order or a Field Order. Contract Price and Contract Time may only be changed by a Change Order.

**3.5 Reuse of Documents**

Neither CONTRACTOR nor any Subcontractor or Supplier or other person or organization performing or furnishing any of the Work under a direct or indirect contract with OWNER shall have or acquire any title to or ownership rights in any of the Drawings, Specifications or other documents (or copies of any thereof) prepared by or bearing the seal of ENGINEER; and they shall not reuse any of them on extensions of the Project or any other project without written consent of OWNER and ENGINEER and specific written verification or adaptation by ENGINEER.

**4. AVAILABILITY OF LANDS; PHYSICAL CONDITIONS, REFERENCE POINTS**

**4.1 Availability of Lands**

OWNER shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access thereto, and such other lands which are designated for the use of CONTRACTOR. Easements for permanent structures or permanent changes in existing facilities will be obtained and paid for by OWNER, unless otherwise provided in the Contract Documents. If CONTRACTOR believes that any delay in OWNER'S furnishing these lands, rights-of-way or easements entitles CONTRACTOR to an extension of the Contract Time, CONTRACTOR may make a claim therefor as provided in Article 11. ENGINEER shall determine if the claim is legitimate or not. CONTRACTOR shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

**4.2 Physical Conditions**

**4.2.1 Explorations and Reports**

Reference is made to the Special Conditions for identification of those reports of explorations and tests of subsurface conditions at the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such reports, but not upon non-technical data, interpretations or opinions contained therein or for the completeness thereof for CONTRACTOR'S purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to subsurface conditions at the site.

4.2.2 Existing Structures

Reference is made to the Special Conditions for identification of those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities referred to in paragraph 4.3 which are at or contiguous to the site that have been utilized by ENGINEER in preparation of the Contract Documents. CONTRACTOR may rely upon the accuracy of the technical data contained in such drawings, but not for the completeness thereof for CONTRACTOR'S purposes. Except as indicated in the immediately preceding sentence and in paragraph 4.2.6, CONTRACTOR shall have full responsibility with respect to physical conditions in or relating to such structures.

4.2.3 Report of Differing Conditions

If CONTRACTOR believes that:

4.2.3.1 any technical data on which CONTRACTOR is entitled to rely as provided in paragraphs 4.2.1 and 4.2.2 is inaccurate, or

4.2.3.2 any physical conditions uncovered or revealed at the site differ materially from that indicated, reflected or referred to in the Contract Documents,

CONTRACTOR shall, promptly after becoming aware thereof and before performing and WORK in connection therewith (except in an emergency) notify OWNER and ENGINEER in writing about the inaccuracy or difference.

4.2.4 ENGINEER'S Review

Engineer will promptly review the pertinent conditions, determine the necessity of obtaining additional explorations or tests with respect thereto and advise CONTRACTOR of ENGINEER'S findings and conclusions.

4.2.5 Possible Document Change

If ENGINEER concludes that there is a material error in the Contract Documents or that because of newly discovered conditions a change I the Contract Documents is required, a Change Order will be issued as provided in Article 10 to reflect and document the consequences of the inaccuracy or difference.

4.2.6 Possible Price and Time Adjustments

In each such case, an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, or any combination thereof, will be allowable to the extent that they are attributable to any such inaccuracy or difference.

### **4.3 Physical Conditions-Underground Facilities**

#### **4.3.1 Shown or Indicated**

The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the site is based on information and data furnished to OWNER or ENGINEER by the owners of such underground facilities or by others. Unless it is otherwise expressly provided in the Special Conditions:

4.3.1.1 OWNER and ENGINEER shall not be responsible for the accuracy or completeness of any such information or data; and,

4.3.1.2 CONTRACTOR shall have full responsibility for reviewing and checking all such information and data; for locating all underground facilities shown or indicated in the Contract Documents; for coordination of the Work with the owners of such underground facilities during construction; and for the safety and protection thereof and repairing any damage thereto resulting from the Work, the cost of all of which will be considered as having been included in the Contract Price.

#### **4.3.2 Not Shown or Indicated**

If an underground facility is uncovered or revealed at or contiguous to the site which was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of, CONTRACTOR shall, promptly after becoming aware thereof and before performing any Work affected thereby (except in an emergency), identify the owner of such Underground Facility and give written notice thereof to that owner and to OWNER and ENGINEER. ENGINEER will promptly review the underground facility to determine the extent to which the Contract Documents should be modified to reflect and document the consequences of the existence of the Underground Facility, and the Contract Documents will be amended or supplemented to the extent necessary. During such time, CONTRACTOR shall be responsible for the safety and protection of such underground facility. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, to the extent that they are attributable to the existence of any underground facility that was not shown or indicated in the Contract Documents and which CONTRACTOR could not reasonably have been expected to be aware of.

### **4.4 Reference Points**

OWNER shall provide engineering surveys to establish reference points for construction which in ENGINEER'S judgment are necessary to enable CONTRACTOR to proceed with the Work. CONTRACTOR shall be responsible for laying out the Work (unless otherwise specified), shall protect and preserve the established reference points and shall make no changes or relocations without the

prior written approval of OWNER. CONTRACTOR shall report to ENGINEER whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points by a Registered Land Surveyor.

## **5. CONTRACTOR'S RESPONSIBILITIES**

### **5.1 Supervision**

CONTRACTOR shall supervise and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. CONTRACTOR shall assure that all CONTRACTOR personnel (including subcontractors, etc.) conduct themselves in a courteous and respectful manner toward the ENGINEER and the general public. Failure to comply with this condition of the Contract will result in immediate suspension of the Work. Following a review by the Commissioner of Public Works, the Contract may be terminated (see GC section 14). CONTRACTOR shall be solely responsible for the means, methods, techniques, sequences and procedures of construction, but CONTRACTOR shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence or procedure of construction which is indicated in and required by the Contract Documents. CONTRACTOR shall be responsible to see that the finished Work complies accurately with the Contract Documents.

### **5.2 Superintendence**

CONTRACTOR shall keep on the Work at all times during its progress a competent resident superintendent, who shall not be replaced without written notice to OWNER and ENGINEER except under extraordinary circumstances. The superintendent will be CONTRACTOR'S representative at the site and shall have authority to act on behalf of CONTRACTOR. All communications given to the superintendent shall be as binding as if given to CONTRACTOR.

### **5.3 General Manager**

CONTRACTOR shall keep at all times during Contract progress a COMPETENT General Manager, who shall not be replaced without written notice to OWNER except under extraordinary circumstances. Owner must approve this person. Owner may request removal and replacement of General Manager at any time. If so, Contractor shall have thirty (30) days to make replacement. The General Manager will be CONTRACTOR'S main representative for all technical, billing, data management, subcontractor coordination, and complaint resolutions and shall have authority to act on behalf of CONTRACTOR. The General Manager shall spend a minimum of eighty (80) percent of their time in the office. All communications given to the General Manager shall be as binding as if given to CONTRACTOR.

#### **5.4 Labor**

CONTRACTOR shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. CONTRACTOR shall at all times maintain good discipline and order at the site. Except in connection with the safety or protection of persons or the Work or property at the site or adjacent thereto, and except as otherwise indicated in the Contract Documents, all Work at the site shall be performed during regular working hours, and CONTRACTOR will not permit overtime work or the performance of Work on Saturday, Sunday or any legal holiday without OWNER'S written consent given after prior written notice to ENGINEER.

#### **5.5 Start-Up and Completion of Work**

Unless otherwise specified, CONTRACTOR shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the furnishing, performance, testing, start-up and completion of the Work.

#### **5.6 Materials and Equipment**

All materials and equipment shall be of good quality and new, except as otherwise provided in the Contract Documents. If required by ENGINEER, CONTRACTOR shall furnish satisfactory evidence (including reports of required tests) as to the kind and quality of materials and equipment. All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable supplier except as otherwise provided in the Contract Documents; but no provision of any such instructions will be effective to assign to ENGINEER, or any of ENGINEER'S consultants, agents or employees, any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 8.12.3 or 8.12.4.

##### **5.6.1 Not Clearly Specified or Indicated**

In all instances where materials specified are obtainable in different sizes, weights, trade grades, qualities or finishes, etc., whose weights, trade grades, qualities or finishes, etc., are not clearly specified or indicated on the Drawings, the CONTRACTOR shall notify the ENGINEER of all such instances at least five (5) days in advance of receiving the proposals. The Engineer will then determine which size, weight, trade grade, quality, finish, etc., is required.

##### **5.6.2 Coordination of Work**

The CONTRACTOR shall see that for his own Work and for the work of each subcontractor, proper templates and patterns necessary for the coordination of the various parts of the Work are prepared. The

CONTRACTOR shall furnish or require the Subcontractor to furnish such duplicates as will enable the Subcontractors to fit together and execute fully their respective portions of the Work.

**5.7 Adjusting Progress Schedule**

CONTRACTOR shall submit to ENGINEER for acceptance (to the extent indicated in paragraph 2.8) adjustments in the progress schedule to reflect the impact thereon of new developments; these will conform generally to the progress schedule then in effect and additionally will comply with any provisions of the Contract Documents applicable thereto.

**5.8 Substitutes or "Or-Equal" Items**

**5.8.1 General**

Whenever materials or equipment are specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular supplier, the naming of the item is intended to establish the type, function, and quality required. Unless the name is followed by words indicating that no substitution is permitted, materials or equipment of other Suppliers may be accepted by OWNER/ENGINEER if sufficient information is submitted by CONTRACTOR to allow OWNER/ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named. The procedure for review by OWNER/ENGINEER will include the following. Requests for review of substitute items of material and equipment will not be accepted by OWNER/ENGINEER from anyone, other than CONTRACTOR. If CONTRACTOR wishes to furnish or use a substitute item of material or equipment, CONTRACTOR shall make written application to OWNER/ENGINEER for acceptance thereof, certifying that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, be similar and of equal substance to that specified and be suited to the same use as that specified. The application will state that the evaluation and acceptance of the proposed substitute will not prejudice CONTRACTOR'S achievement of completion on time, whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with OWNER for work on the Project) to adapt the design to the proposed substitute and whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified will be identified in the application and available maintenance, repair and replacement service will be indicated. The application will also contain an itemized estimate of all costs that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of other contractors affected by the resulting change, all of which shall be considered



by OWNER/ENGINEER in evaluating the proposed substitute. OWNER/ENGINEER may require CONTRACTOR to furnish at CONTRACTOR'S expense additional data about the proposed substitute.

5.8.2 Substitutes

If a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents, CONTRACTOR may furnish or utilize a substitute means, method, sequence, technique or procedure of construction acceptable to OWNER/ENGINEER, if CONTRACTOR submits sufficient information to allow OWNER/ENGINEER to determine that the substitute proposed is equivalent to that indicated or required by the Contract Documents. The procedure for review by OWNER/ENGINEER will be similar to that provided in paragraph 5.7.1 as applied by OWNER/ENGINEER.

5.8.3 OWNER/ENGINEER'S Approval

OWNER/ENGINEER will be allowed a reasonable time within which to evaluate each proposed substitute. OWNER/ENGINEER will be the sole judge of acceptability, and no substitute will be ordered, installed or utilized without OWNER/ENGINEER'S prior written acceptance which will be evidenced by either a Change Order or an approved Shop Drawing. OWNER may require CONTRACTOR to furnish at CONTRACTOR'S expense a special performance guarantee or other surety with respect to any substitute. OWNER/ENGINEER will record time required by OWNER/ENGINEER and OWNER/ENGINEER'S consultants in evaluating substitutions proposed by CONTRACTOR and in making changes in the Contract Documents occasioned thereby. Whether or not OWNER/ENGINEER accepts a proposed substitute, CONTRACTOR shall reimburse OWNER for the charges of OWNER/ENGINEER and OWNER/ENGINEER'S consultants for evaluating each proposed substitute.

**5.9 Subcontractors, Suppliers, and Others**

5.9.1 Acceptable to ENGINEER

CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those acceptable to OWNER and ENGINEER as indicated in paragraph 5.8.2), whether initially or as a substitute, against whom OWNER or ENGINEER may have reasonable objection. CONTRACTOR shall not be required to employ any Subcontractor, Supplier or other person or organization to furnish or perform any of the Work against whom CONTRACTOR has reasonable objection.

5.9.2 Objection After Due Investigation

If the Contract Documents require the identity of certain Subcontractors, Suppliers or other persons or organizations (including those who are to furnish the principal items of materials and equipment) to be submitted to OWNER in advance of the specified date prior to the Effective Date of the Agreement for acceptance by OWNER and ENGINEER and if CONTRACTOR has submitted a list thereof, OWNER'S or ENGINEER'S acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the bidding documents or the Contract Documents) of any such Subcontractor, Supplier or other person or organization so identified may be revoked on the basis of reasonable objection after due investigation, in which case CONTRACTOR shall submit an acceptable substitute. No acceptance by OWNER or ENGINEER of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of OWNER or ENGINEER to reject defective Work.

5.9.3 Contractor Responsible for Acts of Subcontractors

The CONTRACTOR shall perform on the site, and with its own organization, work equivalent to at least fifty (50) percent of the total amount of Work to be performed under the Contract. This percentage may be reduced by a supplemental agreement to this Contract if, during performing the Work, the CONTRACTOR requests a reduction and the Urban County Engineer determines that the reduction would be to the advantage of the Urban County Government.

The CONTRACTOR shall, at the time he submits his proposal for the Contract, notify the OWNER in writing of the names of Subcontractors proposed for the Work. He shall not employ any Subcontractor without the prior written approval of the OWNER.

CONTRACTOR shall be fully responsible to OWNER and ENGINEER for all acts and omissions of the Subcontractors, Suppliers and other persons and organizations performing or furnishing any of the Work under a direct or indirect contract with CONTRACTOR just as CONTRACTOR is responsible for CONTRACTOR'S own acts and omissions. Nothing in the Contract Documents shall create any contractual relationship between OWNER or ENGINEER and any such Subcontractor, Supplier or other person or organization, nor shall it create any obligation on the part of OWNER or ENGINEER to pay or to see to the payment of any moneys due any such Subcontractor, Supplier or other person or organization except as may otherwise be required by Laws and Regulations.

5.9.4 Division of Specifications

The divisions and sections of the Specifications and the identifications of any Drawings shall not control CONTRACTOR in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

5.9.5 Agreement Between Contractor and Subcontractors

All Work performed for CONTRACTOR by a Subcontractor will be pursuant to an appropriate agreement between CONTRACTOR and the Subcontractor which specifically binds the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of OWNER and ENGINEER.

5.9.6 Statements and Comments by CONTRACTOR

Neither the CONTRACTOR, his employees, nor his subcontractors shall at any time make any statement or comment as to the project scope, nature, intention, design, or construction method to any third party or parties without the explicit written consent of the OWNER.

Any third party requesting such information shall be referred to the OWNER or his representative.

Should there be any change from the original intent of the project as a result of any statement or comment by the contractor, his employees or subcontractors, contractor shall be held liable for any change in the scope, nature, design, or construction method and shall bear the full cost for the previously mentioned changes.

**5.10 Patent Fees and Royalties**

CONTRACTOR shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others.

**5.11 Permits**

Unless otherwise provided in the Special conditions, CONTRACTOR shall obtain and pay for all construction permits and licenses. OWNER shall assist CONTRACTOR, when necessary, in obtaining such permits and licenses. CONTRACTOR shall pay all governmental charges and inspection fees necessary for the prosecution of the Work, which are applicable at the time of opening of Bids, or if there are no Bids on the Effective Date of the Agreement. CONTRACTOR shall pay all charges of utility owners for connections to the Work, and OWNER shall pay all charges of such utility owners for capital costs related thereto such as plant investment fees.

## **5.12 Laws and Regulations**

### **5.12.1 CONTRACTOR to Comply**

CONTRACTOR shall give all notices and comply with all Laws and Regulations applicable to furnishing and performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER shall be responsible for monitoring CONTRACTOR'S compliance with any Laws and Regulations.

### **5.12.2 Specifications and Drawings at Variance**

If CONTRACTOR observes that the Specifications or Drawings are at variance with any Laws or Regulations, CONTRACTOR shall give ENGINEER prompt written notice thereof, and any necessary changes will be authorized by one of the methods indicated in paragraph 3.4. If CONTRACTOR performs any Work knowing or having reason to know that it is contrary to such Laws, or Regulations, and without such notice to ENGINEER, CONTRACTOR shall bear all costs arising therefrom; however, it shall not be CONTRACTOR'S primary responsibility to make certain that the Specifications and Drawings are in accordance with such Laws and Regulations.

## **5.13 Taxes**

CONTRACTOR shall pay all sales, consumer, use and other similar taxes required to be paid by CONTRACTOR in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work. Any party, firm or individual submitting a proposal pursuant to invitation must have paid all taxes owed to the Lexington-Fayette Urban County Government at the time the proposal is submitted, and must maintain a "current" status in regard to those taxes throughout the Contract. If applicable, business must be licensed in Fayette County.

## **5.14 Use of Premises**

### **5.14.1 Project Site**

CONTRACTOR shall confine construction equipment, the storage of materials and equipment and the operations of workers to the staging areas or work site areas identified in and permitted by the Contract Documents and other land and areas permitted by Laws and Regulations, rights-of-way, permits and easements, and shall not unreasonably encumber the premises with construction equipment or other materials or equipment. CONTRACTOR shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof or of any land or areas contiguous thereto, resulting from the performance of the Work. Should any claim be made against OWNER or ENGINEER by any such owner or occupant because of the performance of the Work, CONTRACTOR shall promptly attempt to settle with such other party by agreement or otherwise

resolve the claim by arbitration or at law. CONTRACTOR shall, to the fullest extent permitted by Laws and Regulations, indemnify and hold OWNER and ENGINEER harmless from and against all claims, damages, losses and expenses (including, but not limited to, fees of engineers, architects, attorneys and other professionals and court and arbitration costs) arising directly, indirectly or consequentially out of any action, legal or equitable, brought by any such other party against OWNER or ENGINEER to the extent based on a claim arising out of CONTRACTOR'S performance of the Work.

**5.14.2 Clean UP**

During the progress of the Work, CONTRACTOR shall keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work. At the completion of the Work, CONTRACTOR shall remove all waste materials, rubbish and debris from and about the premises as well as all tools, appliances, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by OWNER. CONTRACTOR shall restore to original condition all property not designated for alteration by the Contract Documents.

**5.14.3 Loading of Structures**

CONTRACTOR shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall CONTRACTOR subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

**5.15 Record Drawings**

CONTRACTOR shall maintain in a safe place at the site one record copy of all Drawings, Specifications, Addenda, Change Orders, Field Orders and written interpretations and clarifications (issued pursuant to paragraph 9.4) in good order and annotated to show all changes made during construction. These record documents together with all approved samples and a counterpart of all approved Shop Drawings will be available to ENGINEER for reference. Upon completion of the Work, these record documents, samples and Shop Drawings will be delivered to ENGINEER for OWNER.

**5.16 Shop Drawings and Samples**

**5.16.1 Shop Drawing Submittals**

After checking and verifying all field measurements and after complying with applicable procedures specified, CONTRACTOR shall submit to ENGINEER for review and approval in accordance with the accepted schedule of Shop Drawing submissions (see paragraph 2.8), or for other appropriate action if so indicated in the Special Conditions, five copies (unless otherwise specified) of all Shop Drawings, which will bear a stamp

or specific written indication that CONTRACTOR has satisfied CONTRACTOR'S responsibilities under the Contract Documents with respect to the review of the submission. All submissions will be identified as ENGINEER may require. The data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials and similar data to enable ENGINEER to review the information as required.

5.16.2 Sample Submittals

CONTRACTOR shall also submit to ENGINEER for review and approval with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and accompanied by a specific written indication that CONTRACTOR has satisfied CONTRACTOR'S responsibilities under the Contract Documents with respect to the review of the submission and will be identified clearly as to material, Supplier, pertinent data such as catalog numbers and the use for which intended.

5.16.3 Review by CONTRACTOR

Before submission of each Shop Drawing or sample CONTRACTOR shall have determined and verified all quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar data with respect thereto and reviewed or coordinated each Shop Drawing or sample with other Shop Drawings and samples and with the requirements of the Work and the Contract Documents.

5.16.4 Notice of Variation

At the time of each submission, CONTRACTOR shall give ENGINEER specific written notice of each variation that the Shop Drawings or samples may have from the requirements of the Contract Documents, and, in addition, shall cause a specific notation to be made on each Shop Drawing submitted to ENGINEER for review and approval of each such variation.

5.16.5 ENGINEER'S Approval

ENGINEER will review and approve with reasonable promptness Shop Drawings and samples, but ENGINEER'S review and approval will be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents and shall not extend to means, methods, techniques, sequences or procedures of construction (except where a specific means, method, technique, sequence or procedure of construction is indicated in or required by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions. CONTRACTOR shall make corrections required by ENGINEER, and shall return the required number of corrected copies of

Shop Drawings and submit, as required, new samples for review and approval. CONTRACTOR shall direct specific attention in writing to revisions other than the corrections called for by ENGINEER on previous submittals.

**5.16.6 Responsibility for Errors and Omissions**

ENGINEER'S review and approval of Shop Drawings or samples shall not relieve CONTRACTOR from responsibility for any variation from the requirements of the Contract Documents unless CONTRACTOR has in writing called ENGINEER'S attention to each such variation at the time of submission as required by paragraph 5.15.4 and ENGINEER has given written approval of each such variation by a specific written notation thereof incorporated in or accompanying the Shop Drawing or sample approval; nor will any approval by ENGINEER relieve CONTRACTOR from responsibility for errors or omissions in the Shop Drawings or from responsibility for having complied with the provisions of paragraph 5.15.3.

**5.16.7 Cost of Related Work**

Where a Shop or sample is required by the Specifications, any related Work performed prior to ENGINEER'S review and approval of the pertinent submission will be the sole expense and responsibility of CONTRACTOR.

**5.17 Continuing the Work**

CONTRACTOR shall carry on the Work and adhere to the progress schedule during all disputes or disagreements with OWNER. No Work shall be delayed or postponed pending resolutions of any disputes or disagreements, except as permitted by paragraph 14.5 or as CONTRACTOR and OWNER may otherwise agree in writing.

**5.18 Erosion and Sediment Control**

**5.18.1 General Environmental Requirements**

The CONTRACTOR and Subcontractors performing work on projects on behalf of the OWNER shall comply with all applicable federal, state, and local environmental regulations and all requirements and conditions set forth in "special" permits including but not limited to Corp of Engineers 404 permits, 401 Water Quality Certifications, Stream Crossing and Floodplain Encroachment Permits.

Any fines or penalties resulting from the failure to comply with the terms of the federal, state or local permits or perform necessary corrective action are solely the obligation of the CONTRACTOR.

5.18.2 Stormwater Pollution Prevention

A. The CONTRACTOR shall exercise due care to prevent or minimize any damage to any stream or wetland from pollution by debris, sediment or other material. The operation of equipment and/or materials in a jurisdictional wetland is expressly prohibited. Water that has been used for washing or processing, or that contains oils, sediments or other pollutants shall not be discharged from the job site. Such waters shall be collected and properly disposed of by the CONTRACTOR in accordance with applicable local, state and federal law.

B. The CONTRACTOR is solely responsible for securing all required state and local permits associated with stormwater discharges from the project including, but not necessarily limited to the KY Notice of Intent to Disturb (NOI) for Coverage of Storm Water Discharges Associated with Construction Activities under the KPDES Storm Water General Permit KYR100000 and the LFUCG, Land Disturbance Permit. Permit application preparation and all required documentation are the responsibility of the CONTRACTOR. The CONTRACTOR is solely responsible for maintaining compliance with the stormwater pollution prevention plan or erosion and sediment control plan and ensuring the following:

- a. That the Stormwater Pollution Prevention Plan (SWPPP) or erosion control plan is current and available for review on site;
- b. That any and all stormwater inspection reports required by the permit are conducted by qualified personnel and are available for review onsite; and
- c. That all best management practices (BMPs) are adequately maintained and effective at controlling erosion and preventing sediment from leaving the site.

C. The CONTRACTOR shall provide the necessary equipment and personnel to perform any and all emergency measures that may be required to contain any spillage or leakage and to remove materials, soils or liquids that become contaminated. The collected spill material shall be properly disposed at the CONTRACTOR's expense.

D. Upon completion of the work and with the concurrence of the OWNER, the CONTRACTOR must file a Notice of Termination (NOT) of Coverage Under the KPDES General Permit for Storm Water Discharges Associated with Construction Activity with the appropriate local and state authorities.



E. Any fines or penalties resulting from the failure to comply with the terms of the state or local stormwater permits or perform necessary corrective action are solely the obligation of the CONTRACTOR.

## **6. OTHER WORK**

### **6.1 Related Work at Site**

OWNER may perform other work related to the Project at the site by OWNER'S own forces, have other work performed by utility owners or let other direct contracts therefor which shall contain General Conditions similar to these. If the fact that such other work is to be performed was not noted in the Contract Documents, written notice thereof will be given to CONTRACTOR prior to starting any such other work; and, if such performance will involve additional expense to CONTRACTOR or requires additional time, a Change Order to the Contract will be negotiated.

### **6.2 Other Contractors or Utility Owners**

CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or OWNER, if OWNER is performing the additional work with OWNER'S employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such work, and shall properly connect and coordinate the Work with theirs. CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other work. CONTRACTOR shall not endanger any work of others by cutting, excavating or otherwise altering their work and will only cut or alter their work with the written consent of ENGINEER and the others whose work will be affected. The duties and responsibilities of CONTRACTOR under this paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of CONTRACTOR in said direct contracts between OWNER and such utility owners and other contractors.

### **6.3 Delays Caused by Others**

If any part of CONTRACTOR'S Work depends for proper execution or results upon the work of any such other contractor or utility owner (or OWNER), CONTRACTOR shall inspect and promptly report to ENGINEER in writing any delays, defects or deficiencies in such work that render it unavailable or unsuitable for such proper execution and results. CONTRACTOR'S failure so to report will constitute an acceptance of the other work as fit and proper for integration with CONTRACTOR'S Work except for latent or non-apparent defects and deficiencies in the other work.

### **6.4 Coordination**

If OWNER contracts with others for the performance of other work on the Project at the site, the person or organization who will have authority and responsibility for

coordination of the activities among the various prime contractors will be identified in the Special Conditions, and the specific matters to be covered by such authority and responsibility will be itemized, and the extent of such authority and responsibilities will be provided, in the Special Conditions.

## **7. OWNER'S RESPONSIBILITIES**

### **7.1 Communications**

OWNER shall issue all communications to CONTRACTOR through ENGINEER.

### **7.2 Data and Payments**

OWNER shall furnish the data required of OWNER under the Contract Documents promptly after they are due.

### **7.3 Lands, Easements, and Surveys**

OWNER'S duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in paragraphs 4.1 and 4.4. Paragraph 4.2 refers to OWNER'S identifying and making available to CONTRACTOR copies of reports of explorations and tests of subsurface conditions at the site and in existing structures which have been utilized by ENGINEER in preparing the Drawings and Specifications.

### **7.4 Change Orders**

OWNER is obligated to execute Change Orders as indicated in paragraph 9.4.

### **7.5 Inspections, Tests and Approvals**

OWNER'S responsibility in respect to certain inspections, tests and approvals is set forth in paragraph 13.3.

### **7.6 Stop or Suspend Work**

In connection with OWNER'S right to stop Work or suspend Work, see paragraph 12.4 and 14.1 Paragraph 14.2 deals with OWNER'S rights to terminate services of CONTRACTOR under certain circumstances.

## **8. ENGINEER'S STATUS DURING CONSTRUCTION**

### **8.1 OWNER'S Representative**

ENGINEER will be OWNER'S representative during the construction period. The duties and responsibilities and the limitations of authority of ENGINEER as OWNER'S representative during construction are set forth in the Contract Documents and shall not be extended without written consent of OWNER and ENGINEER.

### **8.2 Visits to Site**

ENGINEER will make visits to the site at intervals appropriate to the various stages of construction to observe the progress and quality of the executed Work

and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. ENGINEER will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. ENGINEER'S efforts will be directed toward providing for OWNER a greater degree of confidence that the completed Work will conform to the Contract Documents. On the basis of such visits and on-site observations, ENGINEER will keep OWNER informed of the progress of the Work and will endeavor to guard OWNER against defects and deficiencies in the Work.

**8.3 Project Representation**

ENGINEER will provide an Inspector to assist ENGINEER in observing the performance of the Work. If OWNER designates another agent to represent OWNER at the site who is not ENGINEER'S agent or employee, the duties, responsibilities and limitations of authority of such other person will be as provided in the Special Conditions.

**8.4 Clarifications and Interpretations**

ENGINEER will issue with reasonable promptness such written clarifications or interpretations of the requirements of the Contract Documents (in the form of Drawings or otherwise) as ENGINEER may determine necessary, which shall be consistent with or reasonably inferable from the overall intent of the Contract Documents.

**8.5 Authorized Variations in Work**

ENGINEER may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Time and are consistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order.

**8.6 Rejecting Defective Work**

ENGINEER will have authority to disapprove or reject Work which ENGINEER believes to be defective, and will also have authority to require special inspection or testing of the Work as provided in paragraph 12.3, whether or not the Work is fabricated, installed or completed.

**8.7 Shop Drawings**

In connection with ENGINEER'S responsibility for Shop Drawings and samples, see paragraphs 5.15.1 through 5.16 inclusive.

**8.8 Change Orders**

In connection with ENGINEER'S responsibilities as to Change Orders, see Articles 10, 11 and 12.

**8.9 Payments**

In connection with ENGINEER'S responsibilities with respect to Applications for Payment, etc., see Article 13.

**8.10 Determinations for Unit Prices**

ENGINEER will determine the actual quantities and classifications of Unit Price Work performed by CONTRACTOR.

ENGINEER will review with CONTRACTOR ENGINEER'S preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise).

**8.11 Decision on Disputes**

ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. Claims, disputes and other matters relating to the acceptability of the Work or the interpretation of the requirements of the Contract Documents pertaining to the performance and furnishing of the Work and claims under Articles 10 and 11 in respect of changes in the Contract Price or Contract Time will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph, which ENGINEER will render in writing within a reasonable time.

Written notice of each such claim, dispute and other matter will be delivered to ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise thereto, and written supporting data will be submitted to ENGINEER within sixty days after such occurrence unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim.

**8.12 Limitations on Engineer's Responsibilities**

**8.12.1 CONTRACTOR, Supplier, or Surety**

Neither ENGINEER'S authority to act under this Article 8 or elsewhere in the Contract Documents nor any decision made by ENGINEER in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of ENGINEER to CONTRACTOR, any Subcontractor, any Supplier, or any other person or organization performing any of the Work, or to any surety for any of them.

**8.12.2 To Evaluate the Work**

Whenever in the Contract Documents the terms "as ordered", "as directed", "as required", "as allowed", "as approved" or terms of like effect or import are used, or the adjectives "reasonable", "suitable", "acceptable", "proper", or "satisfactory" or adjectives or like "effect" or "import" are used to describe a requirement, direction, review or judgment of ENGINEER as to the Work, it is intended that such requirement, direction, review or judgment will be solely to evaluate the Work for compliance with the Contract Documents (unless there is a specific statement indicating otherwise). The use of any

such term or adjective shall not be effective to assign ENGINEER any duty or authority to supervise or direct the furnishing or performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of paragraph 8.12.3 or 8.12.4.

**8.12.3 CONTRACTOR'S Means, Methods, Etc.**

ENGINEER will not be responsible for CONTRACTOR'S means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, and ENGINEER will not be responsible for CONTRACTOR'S failure to perform or furnish the Work in accordance with the Contract Documents.

**8.12.4 Acts of Omissions of CONTRACTOR**

ENGINEER will not be responsible for the acts or omissions of CONTRACTOR or of any Subcontractor, any Supplier, or of any other person or organization performing or furnishing any of the Work.

**9. CHANGES IN THE WORK**

**9.1 OWNER May Order Change**

Without invalidating the Agreement and without notice to any surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by a Change Order. Upon receipt of such notice, CONTRACTOR shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

**9.2 Claims**

Claims for an increase or decrease in the Contract Price or an extension or shortening of the Contract Time that should be allowed as a result of a Change Order will be settled as provided for in Article 10 or Article 11.

**9.3 Work Not in Contract Documents**

CONTRACTOR shall not be entitled to an increase in the Contract Price or an extension of the Contract Time with respect to any Work performed that is not required by the Contract Documents as amended, modified and supplemented as provided in paragraph 3.4, except in the case of an emergency and except in the case of uncovering Work as provided in paragraph 12.3.4.

**9.4 Change Orders**

OWNER and CONTRACTOR shall execute appropriate Change Orders covering:

- 9.4.1 changes in the Work which are ordered by OWNER pursuant to paragraph 9.1, are required because of acceptance of defective Work under paragraph

12.7 or corrective defective Work under paragraph 12.8, or are agreed to by the parties;

9.4.2 changes in the Contract Price or Contract Time which are agreed to by the parties; and

9.4.3 changes in the Contract Price or Contract Time which embody the substance of any written decision rendered by ENGINEER pursuant to paragraph 8.11; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and REGULATIONS, but during any such appeal, CONTRACTOR shall carry on the Work and adhere to the progress schedule as provided in paragraph 5.16.

**9.5 Notice of Change**

If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Time) is required by the provisions of any Bond to be given to a surety, the giving of any such notice will be CONTRACTOR'S responsibility, and the amount of each applicable Bond will be adjusted accordingly.

**10. CHANGE OF CONTRACT PRICE**

**10.1 Total Compensation**

The Contract Price constitutes the total compensation (subject to authorized adjustments) payable to CONTRACTOR for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by CONTRACTOR shall be at his expense without change in the Contract Price.

**10.2 Claim for Increase or Decrease in Price**

The Contract Price may only be changed by a Change Order. Any claim for an increase or decrease in the Contract Price shall be based on written notice delivered by the CONTRACTOR to the ENGINEER promptly (but in no event later than thirty days) after the occurrence of the event giving rise to the claim and stating the general nature of the claim. Notice of the amount of the claim with supporting data shall be delivered within sixty days after such occurrence (unless ENGINEER allows an additional period of time to ascertain more accurate data in support of the claim) and shall be accompanied by CONTRACTOR'S written statement that the amount claimed covers all known amounts (direct, indirect, and consequential) to which the CONTRACTOR is entitled as a result of the occurrence of said event.

**10.3 Value of Work**

The value of any Work covered by a Change Order or of any claim for an increase or decrease in the Contract Price shall be determined in one of the following ways:

10.3.1 Unit Prices

Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved (subject to the provisions of paragraphs 10.9.1. through 10.9.3, inclusive).

10.3.2 Lump Sum

By mutual acceptance of a lump sum (which may include an allowance for overhead and profit not necessarily in accordance with paragraph 10.6.2.1).

10.3.3 Cost Plus Fee

On the basis of the Cost of the Work (determined as provided in paragraphs 10.4 and 10.5) plus a CONTRACTOR'S fee for overhead and profit (determined as provided in paragraphs 10.6 and 10.7).

**10.4 Cost of the Work**

The term Cost of the Work means the sum of all costs necessarily incurred and paid by CONTRACTOR in the proper performance of the Work. Except as otherwise may be agreed to in writing by OWNER, such costs shall be in amounts no higher than those prevailing in the locality of the Project; shall include only the following items; and shall not include any of the costs itemized in paragraph 10.5:

10.4.1 Payroll Costs

Payroll costs for employees in the direct employ of CONTRACTOR in the performance of the Work under schedules of job classifications agreed upon by OWNER and CONTRACTOR. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits which shall include social security contributions, unemployment, excise and payroll taxes, workers' or workmen's compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. Such employees shall include superintendents and foremen at the site. The expenses of performing Work after regular working hours, on Saturday, Sunday or legal holidays, shall be included in the above to the extent authorized by OWNER.

10.4.2 Materials and Equipment Costs

Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to CONTRACTOR unless OWNER deposits funds with CONTRACTOR with which to make payments, in which case the cash discounts shall accrue to OWNER. All trade discounts, rebates and refunds and all returns from sale of surplus materials and equipment shall accrue to OWNER, and

CONTRACTOR shall make provisions so that they may be obtained.

10.4.3 Subcontractor Costs

Payments made by CONTRACTOR to the Subcontractors for Work performed by Subcontractors. If required by OWNER, CONTRACTOR shall obtain competitive bids from Subcontractors acceptable to CONTRACTOR and shall deliver such bids to OWNER who will then determine, with the advice of ENGINEER, which bids will be accepted. If a subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work Plus a Fee, the Subcontractor's Cost of the Work shall be determined in the same manner as CONTRACTOR'S Cost of the Work. All subcontracts shall be subject to the other provisions of the Contract Documents insofar as applicable.

10.4.4 Special Consultant Costs

Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys and accountants) employed for services specifically related to the Work.

10.4.5 Supplemental Costs

- 10.4.5.1 The proportion of necessary transportation, travel and subsistence expenses of CONTRACTOR'S employees incurred in discharge of duties connected with the Work.
- 10.4.5.2 Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office and temporary facilities at the site and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost less market value of such items used but not consumed which remain the property of CONTRACTOR.
- 10.4.5.3 Rentals of all construction equipment and machinery and the parts thereof whether rented from CONTRACTOR or others in accordance with rental agreements approved by OWNER with the advice of ENGINEER, and the costs of transportation, loading, unloading, installation, dismantling and removal shall be in accordance with terms of said rental agreements. The rental of any such equipment, machinery or parts shall cease when the use thereof is no longer necessary for the Work.



- 10.4.5.4 Sales, consumer, use or similar taxes related to the Work, and for which CONTRACTOR is liable, imposed by Laws and Regulations.
- 10.4.5.5 Deposits lost for causes other than negligence of CONTRACTOR, any Subcontractor or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- 10.4.5.6 Losses and damages (and related expenses), not compensated by insurance or otherwise, to the Work or otherwise sustained by CONTRACTOR in connection with the performance and furnishing of the Work (except losses and damages within the deductible amounts of property insurance established by OWNER), provided they have resulted from causes other than the negligence of CONTRACTOR, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of OWNER. No such losses, damages and expenses shall be included in the Cost of the Work for the purpose of determining CONTRACTOR'S fee. If, however, any such loss or damage requires reconstruction and CONTRACTOR is placed in charge thereof, CONTRACTOR shall be paid a fee proportionate to that stated in paragraph 10.6.2 for services.
- 10.4.5.7 The cost of utilities, fuel and sanitary facilities at the site.
- 10.4.5.8 Minor expenses such as telegrams, long distance telephone calls, telephone service at the site, expressage and similar petty cash items in connection with the Work.
- 10.4.5.9 Cost of premiums for additional Bonds and insurance required because of changes in the Work and premiums for property insurance coverage within the limits of the deductible amounts established by OWNER.

**10.5 Not to Be Included in Cost of the Work**

The term Cost of the Work shall not include any of the following:

10.5.1 Costs of Officers and Executives

Payroll costs and other compensation of CONTRACTOR'S officers, executives, principals (of partnership and sole

CONTRACTOR, indicating in writing the reasons for refusing to recommend final payment, in which case CONTRACTOR shall make the necessary corrections and resubmit the Application.

**13.8.2 Delay in Completion of Work**

If, through no fault of CONTRACTOR, final completion of the Work is significantly delayed, OWNER shall, upon receipt of CONTRACTOR'S final Application for Payment and recommendation of ENGINEER, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by OWNER for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if Bonds have been furnished as required in paragraph 10 of Part II, Information for Bidders, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by CONTRACTOR to ENGINEER with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

**13.9 CONTRACTOR'S Continuing Obligation**

CONTRACTOR'S obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. Neither recommendation of any progress or final payment by ENGINEER, nor the issuance of a certificate of Completion, nor any payment by OWNER to CONTRACTOR under the Contract Documents, nor any use or occupancy of the Work or any part thereof by OWNER, nor any act of acceptance by OWNER nor any failure to do so, nor any review and approval of a Shop Drawing or sample submission, nor any correction of defective Work by OWNER will constitute an acceptance of Work not in accordance with the Contract Documents or a release of CONTRACTOR'S obligation to perform the Work in accordance with the Contract Documents (except as provided in paragraph 13.10).

**13.10 Waiver of Claims**

The making and acceptance of final payment will constitute:

**13.10.1** a waiver of all claims by OWNER against CONTRACTOR, except claims arising from unsettled Liens, from defective Work appearing after final inspection or from failure to comply with the Contract Documents or the terms of any special guarantees specified therein; however, it will not constitute a waiver by OWNER of any rights in respect of CONTRACTOR'S continuing obligations under the Contract Documents; and

**13.10.2** a waiver of all claims by CONTRACTOR against OWNER other than those previously made in writing and still unsettled.

## **14. SUSPENSION OF WORK AND TERMINATION**

### **14.1 OWNER May Suspend Work**

OWNER may, at any time and without cause, suspend the Work or any portion thereof for a period of not more than ninety days by notice in writing to CONTRACTOR and ENGINEER which will fix the date on which Work will be resumed. CONTRACTOR shall resume the Work on the date so fixed. CONTRACTOR shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension if CONTRACTOR makes an approved claim therefor as provided in Articles 10 and 11.

### **14.2 OWNER May Terminate**

The OWNER may terminate the Work upon the occurrence of any one or more of the following events:

**14.2.1** if CONTRACTOR commences a voluntary case under any chapter of the Bankruptcy Code (Title 11, United States Code), as now or hereafter in effect, or if CONTRACTOR takes any equivalent or similar action by filing a petition or otherwise under any other federal or state law in effect at such time relating to the bankruptcy or insolvency;

**14.2.2** if a petition is filed against CONTRACTOR under any chapter of the Bankruptcy Code as now or hereafter in effect at the time of filing, or if a petition is filed seeking any such equivalent or similar relief against CONTRACTOR under any other federal or state law in effect at the time relating to bankruptcy or insolvency;

**14.2.3** if CONTRACTOR makes a general assignment for the benefit of creditors;

**14.2.4** if a trustee, receiver, custodian or agent of CONTRACTOR is appointed under applicable law or under contract, whose appointment or authority to take charge of property of CONTRACTOR is for the purpose of enforcing a Lien against such property or for the purpose of general administration of such property for the benefit of CONTRACTOR'S creditors;

**14.2.5** if CONTRACTOR admits in writing an inability to pay its debts generally as they become due;

**14.2.6** if CONTRACTOR persistently fails to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the progress schedule established under paragraph 2.8 as revised from time to time);

must be approved in advance by the LFUCG and disposal documentation is required. The Contractor will be responsible for payment of any fines associated with improper disposal of material removed from the project site.

END OF SECTION

**PART V**  
**SPECIAL CONDITIONS**  
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## BAKER COURT PUMP STATION REPLACEMENT

### SPECIAL PROJECT CONDITIONS

1. Blasting shall not be allowed.
2. Prior to mobilization the contractor shall video the construction area. A copy of the video shall be provided to the engineer prior to the commencement of the work.
3. At the preconstruction meeting the contractor shall provide a schedule and the contact information for the project foreman.
4. The project foreman shall remain on the job until its completion.
5. No vehicles or equipment shall be parked on the street overnight. Vehicles and equipment shall be parked overnight within the project area.
6. Sanitary facilities shall be located within the staging area.
7. Any trench or pit left open at the end of the day shall be surrounded by safety fence.
8. No trees or bushes shall be disturbed without prior notification and approval by the engineer or his representative.
9. Existing sanitary sewer service shall not be interrupted without approval and coordination with the Division of Water Quality.
10. Access shall be maintained to the existing parking areas, loading dock, and buildings at all times. Any disruption of access as a result of the work shall be coordinated with the property manager and the Division of Water Quality. All work shall be performed within the designated easement.
11. The project shall not be subject to the Davis Bacon Act or prevailing wage rates.
12. The Contract Documents include a SWPPP (BMP Plan) that has been approved by LFUCG Division of Water Quality. This SWPPP shall be used for establishing quantities and a lump sum price for providing Maintenance of the BMP Plan.
13. The Contractor may use this SWPPP to obtain the required permits, i.e. Land Disturbance Permit. If Contractor chooses to use this SWPPP, the Contractor takes sole responsibility for the content of the SWPPP and the implementation of the SWPPP during construction.
14. Contractor may also choose to prepare its own SWPPP and submit to LFUCG Division of Water Quality for approval. No additional payment will be allowed for the Maintenance of BMP Plan pay item.

**RISK MANAGEMENT PROVISIONS  
INSURANCE AND INDEMNIFICATION**

---

**INDEMNIFICATION AND HOLD HARMLESS PROVISION**

- (1) It is understood and agreed by the parties that Contractor hereby assumes the entire responsibility and liability for any and all damages to persons or property caused by or resulting from or arising out of any act or omission on the part of Contractor or its employees, agents, servants, owners, principals, licensees, assigns or subcontractors of any tier (hereinafter "CONTRACTOR") under or in connection with this agreement and/or the provision of goods or services and the performance or failure to perform any work required thereby.
- (2) CONTRACTOR shall indemnify, save, hold harmless and defend the Lexington-Fayette Urban County Government and its elected and appointed officials, employees, agents, volunteers, and successors in interest (hereinafter "LFUCG") from and against all liability, damages, and losses, including but not limited to, demands, claims, obligations, causes of action, judgments, penalties, fines, liens, costs, expenses, interest, defense costs and reasonable attorney's fees that are in any way incidental to or connected with, or that arise or are alleged to have arisen, directly or indirectly, from or by CONTRACTOR's performance or breach of the agreement and/or the provision of goods or services provided that: (a) it is attributable to personal injury, bodily injury, sickness, or death, or to injury to or destruction of property (including the loss of use resulting therefrom), or to or from the negligent acts, errors or omissions or willful misconduct of the CONTRACTOR; and (b) not caused solely by the active negligence or willful misconduct of LFUCG.
- (3) In the event LFUCG is alleged to be liable based upon the above, CONTRACTOR shall defend such allegations and shall bear all costs, fees and expenses of such defense, including but not limited to, all reasonable attorneys' fees and expenses, court costs, and expert witness fees and expenses, using attorneys approved in writing by LFUCG, which approval shall not be unreasonably withheld.
- (4) These provisions shall in no way be limited by any financial responsibility or insurance requirements, and shall survive the termination of this agreement.
- (5) LFUCG is a political subdivision of the Commonwealth of Kentucky. CONTRACTOR acknowledges and agrees that LFUCG is unable to provide indemnity or otherwise save, hold harmless, or defend the CONTRACTOR in any manner.

**FINANCIAL RESPONSIBILITY**

BIDDER/CONTRACTOR understands and agrees that it shall, prior to final acceptance of its bid and the commencement of any work, demonstrate the ability to assure compliance with the above Indemnity provisions and these other risk management provisions.

**INSURANCE REQUIREMENTS**

YOUR ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW, AND YOU MAY NEED TO CONFER WITH YOUR INSURANCE AGENTS, BROKERS,

OR CARRIERS TO DETERMINE IN ADVANCE OF SUBMISSION OF A RESPONSE THE AVAILABILITY OF THE INSURANCE COVERAGES AND ENDORSEMENTS REQUIRED HEREIN. IF YOU FAIL TO COMPLY WITH THE INSURANCE REQUIREMENTS BELOW, YOU MAY BE DISQUALIFIED FROM AWARD OF THE CONTRACT.

Required Insurance Coverage

BIDDER/CONTRACTOR shall procure and maintain for the duration of this contract the following or equivalent insurance policies at no less than the limits shown below and cause its subcontractors to maintain similar insurance with limits acceptable to LFUCG in order to protect LFUCG against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by CONTRACTOR. The cost of such insurance shall be included in any bid:

<u>Coverage</u>	<u>Limits</u>
General Liability aggregate (Insurance Services Office Form CG 00 01)	\$1 million per occurrence, \$2 million or \$2 million combined single limit
Commercial Automobile Liability occurrence (Insurance Services Office Form CA 0001)	combined single, \$1 million per
Worker's Compensation	Statutory
Employer's Liability	\$500,000.00

The policies above shall contain the following conditions:

- a. All Certificates of Insurance forms used by the insurance carrier shall be properly filed and approved by the Department of Insurance for the Commonwealth of Kentucky (DOI). LFUCG shall be named as an additional insured in the General Liability Policy and Commercial Automobile Liability Policy using the Kentucky DOI approved forms.
- b. The General Liability Policy shall be primary to any insurance or self-insurance retained by LFUCG.
- c. The General Liability Policy shall include a Products and Completed Operations endorsement or Premises and Operations Liability endorsement unless it is deemed not to apply by LFUCG.
- d. The General Liability Policy shall include an Explosion-Collapse Underground (XCU) endorsement.
- e. The General Liability Policy shall include a Pollution liability and/or Environmental Casualty endorsement unless it is deemed not to apply by LFUCG.
- f. LFUCG shall be provided at least 30 days advance written notice via certified mail, return receipt requested, in the event any of the required policies are canceled or



non-renewed.

- g. Said coverage shall be written by insurers acceptable to LFUCG and shall be in a form acceptable to LFUCG. Insurance placed with insurers with a rating classification of no less than Excellent (A or A-) and a financial size category of no less than VIII, as defined by the most current Best's Key Rating Guide shall be deemed automatically acceptable.
- h. Owner requests that the Bidder obtain an Umbrella Liability endorsement to the CGL policy for a limit of liability of \$\_\_\_\_\_ and that this CGL policy endorsement be renewed for one (1) year after completion of this project.

#### Renewals

After insurance has been approved by LFUCG, evidence of renewal of an expiring policy must be submitted to LFUCG, and may be submitted on a manually signed renewal endorsement form. If the policy or carrier has changed, however, new evidence of coverage must be submitted in accordance with these Insurance Requirements.

#### Deductibles and Self-Insured Programs

**IF YOU INTEND TO SUBMIT A SELF-INSURANCE PLAN IT MUST BE FORWARDED TO LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT, DIVISION OF RISK MANAGEMENT, 200 EAST MAIN STREET, LEXINGTON, KENTUCKY 40507 NO LATER THAN A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO THE RESPONSE DATE.** Self-insurance programs, deductibles, and self-insured retentions in insurance policies are subject to separate approval by Lexington-Fayette Urban County Government's Division of Risk Management, upon review of evidence of BIDDER/CONTRACTOR's financial capacity to respond to claims. Any such programs or retentions must provide LFUCG with at least the same protection from liability and defense of suits as would be afforded by first-dollar insurance coverage. If BIDDER/CONTRACTOR satisfies any portion of the insurance requirements through deductibles, self-insurance programs, or self-insured retentions, BIDDER/CONTRACTOR agrees to provide Lexington-Fayette Urban County Government, Division of Risk Management, the following data prior to the final acceptance of bid and the commencement of any work:

- a. Latest audited financial statement, including auditor's notes.
- b. Any records of any self-insured trust fund plan or policy and related accounting statements.
- c. Actuarial funding reports or retained losses.
- d. Risk Management Manual or a description of the self-insurance and risk management program.
- e. A claim loss run summary for the previous five (5) years.
- f. Self-Insured Associations will be considered.

Safety and Loss Control

CONTRACTOR shall comply with all applicable federal, state, and local safety standards related to the performance of its works or services under this Agreement and take necessary action to protect the life, health and safety and property of all of its personnel on the job site, the public, and LFUCG.

Verification of Coverage

BIDDER/CONTRACTOR agrees to furnish LFUCG with all applicable Certificates of Insurance signed by a person authorized by the insurer to bind coverage on its behalf prior to final award, and if requested, shall provide LFUCG copies of all insurance policies, including all endorsements.

Right to Review, Audit and Inspect

CONTRACTOR understands and agrees that LFUCG may review, audit and inspect any and all of its records and operations to insure compliance with these Insurance Requirements.

**DEFAULT**

BIDDER/CONTRACTOR understands and agrees that the failure to comply with any of these insurance, safety, or loss control provisions shall constitute default and that LFUCG may elect at its option any single remedy or penalty or any combination of remedies and penalties, as available, including but not limited to purchasing insurance and charging BIDDER/CONTRACTOR for any such insurance premiums purchased, or suspending or terminating the work.

12. **WAGE SCALES** – insert if applicable

END OF SECTION

**PART VI**  
**CONTRACT AGREEMENT**

**INDEX**

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3.	ISSUANCE OF WORK ORDERS .....	CA-2
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7.	THE CONTRACT DOCUMENTS.....	CA-3
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9.	ENUMERATION OF SPECIFICATIONS AND DRAWINGS.....	CA-4

**PART VI**

**CONTRACT AGREEMENT**

THIS AGREEMENT, made on the **4th** day of **December, 2018**, by and between **Lexington-Fayette Urban County Government**, acting herein called "OWNER" and **Wooldridge Homes, Inc.**, doing business as ~~\*(an individual)~~ ~~(a partnership)~~ (a corporation) located in the City of **Sellersburg**, County of **Clark**, and State of **Indiana**, hereinafter called "CONTRACTOR."

WITNESSETH: That the CONTRACTOR and the OWNER in consideration of **Three Hundred Twenty Eight Thousand Nine Hundred Sixty Nine Dollars and Zero Cents (\$328,969.00)** quoted in the proposal by the CONTRACTOR, dated **November 16, 2018**, hereby agree to commence and complete the construction described as follows:

**1. SCOPE OF WORK**

The CONTRACTOR shall furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor, insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in the Proposal, the General Conditions, and the Special Conditions of the Contract, the Specifications and Contract Documents therefore as prepared by EA Partners, PLC for the **Baker Court Pump Station Replacement project**.

**2. TIME OF COMPLETION**

The time period estimated and authorized by the OWNER for the proper execution of the Work by the Contract, in full, is hereby fixed as one hundred and twenty (120) calendar days. The time shall begin ten (10) days after the CONTRACTOR is given the Notice to Proceed with the Work.

**3. ISSUANCE OF WORK ORDERS**

Notice to begin Work will be given in whole or for part of the Work as determined by the OWNER pending the availability of funds. The order of construction will be as determined by the Engineer after consultation with the CONTRACTOR and the OWNER.

**4. THE CONTRACT SUM**

The OWNER agrees to pay the CONTRACTOR in current funds for the performance of the Contract, as quoted in the proposal, subject to any additions and deductions, as provided therein.

**5. PROGRESS PAYMENTS**

The OWNER shall make payments on account of the Contract, as provided in accordance with the General Conditions, as estimated by the Engineer, less the aggregate of previous payments.

**6. ACCEPTANCE AND FINAL PAYMENT**

Final payment shall be due within ninety (90) days after completion of the Work, provided the Work be then fully completed and the Contract fully accepted.

Before issuance of final certificate, the CONTRACTOR shall submit evidence satisfactory to the Engineer that all payrolls, material bills, and other indebtedness connected with the Work has been paid.

If, after the Work has been substantially completed, full completion thereof is materially delayed through no fault of the CONTRACTOR, and the ENGINEER so certifies, the OWNER shall upon certificate of the ENGINEER, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

**7. THE CONTRACT DOCUMENTS**

The Advertisement for Bids, Information for Bidders, the General Conditions, Performance and Payment Bonds, Contract Agreement, Special Conditions, Technical Specifications, any and all Addenda, and Proposal, and Plan Drawings form the Contract, and they are fully a part of the Contract as if hereto attached or herein repeated.

**8. EXTRA WORK**

The OWNER, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the Work, the Contract Sum being adjusted accordingly. All such Work shall be executed and paid for in accordance with the General Conditions, which is a part of this Contract.

**9. THE FOLLOWING IS AN ENUMERATION OF THE SPECIFICATIONS AND DRAWINGS (CONTRACT DOCUMENTS):**

## SPECIFICATIONS

SECTION NO.	TITLE	PAGES
I	Advertisement for Bids	AB 1 thru 6
II	Information for Bidders	IB 1 thru 10
III	Form of Proposal	P 1 thru 36
IV	General Conditions	GC 1 thru 52
V	Special Conditions	SC 1 thru 6
VI	Contract Agreement	CA 1 thru 6
VII	Performance and Payment Bonds	PB 1 thru 10
VIII	Technical Specifications (this is project specific)	TS 1 thru 161
IX	Addenda	AD 1 thru

**APPENDIX A      Standard Drawings**

**APPENDIX B      LFUCG Pump Station Standard Drawings**

**APPENDIX C      Division of Water Quality Standard Drawings**

**PLAN DRAWINGS –**

- 00 – Cover Sheet
- 01 – General Notes
- 02 – Baker Court Overall Layout
- 03 – Baker Court Pump Station Plan
- 04 – Baker Court Pump Station Notes
- 05 – Gravity Sewer/Force Main Profile
- 06 – Erosion Control Plan
- 07 – Modular Block Retaining Wall
- 08 – Baker Court Management Practice Plan
- 09 – Baker Court Management Practice Details
- 10 – Project Details

IN WITNESSETH WHEREOF, the parties hereto have executed this Contract as of the date and year above written.


(Seal)

Lexington-Fayette Urban County Government.  
Lexington, Kentucky  
(Owner)

ATTEST:

  
Clerk of the Urban County Council

BY:   
MAYOR

  
(Witness)

(Title)


(Seal)

Wooldridge Homes, Inc.  
(Contractor)

  
(Secretary)\*

BY: 

  
(Witness)

  
(Title)

12308 St. Andrews Place, Sellersburg, IN 47172  
(Address and Zip Code)

**IMPORTANT:** \*Strike out any non-applicable terms.

Secretary of the Owner should attest. If the CONTRACTOR is corporation, Secretary should attest. Give proper title of each person-executing Contract.

**PART VII**  
**PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS, that

Wooldridge Homes, Inc.  
\_\_\_\_\_  
(Name of CONTRACTOR)

12308 St. Andrews Place, Sellersburg, IN 47172  
\_\_\_\_\_  
(Address of CONTRACTOR)

a Corporation  
\_\_\_\_\_, hereinafter  
(Corporation, Partnership, or Individual)

called Principal, and  
Allegheny Casualty Company  
\_\_\_\_\_  
(Name of Surety)

One Newark Center, 20th Floor, Newark, NJ 07102-5207  
\_\_\_\_\_  
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT  
200 East Main Street, Third Floor  
Lexington, Kentucky 40507

hereinafter called "OWNER" in the penal sum of:  
Three Hundred Twenty-Eight Thousand Nine Hundred Sixty-Nine & 00/100 Dollars, (\$ 328,969.00),  
for the payment of whereof Principal and Surety bind themselves, their heirs, executors,  
administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into a Contract with OWNER for  
**Baker Court Pump Station Replacement** in accordance with drawings and specifications  
prepared by: EA Partners, PLC which Contract is by reference made a part hereof, and is  
hereinafter referred to as the Contract.



NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly and faithfully perform said Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time made by the OWNER.

Whenever, Principal shall be, and declared by OWNER to be in default under the Contract, the OWNER having performed OWNER'S obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) Complete the Contract in accordance with its terms and conditions or
- (2) Obtain a bid or bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, or if the OWNER elects, upon determination by the OWNER and Surety jointly of the lowest responsible bidder, arrange for a Contract between such bidder and OWNER, and make available as Work progresses (even though there may be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract Price", as used in this paragraph shall mean the total amount payable by OWNER to Principal under the Contract and any amendments thereto, less the amount properly paid by OWNER to Principal.

Any suit under this bond must be instituted before the expiration of two (2) years from the date on which final payment under the Contract falls due.

No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or the heirs, executors, administrators or successors of OWNER.

IN WITNESS WHEREOF, this instrument is executed in four (4)  
counterparts, each one of \_\_\_\_\_  
(number)

which shall be deemed an original, this the 13th day of December,  
20 18.


ATTEST:

\_\_\_\_\_  
\_\_\_\_\_  
(Principal) Secretary  
\_\_\_\_\_  
(s)

Wooldrige Homes, Inc.  
Principal

BY:  \_\_\_\_\_


12308 St. Andrews Place  
Sellersburg, IN 47172  
(Address)

  
\_\_\_\_\_  
Witness as to Principal  
\_\_\_\_\_  
(Address)


ATTEST:

\_\_\_\_\_  
\_\_\_\_\_  
(Surety) Secretary

Allegheny Casualty Company  
Surety

BY:   
Tammy L. Masterson  
Attorney-in-Fact

One Newark Center, 20th Floor  
Newark, NJ 07102-5207  
(Address)

(SEAL)  
  
\_\_\_\_\_  
Witness as to Surety Dana Pippin  
2305 River Road, Louisville, KY 40206  
(Address)

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---

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TITLE:

Surety

BY:

TITLE: \_\_\_\_\_

**NOTE:** The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Contract.

**PART VII**

**PAYMENT BOND**

KNOW ALL MEN BY THESE PRESENT: that

Wooldridge Homes, Inc.

(Name of Contractor)

12308 St. Andrews Place, Sellersburg, IN 47172

(Address of Contractor)

a

Corporation

hereinafter

(Corporation, Partnership or Individual)

called Principal, and

Allegheny Casualty Company

(Name of Surety)

One Newark Center, 20th Floor, Newark, NJ 07102-5207

(Address of Surety)

hereinafter called Surety, are held and firmly bound unto:

**LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT**

**200 East Main Street, Third Floor**

**Lexington, Kentucky 40507**

Obligee, hereinafter called OWNER, for the use and benefit of claimants as hereinafter defined, in the amount of Three Hundred Twenty-Eight Thousand Nine Hundred Sixty-Nine & 00/100 Dollars (\$ 328,969.00 ) the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal by written agreement is entering into a Contract with OWNER for **Baker Court Pump Station Replacement** in accordance with drawings and specifications prepared by: EA Partners, PLC which Contract is by reference made a part hereof, and is hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if Principal shall promptly make payment to all claimants as hereinafter defined for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

1. A claimant is defined as one having a direct contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.
2. The above named Principal and Surety hereby jointly and severally agree with the OWNER that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The OWNER shall not be liable for the payment of any costs or expenses of any such suit.
3. No suit or action shall be commenced hereunder by any claimant:
  - (a) Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two of the following: The Principal, the OWNER, or the Surety above named, within ninety (90) days after such claimant did or performed the last of the Work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the Work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, OWNER, or Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the state in which the aforesaid project is located, save that such service need not be made by a public officer.
  - (b) After the expiration of one (1) year following the date on which Principal ceased Work on said Contract, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

(c) Other than in a state court of competent jurisdiction in and for the county or other political subdivision of the state in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

4. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics' liens which may be filed of record against aid improvement, whether or not claim for the amount of such lien be presented under and against this bond.


IN WITNESS WHEREOF, this instrument is executed in four (4) counterparts, each one of

which shall be deemed an original, this the 13th day of December, 2018.

ATTEST:

\_\_\_\_\_  
Secretary

(SEAL)

  
\_\_\_\_\_  
(Witness to Principal)

\_\_\_\_\_  
(Address)  
\_\_\_\_\_

Wooldridge Homes, Inc.  
(Principal)

BY:  \_\_\_\_\_ (s)


12308 St. Andrews Place  
(Address)  
Sellersburg, IN 47172

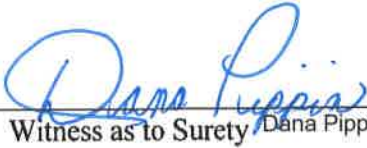
ATTEST:

\_\_\_\_\_  
(Surety) Secretary

(SEAL)

Allegheny Casualty Company  
(Surety)

BY:   
(Attorney-in-Fact)  
Tammy L. Masterson

  
Witness as to Surety Dana Pippin

2305 River Road

(Address)

Louisville, KY 40206

(Address)

One Newark Center, 20th Floor

Newark, NJ 07102-5207

NOTE: The number of executed counterparts of the bond shall coincide with the number of executed counterparts of the Contract.

END OF SECTION

**POWER OF ATTORNEY**  
**INTERNATIONAL FIDELITY INSURANCE COMPANY**  
**ALLEGHENY CASUALTY COMPANY**

Bond # 0755582

One Newark Center, 20<sup>th</sup> Floor, Newark, New Jersey 07102-5207 PHONE: (973) 624-7200

**KNOW ALL MEN BY THESE PRESENTS:** That **INTERNATIONAL FIDELITY INSURANCE COMPANY**, a corporation organized and existing under the laws of the State of New Jersey, and **ALLEGHENY CASUALTY COMPANY** a corporation organized and existing under the laws of the State of New Jersey, having their principal office in the City of Newark, New Jersey, do hereby constitute and appoint

LIZ OHL, KATIE ROSE, KAREN M. SPEED, JULIE SIEMER, RANDAL T. NOAH, MARK NELSON, STELLA ADAMS,  
MARY BETH MILLING, TAMMY L. MASTERSON

Cincinnati, OH

their true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise, and the execution of such instrument(s) in pursuance of these presents, shall be as binding upon the said **INTERNATIONAL FIDELITY INSURANCE COMPANY** and **ALLEGHENY CASUALTY COMPANY**, as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by their regularly elected officers at their principal offices.

This Power of Attorney is executed, and may be revoked, pursuant to and by authority of the By-Laws of **INTERNATIONAL FIDELITY INSURANCE COMPANY** and **ALLEGHENY CASUALTY COMPANY** and is granted under and by authority of the following resolution adopted by the Board of Directors of **INTERNATIONAL FIDELITY INSURANCE COMPANY** at a meeting duly held on the 20<sup>th</sup> day of July, 2010 and by the Board of Directors of **ALLEGHENY CASUALTY COMPANY** at a meeting duly held on the 10<sup>th</sup> day of July, 2015 :

"**RESOLVED**, that (1) the Chief Executive Officer, President, Executive Vice President, Vice President, or Secretary of the Corporation shall have the power to appoint, and to revoke the appointments of, Attorneys-in-Fact or agents with power and authority as defined or limited in their respective powers of attorney, and to execute on behalf of the Corporation and affix the Corporation's seal thereto, bonds, undertakings, recognizances, contracts of indemnity and other written obligations in the nature thereof or related thereto; and (2) any such Officers of the Corporation may appoint and revoke the appointments of joint-control custodians, agents for acceptance of process, and Attorneys-in-fact with authority to execute waivers and consents on behalf of the Corporation; and (3) the signature of any such Officer of the Corporation and the Corporation's seal may be affixed by facsimile to any power of attorney or certification given for the execution of any bond, undertaking, recognizance, contract of indemnity or other written obligation in the nature thereof or related thereto, such signature and seals when so used whether heretofore or hereafter, being hereby adopted by the Corporation as the original signature of such officer and the original seal of the Corporation, to be valid and binding upon the Corporation with the same force and effect as though manually affixed."

IN WITNESS WHEREOF, **INTERNATIONAL FIDELITY INSURANCE COMPANY** and  
**ALLEGHENY CASUALTY COMPANY** have each executed and attested these presents  
on this 31<sup>st</sup> day of December, 2017



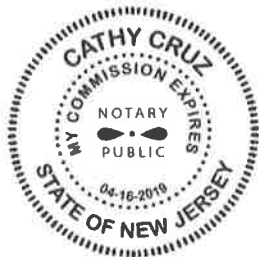
STATE OF NEW JERSEY  
County of Essex

George R. James

Executive Vice President (International Fidelity Insurance Company) and  
Vice President (Allegheny Casualty Company)



On this 31<sup>st</sup> day of December, 2017, before me came the individual who executed the preceding instrument, to me personally known, and, being by me duly sworn, said he is the therein described and authorized officer of **INTERNATIONAL FIDELITY INSURANCE COMPANY** and of **ALLEGHENY CASUALTY COMPANY**; that the seals affixed to said instrument are the Corporate Seals of said Companies; that the said Corporate Seals and his signature were duly affixed by order of the Boards of Directors of said Companies.



IN TESTIMONY WHEREOF, I have hereunto set my hand affixed my Official Seal, at the City of Newark,  
New Jersey the day and year first above written.

Cathy Cruz a Notary Public of New Jersey  
My Commission Expires April 16, 2019

**CERTIFICATION**

I, the undersigned officer of **INTERNATIONAL FIDELITY INSURANCE COMPANY** and **ALLEGHENY CASUALTY COMPANY** do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Sections of the By-Laws of said Companies as set forth in said Power of Attorney, with the originals on file in the home of said companies, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

IN TESTIMONY WHEREOF, I have hereunto set my hand on this day, December 13, 2018

Maria H. Branco, Assistant Secretary



**NAMED INSURED AND ADDRESS:**  
 WOOLDRIDGE HOMES INC  
 12308 Saint Andrews Pl  
 Sellersburg IN 47172-8627

**CERTIFICATE ISSUED TO:**  
 Additional Insured:  
 Lexington-Fayette Urban County Government Construction Project  
 200 E Main St  
 3rd Floor, Rm 338  
 Lexington KY 40507

This is to certify that the policies listed in this Certificate have been issued to the Named Insured by

**A UFB CASUALTY INSURANCE COMPANY**

**B UNITED FARM FAMILY MUTUAL INSURANCE COMPANY**

The policies of insurance listed on this certificate have been issued to the insured named above for the policy period indicated. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this Certificate may be issued or may pertain, the insurance afforded by the policies described is subject to all terms, exclusions and conditions of such policies. Aggregate limits shown may have been reduced by paid claims. This Certificate of Insurance does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend, or alter the coverage afforded by the policies listed thereon.

Type of Insurance	Policy Number	Company (A/B)	Effective Date	Expiration Date	Limits of Liability	
<b>COMMERCIAL LIABILITY</b>					General Aggregate Prod.-Comp/OPS Aggregate Personal-Advertising Injury Each Occurrence Fire Damage (Any one fire) Med Expense (Any one person)	
<input type="checkbox"/> Commercial General Liability <input type="checkbox"/> Occurrence						
<b>FARM LIABILITY</b>					Each Occurrence Med Expense (Any one person)	
<input type="checkbox"/> Equine <input type="checkbox"/> Occurrence						
<b>COMM. AUTO LIABILITY</b>	CAP8506237 02	B	05/25/2018	05/25/2019	Each Accident Med Expense	\$1,000,000 \$5,000
<input checked="" type="checkbox"/> Scheduled Autos <input type="checkbox"/> Hired Autos <input type="checkbox"/> Non-Owned Autos						
<b>FARM AUTO LIABILITY</b>					Each Accident Med Expense	
<input type="checkbox"/> Scheduled Autos <input type="checkbox"/> Hired Autos <input type="checkbox"/> Non-Owned Autos						
<b>UMBRELLA LIABILITY</b>					Each Occurrence Aggregate	
<b>WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY</b>					Statutory - Indiana Each Accident Disease Policy Limit Disease Each Employee	
<b>OTHER</b>						

**DESCRIPTION OF OPERATIONS, LOCATIONS, VEHICLES, RESTRICTIONS, AND SPECIAL ITEMS**

If subrogation is waived, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this Certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

Should any of the described policies be canceled before the expiration date, the issuing insurer will make an effort to notify the certificate holder named, but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents or representatives.

TIM C SUMMERS  
Agent

01/10/2019  
Date

812-923-9670  
Phone

**NAMED INSURED AND ADDRESS:**  
 WOOLDRIDGE, JASON  
 DBA WOOLDRIDGE CONSTRUCTION  
 12308 ST ANDREWS PLACE  
 SELLSBURG IN 47172

**CERTIFICATE ISSUED TO:**  
 LFUCG  
 200 East Main St  
 Lexington KY 40505

This is to certify that the policies listed in this Certificate have been issued to the Named Insured by

**A** UFB CASUALTY INSURANCE COMPANY

**B** UNITED FARM FAMILY MUTUAL INSURANCE COMPANY

The policies of insurance listed on this certificate have been issued to the insured named above for the policy period indicated. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this Certificate may be issued or may pertain, the insurance afforded by the policies described is subject to all terms, exclusions and conditions of such policies. Aggregate limits shown may have been reduced by paid claims. This Certificate of Insurance does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend, or alter the coverage afforded by the policies listed thereon.

Type of Insurance	Policy Number	Company (A/B)	Effective Date	Expiration Date	Limits of Liability	
<b>COMMERCIAL LIABILITY</b> <input type="checkbox"/> Commercial General Liability <input type="checkbox"/> Occurrence					General Aggregate Prod.-Comp/OPS Aggregate Personal-Advertising Injury Each Occurrence Fire Damage (Any one fire) Med Expense (Any one person)	
<b>FARM LIABILITY</b> <input type="checkbox"/> Equine <input type="checkbox"/> Occurrence					Each Occurrence Med Expense (Any one person)	
<b>COMM. AUTO LIABILITY</b> <input type="checkbox"/> Scheduled Autos <input type="checkbox"/> Hired Autos <input type="checkbox"/> Non-Owned Autos					Each Accident Med Expense	
<b>FARM AUTO LIABILITY</b> <input type="checkbox"/> Scheduled Autos <input type="checkbox"/> Hired Autos <input type="checkbox"/> Non-Owned Autos					Each Accident Med Expense	
<b>UMBRELLA LIABILITY</b>					Each Occurrence Aggregate	
<b>WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY</b>	WC 8332052 01	B	05/10/2018	05/10/2019	Statutory - Indiana	
					Each Accident Disease Policy Limit Disease Each Employee	\$500,000 \$500,000 \$500,000
<b>OTHER</b>						

**DESCRIPTION OF OPERATIONS, LOCATIONS, VEHICLES, RESTRICTIONS, AND SPECIAL ITEMS**

If subrogation is waived, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this Certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

Should any of the described policies be canceled before the expiration date, the issuing insurer will make an effort to notify the certificate holder named, but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents or representatives.

TIM C SUMMERS  
 Agent

11/16/2018  
 Date

812-923-9670  
 Phone



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
11/16/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

**IMPORTANT:** If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

<b>PRODUCER</b> J. Scott Huffaker, Inc. 1262 E Delaney Park Road  Salem IN 47187  Wooldrige Construction Group 10304 Highway 80  Sellersburg IN 47172		<b>CONTACT NAME:</b> Kaitleen Martin <b>PHONE (P/C, No, Ext):</b> (812) 570-0900 <b>FAX (A/C, No):</b> (812) 570-0903 <b>E-MAIL ADDRESS:</b> scott@huffakerinsuranceservices.com
		<b>INSURER(S) AFFORDING COVERAGE</b> NAIC # INSURER A: Pekin Insurance INSURER B: INSURER C: INSURER D: INSURER E: INSURER F:

**COVERAGES**      **CERTIFICATE NUMBER:**      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWED MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INRD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
<input checked="" type="checkbox"/>	COMMERCIAL GENERAL LIABILITY					EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000
	CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR					PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPROP AGG \$ 2,000,000
A			CL0236198	08/29/2018	08/29/2019	
	GEN'L AGGREGATE LIMIT APPLIES PER POLICY PROJECT					
	AUTOMOBILE LIABILITY					COMPLETED SINGLE TRIP (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY	SCHEDULED AUTOS NON-OWNED AUTOS ONLY				
	UMBRELLA LIAB EXCESS LIAB	OCCUR CLAIMS-MADE				EACH OCCURRENCE \$ AGGREGATE \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY					<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTHER E.L. EACH ACCIDENT \$ 100,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 100,000
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS page	Y/N <input checked="" type="checkbox"/> Y N/A	WC0236198	08/29/2018	08/29/2019	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedules, may be attached if more space is required)

<b>CERTIFICATE HOLDER</b>  LFUCG 200 E Main St Lexington KY 40507	<b>CANCELLATION</b>  SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  AUTHORIZED REPRESENTATIVE 
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**PART III**

**Invitation to Bid No. 150-2018**

**Baker Court Pump Station Replacement**

**1. FORM OF PROPOSAL**

Place: Lexington, Kentucky

Date: 11/16/2018

The following Form of Proposal shall be followed exactly in submitting a proposal for this Work.

This Proposal Submitted by Wooldridge Homes Inc.  
12308 St. Andrews Place Sellersburg, IN  
(Name and Address of Bidding Contractor) 47172

(Hereinafter called "Bidder"), organized and existing under the laws of the State of Indiana, doing business as Wooldridge Homes Inc. "a corporation," "a partnership", or an "individual" as applicable.

To: Lexington-Fayette Urban County Government  
(Hereinafter called "OWNER")  
Office of the Director of Purchasing  
200 East Main Street, 3rd Floor  
Lexington, KY 40507

Gentlemen:

The Bidder, in compliance with your Invitation for Bids for Baker Court Pump Station Replacement having examined the Plans and Specifications with related documents, having examined the site for proposed Work, and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials, and supplies, and to construct the Project in accordance with the Contract Documents, within the time set forth therein, and at the lump sum and/or unit prices stated hereinafter. These prices are to cover all expenses incurred in performing the Work required under the Contract Documents, of which this proposal is a part. The OWNER will issue work orders for work to be performed under this Contract.

PART III

FORM OF PROPOSAL

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BIDDER hereby agrees to commence work under this contract on or before a date to be specified in the Notice to Proceed and to fully complete the project within the time provided in the Purchase Order or Work Orders issued by the OWNER. BIDDER further agrees to pay liquidated damages, the sum of \$1,000 for each consecutive calendar day thereafter.

The Bidder hereby acknowledges receipt of the following addenda:

Addendum No. \_\_\_\_ Date \_\_\_\_\_

Addendum No. \_\_\_\_ Date \_\_\_\_\_

Addendum No. \_\_\_\_ Date \_\_\_\_\_

Addendum No. \_\_\_\_ Date \_\_\_\_\_

Addendum No. \_\_\_\_ Date \_\_\_\_\_

Addendum No. \_\_\_\_ Date \_\_\_\_\_

Addendum No. \_\_\_\_ Date \_\_\_\_\_

Addendum No. \_\_\_\_ Date \_\_\_\_\_

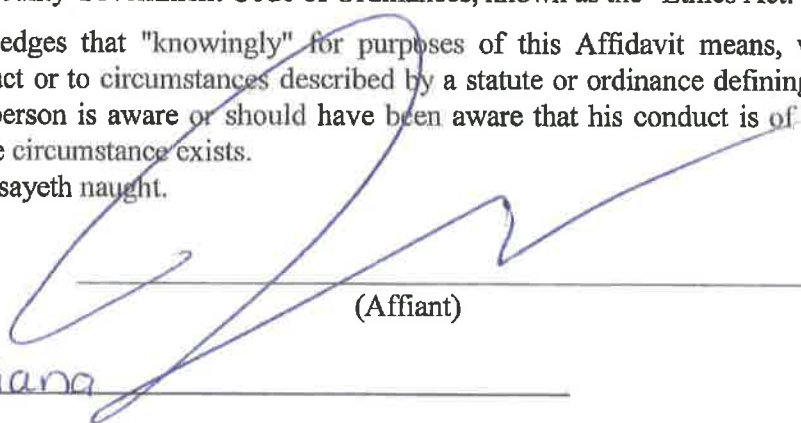
Insert above the number and the date of any Addendum issued and received. If none has been issued and received, the word "NONE" should be inserted.



3. **BIDDERS AFFIDAVIT**

Comes the Affiant, Jason Wooldridge, and after being first duly sworn, states under penalty of perjury as follows:

1. His/her name is Jason Wooldridge and he/she is the individual submitting the bid or is the authorized representative of Wooldridge Homes, Inc., the entity submitting the bid (hereinafter referred to as "Bidder").
2. Bidder will pay all taxes and fees, which are owed to the Lexington-Fayette Urban County Government at the time the bid is submitted, prior to award of the contract and will maintain a "current" status in regard to those taxes and fees during the life of the contract.
3. Bidder will obtain a Lexington-Fayette Urban County Government business license, if applicable, prior to award of the contract.
4. Bidder has authorized the Division of Central Purchasing to verify the above-mentioned information with the Division of Revenue and to disclose to the Urban County Council that taxes and/or fees are delinquent or that a business license has not been obtained.
5. Bidder has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky within the past five (5) years and the award of a contract to the Bidder will not violate any provision of the campaign finance laws of the Commonwealth.
6. Bidder has not knowingly violated any provision of Chapter 25 of the Lexington-Fayette Urban County Government Code of Ordinances, known as the "Ethics Act."
7. Bidder acknowledges that "knowingly" for purposes of this Affidavit means, with respect to conduct or to circumstances described by a statute or ordinance defining an offense, that a person is aware or should have been aware that his conduct is of that nature or that the circumstance exists.  
Further, Affiant sayeth naught.



\_\_\_\_\_ (Affiant)

STATE OF Indiana  
 COUNTY OF Clark

The foregoing instrument was subscribed, sworn to and acknowledged before me by

Jason Wooldridge on this the 15<sup>th</sup> day of November, 2018.

My Commission expires: Nov. 19, 2025

Amanda S. Seucher  
 NOTARY PUBLIC, STATE AT LARGE



**4. BID SCHEDULE – SCHEDULE OF VALUES**

The Bidder agrees to perform all the Work described in the Specifications and shown on the Plans for the following proposed lump sum and/or unit prices, if applicable, which shall include the furnishing of all labor, materials, supplies, equipment and/or vehicle usage, services, all items of cost, overhead, taxes (federal, state, local), and profit for the Contractor and any Subcontractor involved, within the time set forth herein. If unit prices are applicable, Bidder must make the extensions and additions showing the total amount of bid.

Form of proposal must include unit bid prices written in words, unit price written in numbers and total amount bid (unit price x quantity) per line item OR bid may be considered non-responsive. In case of price discrepancy, unit bid price written in words will prevail followed by unit price written in numbers then total amount bid per line item.

If a discrepancy between the unit price and the item total exists, the unit price prevails except:

If the unit price is illegible, omitted, or the same as the item total, item total prevails and the unit price is the quotient of the item total and the quantity.

If the unit price and the item total are illegible or are omitted, the bid may be determined nonresponsive. If a lump sum total price is illegible or is omitted, the bid may be determined nonresponsive.

For a lump sum based bid, the item total is the bid amount the Division uses for bid comparison.

For a unit price based bid, the sum of the item totals is the bid amount the Division uses for bid comparison.

The LFUCG's decision on the bid amount is final.

The contract, if awarded, will be on the basis of materials and equipment specified in the specifications without consideration of possible substitute or "or equal" items.

The estimated quantities of items of unit price work are not guaranteed and are solely for the purpose of comparison of bids and determining an initial Contract price. Determination of the actual quantities and classification of unit price work performed by the Contractor will be made by the Engineer in accordance with the General Conditions.

Item No.	Description w/Unit Bid Price Written in Words	Estimated Quantity	Unit	Unit Price	Total Bid Amount
1.	Project Sign	1	EA	\$750.00	\$ 750.00
2.	Mobilization	1	LS	\$4,500	\$ 4,500
3.	Bonds and Insurance	1	LS	\$10,000	\$ 10,000
4.	General Requirements	1	LS	\$2,500	\$ 2,500

Item No.	Description w/Unit Bid Price Written in Words	Estimated Quantity	Unit	Unit Price	Total Bid Amount
5.	Staking	1	LS	\$ <u>2,500</u>	\$ <u>2,500</u>
6.	Clearing and Grubbing	1	LS	\$ <u>3,500.00</u>	\$ <u>3,500.00</u>
7.	Silt Fence	220	LF	\$ <u>10.00</u>	\$ <u>2,200</u>
8.	Modified Stone Silt Check	2	EA	\$ <u>750.00</u>	\$ <u>1,500.00</u>
9.	Construction Entrance	1	EA	\$ <u>3,500.00</u>	\$ <u>3,500.00</u>
10.	Concrete Washout Pit	1	EA	\$ <u>1,000</u>	\$ <u>1,000</u>
11.	Maintenance of BMP Plan	1	EA	\$ <u>2,500</u>	\$ <u>2,500</u>
12.	Bypass Pumping Set Up	2	EA	\$ <u>3,500</u>	\$ <u>7,000.00</u>
13.	Bypass Pumping	20	HR	\$ <u>300.00</u>	\$ <u>6,000</u>
14.	8" PVC SDR 35 Sanitary Sewer	58	LF	\$ <u>100.00</u>	\$ <u>5,800.00</u>
15.	4' Diameter Manholes (0-6 Feet)	2	EA	\$ <u>5,000</u>	\$ <u>10,000</u>
16.	Extra Depth to 4' Diameter Manholes	6.5	VF	\$ <u>100.00</u>	\$ <u>650.00</u>
17.	4" PVC SDR 21-PR 200 Force Main	102	LF	\$ <u>65.00</u>	\$ <u>6,630.00</u>
18.	Tie to Existing Manhole	1	EA	\$ <u>4,000. 00</u>	\$ <u>4,000.00</u>
19.	Tie to Existing Force Main	1	EA	\$ <u>4,000.00</u>	\$ <u>4,000.00</u>
20.	Trench Rock	33	CY	\$ <u>500.00</u>	\$ <u>16,500</u>
21.	Exist Pump Station Abandonment	1	LS	\$ <u>2,000</u>	\$ <u>2,000</u>

Item No.	Description w/Unit Bid Price Written in Words	Estimated Quantity	Unit	Unit Price	Total Bid Amount
22.	Proposed Pump Station	1	LS	\$ <u>175,000</u>	\$ <u>175,000</u>
23.	Modular Retaining Wall	380	SF	\$ <u>75.00</u>	\$ <u>28,500</u>
24.	Aluminum Railing	70	LF	\$ <u>50.00</u>	\$ <u>3,500</u>
25.	Concrete Pump Station Pad	74	SY	\$ <u>80.00</u>	\$ <u>5,920</u>
26.	3' Concrete Slab (Below Retaining Wall)	8	SY	\$ <u>80.00</u>	\$ <u>640.00</u>
27.	Concrete Entrance Apron	1	LS	\$ <u>4000.00</u>	\$ <u>4000.00</u>
28.	4' Concrete Sidewalk	50	LF	\$ <u>30.00</u>	\$ <u>1,500</u>
29.	Concrete Curb and gutter, LFUCG Type 1	50	LF	\$ <u>45.00</u>	\$ <u>2,250</u>
30.	6' Chain Link Fence	1	LS	\$ <u>6,750</u>	\$ <u>6,750</u>
31.	16' Chain Link Double Vehicular Gate	1	LS	\$ <u>2,500</u>	\$ <u>2,500</u>
32.	Seeding and Protecting Method 1	350	SY	\$ <u>3.94</u>	\$ <u>1,379.00</u>

TOTAL OF ALL BID PRICES FOR Baker Court Pump Station Replacement Project (Items 1 through 30) in words and figures. In case of discrepancy, the amount shown in words will govern.

Three hundred twenty eight thousand nine hundred  
Sixty nine dollars no cents (\$ 328,969.00).

Submitted by:

Wooldridge Homes Inc.  
 Firm  
12308 St. Andrews Place  
 Address  
Sellersburg, IN 47172  
 City, State & Zip

**Bid must be signed:**  
**(original signature)**

  
 Signature of Authorized Company Representative – Title  
President

Representative's Name (Typed or Printed)

812-246-1859

Area Code - Phone - Extension

Fax #

Jason@wooldridgeconstructiongroup.com

E-Mail Address

OFFICIAL ADDRESS:

12308 St. Andrews

Place

Sellersburg, IN

47172

(Seal if Bid is by Corporation)

By signing this form you agree to ALL terms, conditions, and associated forms in this bid package

**5. STATEMENT OF BIDDER'S QUALIFICATIONS**

The following statement of the Bidder's qualifications is required to be filled in, executed, and submitted with the Proposal:

1. Name of Bidder: Wooldridge Homes Inc.
2. Permanent Place of Business: 12308 St. Andrews Place Sellersburg  
IN 47172
3. When Organized: 2000
4. Where Incorporated: Indiana
5. Construction Plant and Equipment Available for this Project:  
Excavator  
skid steer  
Pumps  
hoe ram

(Attach Separate Sheet If Necessary)

6. Financial Condition:

If specifically requested by the OWNER, the apparent low Bidder is required to submit its latest three (3) years audited financial statements to the OWNER'S Division of Central Purchasing within seven (7) calendar days following the bid opening.

7. In the event the Contract is awarded to the undersigned, surety bonds will be furnished by:

Assured Partners (Surety)

Signed: [Signature] (Representative of Surety)

8. The following is a list of similar projects performed by the Bidder: (Attach separate sheet if necessary).

<u>NAME</u>	<u>LOCATION</u>	<u>CONTRACT SUM</u>
<u>See attached</u>		

9. The Bidder has now under contract and bonded the following projects:

<u>NAME</u>	<u>LOCATION</u>	<u>CONTRACT SUM</u>

10. List Key Bidder Personnel who will work on this Project.

<u>NAME</u>	<u>POSITION DESCRIPTION</u>	<u>NO. OF YEARS WITH BIDDER</u>
Ray Bentley	Operating foreman	8
Ray Barrow	Superintendent	5
_____	_____	_____
_____	_____	_____
_____	_____	_____

11. DBE Participation on current bonded projects under contract:

<u>SUBCONTRACTORS (LIST)</u>	<u>PROJECT (SPECIFIC TYPE)</u>	<u>DBE</u>	<u>% of WORK</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

(USE ADDITIONAL SHEETS IF NECESSARY)

12. We acknowledge that, if we are the apparent low Bidder, we may be required to submit to the OWNER within 7 calendar days following the Bid Opening, a sworn statement regarding all current work on hand and under contract, and a statement on the OWNER'S form of the experience of our officers, office management and field management personnel. Additionally, if requested by the OWNER, we will within 7 days following the request submit audited financial statements and loss history for insurance claims for the 3 most recent years (or a lesser period stipulated by the OWNER).

**6. LIST OF PROPOSED SUBCONTRACTORS**

The following list of proposed subcontractors is required by the OWNER to be executed, completed and submitted with the BIDDER'S FORM OF PROPOSAL. All subcontractors are subject to approval of the Lexington-Fayette Urban County Government. Failure to submit this list completely filled out may be cause for rejection of bid.

<u>BRANCH OF WORK - LIST EACH Work</u>	<u>SUBCONTRACTOR</u>	<u>DBE</u>	<u>% of</u>
<u>MAJOR ITEM</u> Such as: Grading, bituminous paving, concrete, seeding and protection, construction staking, etc.		<u>Yes/No</u>	
1. <u>Sitework</u>	Name: <u>Self Perform</u> Address: <u>Sellersburg TN</u>	<u>NO</u>	
2. <u>Sewer and Manholes</u>	Name: <u>Stm Precast</u> Address: <u>Memphis, TN</u>	<u>yes</u>	
3. <u>Concrete</u>	Name: <u>IMI</u> Address: <u>Lexington Ky</u>	<u>NO</u>	
4. <u>Electric</u>	Name: <u>Glennwood Electric</u> Address: <u>Walton Ky</u>	<u>NO</u>	
5. <u>Retaining Wall</u>	Name: <u>Self perform</u> Address: _____	<u>NO</u>	
6. <u>Jacobi Oil</u>	Name: <u>Fuel</u> Address: <u>Floyd Knobs TN</u>	<u>Yes</u>	<u>10</u>
7. <u>Fencing</u>	Name: <u>Metro Fencing</u> Address: <u>Covington Ky</u>	<u>yes</u>	

(Attach additional sheet(s) if necessary.)

**LFUCG STATEMENT OF GOOD FAITH EFFORTS**

Bid/RFP/Quote # 150-2018

By the signature below of an authorized company representative, we certify that we have utilized the following Good Faith Efforts to obtain the maximum participation by MWDBE and Veteran-Owned business enterprises on the project and can supply the appropriate documentation.

Advertised opportunities to participate in the contract in at least two (2) publications of general circulation media; trade and professional association publications; small and minority business or trade publications; and publications or trades targeting minority, women and disadvantaged businesses not less than fifteen (15) days prior to the deadline for submission of bids to allow MWDBE firms and Veteran-Owned businesses to participate.

Included documentation of advertising in the above publications with the bidders good faith efforts package

Attended LFUCG Central Purchasing Economic Inclusion Outreach event

Attended pre-bid meetings that were scheduled by LFUCG to inform MWDBEs and/or Veteran-Owned Businesses of subcontracting opportunities

Sponsored Economic Inclusion event to provide networking opportunities for prime contractors and MWDBE firms and Veteran-Owned businesses

Requested a list of MWDBE and/or Veteran subcontractors or suppliers from LFUCG and showed evidence of contacting the companies on the list(s).

Contacted organizations that work with MWDBE companies for assistance in finding certified MWDBE firms and Veteran-Owned businesses to work on this project. Those contacted and their responses should be a part of the bidder's good faith efforts documentation.

Sent written notices, by certified mail, email or facsimile, to qualified, certified MWDBEs soliciting their participation in the contract not less than seven (7) days prior to the deadline for submission of bids to allow them to participate effectively.

Followed up initial solicitations by contacting MWDBEs and Veteran-Owned businesses to determine their level of interest.

Provided the interested MWDBE firm and/or Veteran-Owned business with adequate and timely information about the plans, specifications, and requirements of the contract.

Selected portions of the work to be performed by MWDBE firms and/or Veteran-Owned businesses in order to increase the likelihood of meeting the contract goals. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate MWDBE and Veteran



participation, even when the prime contractor may otherwise perform these work items with its own workforce

\_\_\_\_\_ Negotiated in good faith with interested MWDBE firms and Veteran-Owned businesses not rejecting them as unqualified without sound reasons based on a thorough investigation of their capabilities. Any rejection should be so noted in writing with a description as to why an agreement could not be reached.

\_\_\_\_\_ Included documentation of quotations received from interested MWDBE firms and Veteran-Owned businesses which were not used due to uncompetitive pricing or were rejected as unacceptable and/or copies of responses from firms indicating that they would not be submitting a bid.

\_\_\_\_\_ Bidder has to submit sound reasons why the quotations were considered unacceptable. The fact that the bidder has the ability and/or desire to perform the contract work with its own forces will not be considered a sound reason for rejecting a MWDBE and/or Veteran-Owned business's quote. Nothing in this provision shall be construed to require the bidder to accept unreasonable quotes in order to satisfy MWDBE and Veteran goals.

\_\_\_\_\_ Made an effort to offer assistance to or refer interested MWDBE firms and Veteran-Owned businesses to obtain the necessary equipment, supplies, materials, insurance and/or bonding to satisfy the work requirements of the bid proposal

\_\_\_\_\_ Made efforts to expand the search for MWBE firms and Veteran-Owned businesses beyond the usual geographic boundaries.

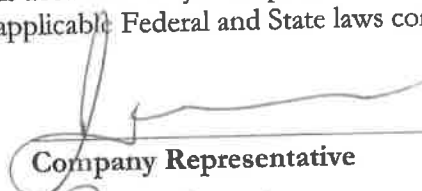
\_\_\_\_\_ Other--any other evidence that the bidder submits which may show that the bidder has made reasonable good faith efforts to include MWDBE and Veteran participation.

**NOTE:** Failure to submit any of the documentation requested in this section may be cause for rejection of bid. Bidders may include any other documentation deemed relevant to this requirement which is subject to approval by the MBE Liaison. Documentation of Good Faith Efforts must be submitted with the Bid, if the participation Goal is not met.

The undersigned acknowledges that all information is accurate. Any misrepresentations may result in termination of the contract and/or be subject to applicable Federal and State laws concerning false statements and claims.

Woodridge Homes Inc.  
Company

11/15/18  
Date

  
\_\_\_\_\_  
Company Representative  
President  
\_\_\_\_\_  
Title

8. AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND CONFLICT OF INTEREST

I hereby swear (or affirm) under the penalty for false swearing:

1. That I am the Bidder (if the Bidder is an individual), a partner of the Bidder (if the Bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the Bidder is a corporation);
2. That the attached bid has been arrived at by the Bidder independently, and has been submitted without collusion with, and without any agreement, understanding or planned common course of action, with any other contractor, vendor of materials, supplies, equipment or services described in the Invitation to Bid, designed to limit independent bidding or competition;
3. That the contents of the bid or bids have not been communicated by the Bidder or its employees or agents to any person not an employee or agent of the Bidder or its surety on any bond furnished, with the bid or bids, and will not be communicated to any such person, prior to the official opening of the bid or bids;
4. That the Bidder is legally entitled to enter into the contracts with the Lexington-Fayette Urban County Government, and is not in violation of any prohibited conflict of interest;
5. (Applicable to corporation only) That as a foreign corporation, we are registered with the Secretary of State, Commonwealth of Kentucky, and authorized to do business in the State \_\_\_\_\_ or, that as a domestic corporation, we are in good standing with the Secretary of State, Commonwealth of Kentucky . Check the statement applicable.
6. This offer is for 60 calendar days from the date this bid is opened. In submitting the above, it is expressly agreed that, upon proper acceptance by the Lexington-Fayette Urban County Government of any or all items bid above, a contract shall thereby be created with respect to the items accepted.
7. That I have fully informed myself regarding the accuracy of the statements made in this statement.
8. That I certify that Subcontractors have not and will not be awarded to any firm(s) that have been debarred from noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

9. STATEMENT OF EXPERIENCE

NAME OF INDIVIDUAL: Roy Bentley

POSITION/TITLE: Operating foreman

STATEMENT OF EXPERIENCE: Operating equipment for forty years on multiple job sites

NAME OF INDIVIDUAL: Ray Barrow

POSITION/TITLE: Superintendent

STATEMENT OF EXPERIENCE: Fifty years of general engineering / public works / management.

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

**10. EQUAL OPPORTUNITY AGREEMENT**

The Law

- \* Title VII of the Civil Rights Act of 1964 (amended 1972) states that it is unlawful for an employer to discriminate in employment because of race, color, religion, sex, age (40-70 years) or national origin.
- \* Executive Order No. 11246 on Nondiscrimination under Federal contract prohibits employment discrimination by contractor and subcontractor doing business with the Federal Government or recipients of Federal funds. This order was later amended by Executive Order No. 11375 to prohibit discrimination on the basis of sex.
- \* Section 503 of the Rehabilitation Act of 1973 States:  
*The Contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap.*
- \* Section 2012 of the Vietnam Era Veterans Readjustment Act of 1973 requires Affirmative Action on behalf of disabled veterans and veterans of the Vietnam Era by contractors having Federal Contracts.
- \* Section 206 (A) of Executive Order 12086, Consolidation of Contract Compliance Functions for Equal Employment Opportunity, states:  
*The Secretary of Labor may investigate the employment practices of any Government contractor or sub-contractor to determine whether or not the contractual provisions specified in Section 202 of this order have been violated.*

The Lexington-Fayette Urban County Government practices Equal Opportunity in recruiting, hiring and promoting. It is the Government's intent to affirmatively provide employment opportunities for those individuals who have previously not been allowed to enter into the mainstream of society. Because of its importance to the local Government, this policy carries the full endorsement of the Mayor, Commissioners, Directors, and all supervisory personnel. In following this commitment to Equal Employment Opportunity and because the Government is the benefactor of the Federal funds, it is both against the Urban County Government policy and illegal for the Government to let contracts to companies which knowingly or unknowingly practice discrimination in their employment practices. Violation of the above mentioned ordinances may cause a contract to be canceled and the contractor may be declared ineligible for future consideration.

Please sign this statement in the appropriate space acknowledging that you have read and understand the provisions contained herein. Return this document as part of your application packet.

Bidders

I/We agree to comply with the Civil Rights Laws listed above that govern employment rights of minorities, women, Vietnam veterans, handicapped, and aged persons.

  
\_\_\_\_\_  
Signature

Wooldridge Homes Inc.  
\_\_\_\_\_  
Name of Business

The Entity (regardless of whether construction contractor, non-construction contractor or supplier) agrees to provide equal opportunity in employment for all qualified persons, to prohibit

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

NAME OF INDIVIDUAL: \_\_\_\_\_

POSITION/TITLE: \_\_\_\_\_

STATEMENT OF EXPERIENCE: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\* Include all officers, office management's, Affirmative Action officials, and field management personnel. (Attach separate sheets if necessary.)

11. EQUAL EMPLOYMENT OPPORTUNITY AFFIRMATIVE ACTION POLICY

It is the policy of Wooldridge Homes Inc.

to assure that all applicants for employment and all employees are treated on a fair and equitable basis without regard to their race, religion, sex, color, handicap, natural origin or age.

Such action shall include employment, promotion, demotion, recruitment or recruitment advertising, layoff or termination, rates of pay and other forms of compensation, and selection for training, whether apprenticeship and/or on-the-job-training.

Furthermore, this company agrees to make special recruitment efforts to hire the protected class whenever feasible. This company also agrees to adhere to all applicable federal, state, and local laws relating to Equal Employment Opportunity for all individuals.

**12. WORKFORCE ANALYSIS FORM**

Name of Organization: Woodridge Homes Inc.

Categories	Total		White (Not Hispanic or Latino)		Hispanic or Latino		Black or African-American (Not Hispanic or Latino)		Native Hawaiian and Other Pacific Islander (Not Hispanic or Latino)		Asian (Not Hispanic or Latino)		American Indian or Alaskan Native (not Hispanic or Latino)		Two or more races (Not Hispanic or Latino)		Total		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
	Administrators																		
Professionals																			
Superintendents																			
Supervisors																			
Foremen																			
Technicians																			
Protective Service																			
Para-Professionals																			
Office/Clerical																			
Skilled Craft																			
Service/Maintenance																			
<b>Total:</b>																			

Date:     /    /    

Prepared by: \_\_\_\_\_  
(Name and Title)

**13. EVIDENCE OF INSURABILITY**

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT CONSTRUCTION PROJECT  
(Use separate form for each Agency or Brokerage agreeing to provide coverage)

Names Insured: See attached Employee ID: \_\_\_\_\_  
 Address: \_\_\_\_\_ Phone: \_\_\_\_\_

Project to be insured: \_\_\_\_\_

In lieu of obtaining certificates of insurance at this time, the undersigned agrees to provide the above Named Insured with the minimum coverage listed below. These are outlined in the Insurance and Risk Management of Part V (Special Conditions), including all requirements, and conditions:

Section Items	Coverage	Minimum Limits and Policy Requirements	Limits Provided To Insured	Name of Insurer	A.M. Best's Code	Rating
SC-3, Section 2, Part 4.1 - see provisions	CGI	\$1,000,000 per occ. And \$2,000,000 aggregate	\$			
SC-3, Section 2, Part 4.1 - see provisions	AUTO	\$2,000,000/per occ.	\$			
SC-3, Section 2, Part 4.1 - see provisions	WC	Statutory w/endorsement as noted	\$			

Section 2 includes required provisions, statements regarding insurance requirements, and the undersigned agrees to abide by all provisions for the coverage's checked above unless stated otherwise when submitting.

Agency or Brokerage \_\_\_\_\_ Name of Authorized Representative \_\_\_\_\_  
 Street Address \_\_\_\_\_ Title \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Authorized Signature \_\_\_\_\_  
 Telephone Number \_\_\_\_\_ Date \_\_\_\_\_

NOTE: Authorized signatures may be the agent's if agent has placed insurance through an agency agreement with the insurer. If insurance is brokered, authorized signature must be that of authorized representative of insurer.  
**IMPORTANT: Contract may not be awarded if a completed and signed copy of this form for all coverage's listed above is not provided with the bid.**



**14. DEBARRED FIRMS**

**PROJECT NAME:** Baker Court Pump Station Replacement

**BID NUMBER:** 150-2018

**LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT  
LEXINGTON, KY**

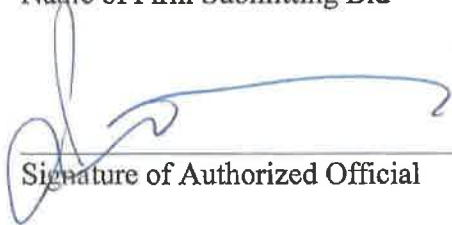
All prime Contractors shall certify that Subcontractors have not and will not be awarded to any firms that has been debarred for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 As Amended, Executive Order 11246 As Amended or any other Federal Law.

All bidders shall complete the attached certification in duplicate and submit both copies to the Owner with the bid proposal. The Owner (grantee) shall transmit one copy to the Lexington-Fayette Urban County Government, Division of Community Development, within fourteen (14) days after bid opening.

The undersigned hereby certifies that the firm of Woodbridge Homes Inc. has not and will not award a subcontract, in connection with any contract award to it as the result of this bid, to any firm that has been debarred for noncompliance with the Federal labor Standards, Title VI of the civil Rights Act of 1964, Executive Order 11246 as amended or any Federal Law.

Woodbridge Homes Inc.

Name of Firm Submitting Bid



Signature of Authorized Official

President

Title

11-15-18

Date

N/A

**15. DEBARMENT CERTIFICATION**

All contractors/subcontractors shall complete the following certification and submit it with the bid proposal.

The contractor/subcontractor certifies in accordance with Executive Order 12549 (Debarment and Suspension 2/18/86) that to the best of its knowledge and belief, that it and its principals:

- 1) Are not presently debarred, suspended, proposed for debarment, declared negligible, or voluntarily excluded from covered transactions or contract by any Federal department or agency for noncompliance with the Federal Labor Standards, Title VI of the Civil Rights Act of 1964 as amended, Executive Order 11246 as amended or any other Federal law;
  - a) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
  - b) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(a) of this certification; and
  - c) Have not within a three year period preceding this bid has one or more public (Federal, State or local) transactions or contracts terminated for cause or default.
- 2) Where the contractor is unable to certify to any of the statements in this certification, such prospective contractors shall attach an explanation to this certification form.

Firm Name: \_\_\_\_\_

Project: \_\_\_\_\_

Printed Name and Title of Authorized Representative: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

END OF SECTION

**NAMED INSURED AND ADDRESS:**  
 WOOLDRIDGE, JASON  
 DBA WOOLDRIDGE CONSTRUCTION  
 12308 ST ANDREWS PLACE  
 SELLERSBURG IN 47172

**CERTIFICATE ISSUED TO:**  
 LFUCG  
 200 East Main St  
 Lexington KY 40505

This is to certify that the policies listed in this Certificate have been issued to the Named Insured by

**A** UFB CASUALTY INSURANCE COMPANY

**B** UNITED FARM FAMILY MUTUAL INSURANCE COMPANY

The policies of insurance listed on this certificate have been issued to the insured named above for the policy period indicated. Notwithstanding any requirement, term or condition of any contract or other document with respect to which this Certificate may be issued or may pertain, the insurance afforded by the policies described is subject to all terms, exclusions and conditions of such policies. Aggregate limits shown may have been reduced by paid claims. This Certificate of Insurance does not constitute a contract between the issuing insurer(s), authorized representative or producer, and the certificate holder, nor does it affirmatively or negatively amend, extend, or alter the coverage afforded by the policies listed thereon.

Type of Insurance	Policy Number	Company (A/B)	Effective Date	Expiration Date	Limits of Liability	
<b>COMMERCIAL LIABILITY</b> <input type="checkbox"/> Commercial General Liability <input type="checkbox"/> Occurrence					General Aggregate Prod.-Comp/OPS Aggregate Personal-Advertising Injury Each Occurrence Fire Damage (Any one fire) Med Expense (Any one person)	
<b>FARM LIABILITY</b> <input type="checkbox"/> Equine <input type="checkbox"/> Occurrence					Each Occurrence Med Expense (Any one person)	
<b>COMM. AUTO LIABILITY</b> <input type="checkbox"/> Scheduled Autos <input type="checkbox"/> Hired Autos <input type="checkbox"/> Non-Owned Autos					Each Accident Med Expense	
<b>FARM AUTO LIABILITY</b> <input type="checkbox"/> Scheduled Autos <input type="checkbox"/> Hired Autos <input type="checkbox"/> Non-Owned Autos					Each Accident Med Expense	
<b>UMBRELLA LIABILITY</b>					Each Occurrence Aggregate	
<b>WORKERS' COMPENSATION AND EMPLOYERS' LIABILITY</b>	WC 8332052 01	B	05/10/2018	05/10/2019	Statutory - Indiana Each Accident Disease Policy Limit Disease Each Employee	\$500,000 \$500,000 \$500,000
<b>OTHER</b>						

**DESCRIPTION OF OPERATIONS, LOCATIONS, VEHICLES, RESTRICTIONS, AND SPECIAL ITEMS**

If subrogation is waived, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this Certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

Should any of the described policies be canceled before the expiration date, the issuing insurer will make an effort to notify the certificate holder named, but failure to do so shall impose no obligation or liability of any kind upon the insurer, its agents or representatives.

\_\_\_\_\_  
**TIM C SUMMERS**  
 Agent

\_\_\_\_\_  
 11/16/2018  
 Date

\_\_\_\_\_  
 812-923-9670  
 Phone



# CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

11/16/2018

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).


<b>PRODUCER</b> J. Scott Huffaker, Inc. 1262 E Delaney Park Road  Salem IN 47187 INSURED Wooldridge Construction Group 10304 Highway 80  Sellersburg IN 47172		<b>CONTACT NAME:</b> Kaileen Martin <b>PHONE (INC. No. Ext):</b> (812) 570-0900 <b>FAX (AVG. No.):</b> (812) 570-0903 <b>E-MAIL ADDRESS:</b> scott@huffakerinsuranceservices.com
<b>INSURER(S) AFFORDING COVERAGE</b>		<b>NAC #</b>
<b>INSURER A:</b> Pekin Insurance		
<b>INSURER B:</b>		
<b>INSURER C:</b>		
<b>INSURER D:</b>		
<b>INSURER E:</b>		
<b>INSURER F:</b>		

**COVERAGES**      **CERTIFICATE NUMBER:**      **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> <b>COMMERCIAL GENERAL LIABILITY</b> <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR		CL0236198	08/29/2018	08/29/2019	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 100,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER <input type="checkbox"/> POLICY <input type="checkbox"/> PROJECT <input type="checkbox"/> LOC.					
	<b>AUTOMOBILE LIABILITY</b> <input type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY					COVERED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> <b>UMBRELLA LIAB</b> <input type="checkbox"/> EXCESS LIAB	<input type="checkbox"/> OCCUR <input type="checkbox"/> CLAIMS-MADE				EACH OCCURRENCE \$ AGGREGATE \$
A	<b>WORKERS COMPENSATION AND EMPLOYERS' LIABILITY</b> ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N <input type="checkbox"/> N/A	WC0236198	08/29/2018	08/29/2019	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 100,000 E.L. DISEASE - EA EMPLOYEE \$ 500,000 E.L. DISEASE - POLICY LIMIT \$ 100,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

<b>CERTIFICATE HOLDER</b>  LFUCG 200 E Main St Lexington KY 40507	<b>CANCELLATION</b>  SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.  <b>AUTHORIZED REPRESENTATIVE</b> 
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# List of Bidder Experience

Project No. 1 24" Sewer Main Replacement

Begin / Complete Dates 3/11/2009 - 9/11/2009

Project Description Install 1,010 LF New 24" VCP

Location City of Thousand Oaks

Bidder's Relevant Work  
Work Experience Managed and overseen the installation

Construction Cost 1.9 Million

Reference DAN LIZZO - City Engineer  
(805) 526-9323  
2100 THOUSAND OAKS BLVD  
THOUSAND OAKS, CA 91362

Project No. 2 Installed 46" Steel Waterline

Begin / Complete Dates 1/9/2012 - 4/23/2012

Project Description Installed 1,000 CF 46" STEEL pipe  
UNDER CALTRANS BRIDGE - RORO  
CASING UNDER BRIDGE.

Location HOUSTON OAKS

Bidder's Relevant Work Managed Project  
Work Experience

Construction Cost 1.2 million

Reference Calleguas Municipal Water District  
2100 OLSEN RD.  
HOUSTON OAKS, CA 91362  
(805) 526-9323

Project No. 3 Playa Vista - Da Sewer

Begin / Complete Dates 3/11/2012 - 11/11/2017

Project Description Installed New 18" VCP Sewerline  
on Blue Creek - City of Los Angeles

Location Playa Vista, CA

Bidder's Relevant Work Managed Construction  
Work Experience

Construction Cost 2.4 million

Reference Playa Capital  
12095 Waterfront Dr # 400  
Playa Vista, CA 91304  
Cliff Ritz, (310) 345-6941



CONTRACTORS  
STATE LICENSE BOARD  
ACTIVE LICENSE



License Number **268546**

Entity **INDIV**

Business Name

**RAY BARROW JR**

Classification **A**



Expiration Date **07/31/2019**

[www.cslb.ca.gov](http://www.cslb.ca.gov)

Any change of business address must be reported to the Registrar within 90 days.  
This license is not transferable, and shall be returned to the Registrar upon demand when suspended, revoked, or invalidated for any reason.  
This postpaid card is valid through the expiration date only.

If found, drop in any mailbox.  
Postage guaranteed by:  
Comptroller State License Board  
P.O. Box 280300, Sacramento CA 95828

Licensee Signature



**LEXINGTON-FAYETTE URBAN COUNTY  
CONTRACTOR REGISTRATION**



**Be It Known That  
WOOLDRIDGE HOMES, INC.**

**is hereby granted  
Registration # 16704**

**as a**

**Specialty Contractor  
in Lexington-Fayette County**

**Expiration Date: 12/31/14**

**HERE IS YOUR WALLET CARD. DETACH AND SIGN BACK OF CARD.**



 **AIA**® Document A310™ – 2010

**Bid Bond**

**CONTRACTOR:**

*(Name, legal status and address)*

Wooldridge Homes, Inc.  
12308 St. Andrews Place  
Sellersburg, IN 47172

**SURETY:**

*(Name, legal status and principal place of business)*

International Fidelity Insurance Company  
One Newark Center, 20th Floor  
Newark, NJ 07102-5207

**OWNER:**

*(Name, legal status and address)*

Lexington-Fayette Urban County Government  
200 East Main Street, Third Floor, Rm 338  
Lexington, KY 40507

**BOND AMOUNT:** Five Percent (5%) of the Total Bid Amount

**PROJECT:**

*(Name, location or address, and Project number, if any)*

Baker Court Pump Station Replacement  
ITB No. 150-2018

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.


Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

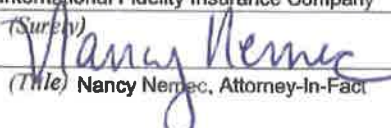
Signed and sealed this 16th day of November, 2018

  
(Witness)

  
(Witness)

Wooldridge Homes, Inc.  
(Principal) (Seal)

  
(Title) International Fidelity Insurance Company

(Surety) (Seal)  
  
(Title) Nancy Nemeec, Attorney-In-Fact

# POWER OF ATTORNEY

## INTERNATIONAL FIDELITY INSURANCE COMPANY ALLEGHENY CASUALTY COMPANY

ONE NEWARK CENTER, 20TH FLOOR NEWARK, NEW JERSEY 07102-5207

KNOW ALL MEN BY THESE PRESENTS: That INTERNATIONAL FIDELITY INSURANCE COMPANY, a corporation organized and existing under the laws of the State of New Jersey, and ALLEGHENY CASUALTY COMPANY a corporation organized and existing under the laws of the State of Pennsylvania, having their principal office in the City of Newark, New Jersey, do hereby constitute and appoint

NANCY NEMEC

Columbus, OH.

their true and lawful attorney(s)-in-fact to execute, seal and deliver for and on its behalf as surety, any and all bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof, which are or may be allowed, required or permitted by law, statute, rule, regulation, contract or otherwise, and the execution of such instrument(s) in pursuance of these presents, shall be as binding upon the said INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY, as fully and amply, to all intents and purposes, as if the same had been duly executed and acknowledged by their regularly elected officers at their principal offices.

This Power of Attorney is executed, and may be revoked, pursuant to and by authority of the By-Laws of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY and is granted under and by authority of the following resolution adopted by the Board of Directors of INTERNATIONAL FIDELITY INSURANCE COMPANY at a meeting duly held on the 20th day of July, 2010 and by the Board of Directors of ALLEGHENY CASUALTY COMPANY at a meeting duly held on the 15th day of August, 2000:

"RESOLVED, that (1) the President, Vice President, Chief Executive Officer or Secretary of the Corporation shall have the power to appoint, and to revoke the appointments of, Attorneys-in-Fact or agents with power and authority as defined or limited in their respective powers of attorney, and to execute on behalf of the Corporation and affix the Corporation's seal thereto, bonds, undertakings, recognizances, contracts of indemnity and other written obligations in the nature thereof or related thereto; and (2) any such Officers of the Corporation may appoint and revoke the appointments of joint-control custodians, agents for acceptance of process, and Attorneys-in-fact with authority to execute waivers and consents on behalf of the Corporation; and (3) the signature of any such Officer of the Corporation and the Corporation's seal may be affixed by facsimile to any power of attorney or certification given for the execution of any bond, undertaking, recognizance, contract of indemnity or other written obligation in the nature thereof or related thereto, such signature and seals when so used whether heretofore or hereafter, being hereby adopted by the Corporation as the original signature of such officer and the original seal of the Corporation, to be valid and binding upon the Corporation with the same force and effect as though manually affixed."

IN WITNESS WHEREOF, INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY have each executed and attested these presents on this 22nd day of July, 2014.



STATE OF NEW JERSEY  
County of Essex

ROBERT W. MINSTER  
Chief Executive Officer (International Fidelity Insurance Company) and President (Allegheny Casualty Company)



On this 22nd day of July 2014, before me came the individual who executed the preceding instrument, to me personally known, and, being by me duly sworn, said he is the therein described and authorized officer of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY; that the seals affixed to said instrument are the Corporate Seals of said Companies; that the said Corporate Seals and his signature were duly affixed by order of the Boards of Directors of said Companies.

IN TESTIMONY WHEREOF, I have hereunto set my hand affixed my Official Seal, at the City of Newark, New Jersey the day and year first above written.



A NOTARY PUBLIC OF NEW JERSEY  
My Commission Expires April 16, 2019

### CERTIFICATION

I, the undersigned officer of INTERNATIONAL FIDELITY INSURANCE COMPANY and ALLEGHENY CASUALTY COMPANY do hereby certify that I have compared the foregoing copy of the Power of Attorney and affidavit, and the copy of the Sections of the By-Laws of said Companies as set forth in said Power of Attorney, with the originals on file in the home office of said companies, and that the same are correct transcripts thereof, and of the whole of the said originals, and that the said Power of Attorney has not been revoked and is now in full force and effect.

IN TESTIMONY WHEREOF, I have hereunto set my hand this

16<sup>th</sup> day of November, 2018

MARIA BRANCO, Assistant Secretary

## PART VIII

### TECHNICAL SPECIFICATIONS

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## TECHNICAL SPECIFICATIONS

### SECTION A – GENERAL PROVISIONS

#### **A.1 KENTUCKY DEPARTMENT OF HIGHWAYS - SPECIFICATIONS**

Except as otherwise indicated on the Plans, and in the Contract Documents and Specifications, all items of Work including materials, construction methods, method of measurement and basis of payment shall comply with the current edition of the *Kentucky Department of Highways (KDOH) Standard Specifications for Road and Bridge Construction* and all current revisions.

With regard to the incorporation *Standard Specifications of KDOH* into these Technical Specifications, the following should be noted:

- Unless either the content implicitly or the Plans and Contract Documents and Specifications explicitly indicate otherwise, all KDOH references to "the Department" should be construed as being references to the Lexington-Fayette Urban County Government (LFUCG).
- Any discrepancy between the Standard Specifications of KDOH and the express intentions of Lexington-Fayette Urban County Government (i.e., Plans, Contract Documents and Specifications, and Lexington-Fayette Urban County Government Standard Drawings) shall be resolved in favor of the latter. (An example of one of the more common types of discrepancy is that which sometimes occurs with regard to the measurement of and payment for Work items.)

#### **A.2 ABBREVIATIONS**

Abbreviations of standards, codes, and publications used within these Specifications are as follows:

ASTM	American Society of Testing and Materials
ANSI	American National Standard Institute
KDOH	Kentucky Department of Highways, "Standard Specifications for Road and Bridge Construction", Current Edition

#### **A.3 SCOPE**

It is the intent that the CONTRACTOR, in accordance with the Plans, Contract Documents and Specifications, and other mutually acknowledged informational materials shall perform everything required to be performed and to furnish a complete, fully operating Work, and shall provide and furnish all labor, materials, necessary tools, expendable and non-expendable equipment and all transportation services required for the entire, proper, substantial completion of the Work, the cost of all of which shall be included in his bid.

The CONTRACTOR shall make all requisite excavations and foundation preparation for constructing sidewalks, incidental drainage structures, and retaining walls. The

CONTRACTOR shall, where required, excavate and prepare subgrade for pavement widening and replacement. The CONTRACTOR shall provide all signs, lighting, barricades, flagmen and watchmen, and make provisions necessary to protect and maintain buildings, fences, trees, shrubs, poles, existing utility fixtures, watercourses, surface drains, or other structures in, on, across, or adjacent to the Work and repair all damage done to them where and as required. The CONTRACTOR shall perform all backfilling, restore walks, grass plots, flowers, shrubs, trees, paved surfaces, etc., damaged or disturbed and clear away all rubbish and surplus materials. The CONTRACTOR shall put in complete and acceptable working order the items covered by the Contract.

This Specification sets forth several items of Work or conditions which are required as integral parts of the successful completion of the Project. All items discussed herein under General Provisions are considered incidental to the overall accomplishment of the Project and no separate payment shall be made therefore unless otherwise noted elsewhere in these specifications.

#### **A.4 CONTRACTOR'S FACILITIES**

A.4.1 Sanitary Facilities: The CONTRACTOR shall provide and maintain all necessary sanitary facilities at the site, in accordance with all applicable regulations, and shall properly remove same at completion of the Project.

A.4.2 Utilities: The obtaining of all utilities which may be required for construction shall be the responsibility of the CONTRACTOR.

#### **A.5 CONTRACTOR'S FIELD OFFICE**

A CONTRACTOR'S Field Office is not required for this project.

#### **A.6 UTILITIES**

The CONTRACTOR is to notify all utility companies prior to beginning construction operations.

It shall be the CONTRACTOR'S responsibility to locate all utilities, make appropriate arrangements regarding relocation, maintain utility service throughout the construction period, and make final relocations at the completion of the Work. The CONTRACTOR shall be responsible for any injury or damage to the existing utilities due to his operations whether shown or not shown in the plans. Where utilities are shown or indicated on the plans, the information given is in accordance with the best information in possession of the OWNER but is approximate only. The data is not warranted to be either complete or correct, and the CONTRACTOR shall assume all risks resulting from the conditions arising from the approximations shown.

The CONTRACTOR shall confer with the utility companies to inform them of the proposed construction schedule, verify the location and elevation of existing utilities and arrange for the relocation and adjustment of any facilities to avoid interference with the

proposed construction. All such activities are to be performed under the direction of and with the approval of the ENGINEER.

When the various utility owners find it necessary to make adjustments to their lines where the CONTRACTOR is presently working, the CONTRACTOR is to move his operations to another area of Work so as not to interfere in any way with the utility company's Work.

Any utilities covered up or lost by the construction operations of the CONTRACTOR shall be uncovered and found by the CONTRACTOR and the new construction repaired and/or replaced as directed by the ENGINEER. No additional compensation will be allowed for such Work nor shall any additional payment be allowed for the relocation and adjusting of any utility but shall be considered Incidentals to other Work.

The CONTRACTOR shall make a concerted effort to prevent any disruption of utility services, and if an unintended disruption occurs, the CONTRACTOR shall immediately and safely restore service. If disruption of any of the utility services covered in this section is unavoidable, it will be the responsibility of the CONTRACTOR to notify affected property owners. The CONTRACTOR shall also make every effort to restore said services before quitting Work for the day. In the event this cannot be done, the CONTRACTOR shall provide temporary service to the property owners until permanent service can be restored.

#### **A.7 STAKING AND MARKING**

The survey baseline, if applicable, for the Project has been previously established. Should, prior to beginning of construction, part or all of the baseline be destroyed, it will be the Contractor's responsibility to re-establish this baseline from the reference points shown on the plans or otherwise identified.

The Contractor will furnish and be responsible for all staking necessary to control and complete the Work, according to the Specifications, to the lines and grades shown on the Plans.

The Contractor's staking party shall be under the general supervision of a Licensed Professional Land Surveyor.

#### **A.8 TESTING**

From time to time during the progress of the Work, the ENGINEER may require that testing be performed to determine the materials provided meet the specified requirements. The Lexington-Fayette Urban County Government will select a testing laboratory to perform the testing services. The cost of such services shall be the responsibility of the OWNER. If testing reveals defective materials or Work, the cost of said testing will become the responsibility of the CONTRACTOR.

- A.7.1 Codes and Standards: Testing, when required, will be in accordance with all pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.



A.7.2 Cooperation with the Testing Laboratory: Representatives of the testing laboratory shall have ready access to the Work at all times. The CONTRACTOR shall provide facilities for such access in order that the laboratory may properly perform its functions.

#### **A.9 INSTALLATION REQUIREMENTS**

Manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as suggested by the respective manufacturers, unless otherwise specified herein or directed by the ENGINEER.

#### **A.10 PROOF OF COMPLIANCE**

Whenever the Contract Documents require that a product be in accordance with Federal Specifications, ASTM Designations, ANSI Specifications, or other associations' standards, the CONTRACTOR shall present a certification from the manufacturer that the product complies therewith. When requested or specified, the CONTRACTOR shall submit supporting test data to substantiate compliance.

#### **A.11 DUST CONTROL**

The CONTRACTOR shall be responsible for minimizing the generation of dust resulting from his operations at all times. The CONTRACTOR shall be required to maintain all excavations, embankments, stockpiles, roads, permanent access roads, plant sites, waste areas, and all other Work areas within or without the project boundaries free from dust which would cause a hazard or nuisance to others. Approved temporary methods of stabilization consisting of sprinkling, chemical treatment, light bituminous treatment, or similar methods will be permitted to control dust. Dust control shall be performed as the Work proceeds, and whenever a dust nuisance or hazard occurs.

#### **A.12 REPAIR OF DAMAGE**

Any damage done to structures, fills, roadways, or other areas shall be repaired at the CONTRACTOR'S expense before final payment is made.

#### **A.13 PROJECT EXTENT**

The CONTRACTOR shall be responsible for satisfying himself as to the construction limits for the Project. The CONTRACTOR shall not establish Work, storage, or staging area outside the Project limits, unless otherwise directed or approved by the ENGINEER.

#### **A.14 WORKING HOURS**

All Work on this Project shall be restricted to daylight hours, but may be further restricted by the ENGINEER if required; except emergency Work, such as any necessary pumping, which may require 24-hour operation. If the CONTRACTOR elects to Work beyond the normal work week, he shall notify the ENGINEER of his intent as far in advance as possible. Lane closures for all streets with a functional classification above local shall occur only between the hours of 9:00 a.m. and 3:00 p.m., except as approved by the ENGINEER.

**A.15 GUARANTEE**

The CONTRACTOR shall assume responsibility for all workmanship and materials for a period of one year from final payment. Any Work found to be defective due to failure to comply with the provision and intent of the Contract Documents, Specifications, and Plans shall be replaced at the CONTRACTOR'S expense.

**A.16 PROPERTY CONSIDERATION**

Materials having a salvage value shall remain the property of the OWNER. Salvageable material rejected by the OWNER shall become the responsibility of the CONTRACTOR to dispose of in a proper manner subject to the approval of the ENGINEER.

**A.17 BLASTING**

Blasting is addressed in the Special Conditions.

**A.18 HAZARDOUS MATERIAL - GAS LINES**

The CONTRACTOR is advised to exercise caution in his operations on this project, regardless of whether the plans indicate or do not indicate the presence of any gas or hazardous materials carrying lines.

**A.19 DIVERSION OF STORM WATER**

Appropriate measures must be taken to sandbag the necessary manholes and to pump drainage around the area under construction. The CONTRACTOR is responsible for developing a plan to divert storm drainage around the construction area with the approval from the ENGINEER. Materials, labor, and all incidentals necessary to accomplish this diversion of storm drainage will be considered incidental to the contract.

**A.20 SEWER SERVICE MAINTENANCE**

This Work shall consist of maintaining existing sanitary sewer service to residents in the area during construction. Sewage is to be maintained by whatever means necessary. No surcharge of manholes will be allowed.

No separate payment will be made for Sewer Service Maintenance. Sewer Service Maintenance shall include all materials, equipment and labor necessary to maintain sewer service to residents during construction.

**A.21 PROJECT SIGNS**

Prior to construction Project Signs shall be installed in accordance with the Standard Drawings. The exact location shall be established prior to the beginning of the work and shall remain visible during the entire length of the Project. After all Work is complete and prior to final inspection, the signs shall be removed and disposed of properly. The cost and installation of the Project Signs will be paid per the Contract Unit Price as bid.



## TECHNICAL SPECIFICATIONS

### SECTION B - MAINTENANCE OF TRAFFIC

#### **B.1 SCOPE**

The Contractor shall maintain all local vehicular and pedestrian traffic along the project during construction. The Contractor shall present a plan for maintenance of traffic and traffic signs subject to the approval of the Lexington-Fayette Urban County Government Traffic Engineer prior to the beginning of Work. All bus routes shall remain in operation during scheduled bus operating hours. Loading zone space shall be made available as necessary during normal business hours. At least one lane of traffic shall be maintained on all cross streets.

#### **B.2 MATERIALS**

The Contractor shall furnish bridging plates or provide other means of maintaining safe access for pedestrians and service traffic to all businesses during normal working hours. Adequate personnel shall be available during daylight hours to assure maintenance. Metal trench covers, granular backfill or other suitable methods shall be utilized to maintain vehicular traffic through areas disturbed by construction operations.

#### **B.3 SIGNING**

The Contractor shall furnish and erect suitable barricades, signs and other necessary devices to control, guide and safeguard traffic passing through or around the construction project. All such devices shall conform in all respects to the requirements of the Manual on Uniform Traffic Control Devices for Highway Construction and Maintenance Projects. The Contractor, before erecting any barricades or changing the location of one already placed, shall notify the Engineer at least three days prior to such contemplated erection or change, except in case of an emergency. In case of an emergency, the Engineer may direct the Contractor to immediately provide safety and warning devices to safeguard traffic. All night-time control devices requiring illumination shall be lighted every night during the entire period from sunset to sunrise. The Contractor will be held responsible for all damage to Work due to failure to provide barricades, signs, lights, and watchmen to protect it; and whenever evidence of such damage is found prior to acceptance, the Engineer may order the damaged portion removed and replaced by the Contractor at the Contractor's expense. The responsibility remains the Contractor's until the project is accepted.

#### **B.4 APPLICABLE KENTUCKY DEPARTMENT OF HIGHWAYS (KDOH) STANDARD SPECIFICATIONS**

To the extent that it does not conflict with the content of the Plans, Contract Documents, and Specifications, Subsection 112 of KDOH Standard Specifications, current edition, is incorporated into this Technical Specification.

**B.5 MEASUREMENT AND PAYMENT**

Payment for the maintenance of traffic will be incidental to the contract unless otherwise specified in the Purchase Order.

## **TECHNICAL SPECIFICATIONS**

### **SECTION C - FINAL CLEANUP**

#### **C.1 SCOPE**

The Work will not be considered as complete, and final payment will not be made, until the right-of-way and all ground occupied by the Contractor in connection with the Work has been cleared of all rubbish, equipment, excess materials, temporary structures, and weeds. Rubbish and all waste materials of whatever nature shall be disposed of in waste areas provided by the Contractor. All property, both public and private, which has been damaged in the execution of the Work, shall be repaired or replaced in an acceptable manner. All ditches in the area of the Work shall be drained and areas affected by the Work shall be left unobstructed and in such condition as acceptable to the Engineer.

#### **C.2 PAYMENT**

No direct payment will be made for final cleanup. Retainage will be withheld until final cleanup is approved by Engineer.

- (B) Time of Seeding - June 2 to August 15  
Tall fescue 30 pounds and rye grass 20 pounds per acre; or, spring oats 2 bushels and rye grass 30 pounds per acre.
- (C) Time of Seeding - August 16 to February 14  
Rye 2 bushels and rye grass 20 pounds per acre; or, tall fescue 30 pounds and rye grass 200 pounds per acre.
- (D) Lime will not be required for temporary seeding.
- (E) Fertilize at the rate of 400 pounds per acre of 10-10-10 fertilizer, or equivalent, broadcast uniformly on the area to be seeded.
- (F) All seed shall be broadcast evenly over the area to be seeded and cultipacked or otherwise pressed into the soil. Seed and fertilizer may be mixed together and applied after the seed has been prepared.
- (G) All temporarily seeded areas shall be protected as specified for method 2 in paragraph 5.3.

## 5. PERMANENT SEEDING AND PROTECTION

Grade exposed earth and any other erodible areas to a uniform cross section or slope as soon as practical in the judgment of the Engineer and then perform permanent seeding and protection at the earliest practical time.

Prepare all areas within the construction limits and right of way limits that can be expected to sustain plant growth and are not covered by satisfactory vegetation for permanent seeding. The ENGINEER will designate areas to be seeded.

### 5.1 SEED MIXTURES FOR PERMANENT SEEDING

- |                    |   |
|--------------------|---|
| Seed Mix Type I:   | 30% Kentucky 31 Tall Fescue<br>( <i>Festuca arundinacea</i> )<br>20% Creeping Red Fescue ( <i>Festuca rubra</i> )<br>35% Hard Fescue ( <i>festuca longifolia</i> )<br>10% Ryegrass, Perennial ( <i>Lolium perenne</i> )<br>5% White Dutch Clover( <i>Trifolium repens</i> ) |
| Seed Mix Type II:  | 60% Kentucky 31 Tall Fescue<br>( <i>Festuca arundinacea</i> )<br>20% Ryegrass, Perennial ( <i>Lolium perenne</i> )<br>10% (based on pure live seed, PLS)<br>Little Bluestem ( <i>Schizachyrium scoparium</i> )<br>10% Partridge Pea ( <i>Cassia fasciculata</i> )           |
| Seed Mix Type III: | 40% Kentucky 31 Tall Fescue<br>( <i>Festuca arundinacea</i> )<br>15% Perennial Ryegrass ( <i>Lolium perenne</i> )<br>20% Sericea Lespedeza ( <i>Lespedeza cuneata</i> )<br>15% Partridge Pea ( <i>Cassia fasciculata</i> )  |

10% (based on pure live seed, PLS)  
Little Bluestem (*Schizachyrium scoparium*)

- (A) Permanent seeding on slopes 3:1 or less. Apply seed mix Type I at a minimum application rate of 100 pounds per acre.
- (B) Permanent seeding on slopes greater than 3:1 in Highway Districts 4, 5, 6 and 7. Apply seed mix Type II at a minimum application rate of 100 pounds per acre plus a nurse crop of either Cereal Rye or German Foxtail-Millet based on the time of year. During the months of June through August, apply 10 pounds of German Foxtail-Millet (*Setaria italica*). During the months of September through May, apply 56 pounds of Cereal Rye (*Secale cereale*). If adjacent to golf courses replace the crown vetch with Kentucky 31 Tall Fescue.
- (C) Permanent seeding on slopes greater than 3:1 in Highway Districts 1, 2, 3, 8, 9, 10, 11, and 12. Apply seed mix Type III at a minimum rate of 100 pounds per acre plus a nurse crop of either Cereal Rye or German Foxtail-Millet based on the time of year. During the months of June through August, apply 10 pounds of German Foxtail-Millet (*Setaria italica*). During the months of September through May, apply 56 pounds of Cereal Rye (*Secale cereale*). If adjacent to crop land or golf course replace the *Sericea Lespedeza* with Kentucky 31 Tall Fescue.

## 5.2 PROCEDURES FOR PERMANENT SEEDING

- (A) Areas to be seeded shall be cleared of all weeds.
- (B) Topsoil, which is to be obtained from existing stockpiles, shall be applied. The topsoil shall not be spread until grading and shaping of the area to receive the topsoil has been completed, and seeding and protection operations are ready to begin. The stockpiled material shall be spread to a uniform depth of approximately 6 inches over such areas that are designated in the plans or by the ENGINEER, and lightly compacted. Areas designated to receive the topsoil will normally include, but are not limited to, medians, islands, cut slopes no steeper than 3:1, and other areas that it is anticipated will be mowed in the future. After the topsoil has been spread and compacted, the areas upon which it was stockpiled shall be neatly dressed.
- (C) The soil shall be loosened to a depth of 3 inches by rotary tools, discs, harrows, or other approved methods. The Engineer may reduce the depth to which the soil is loosened on steep slopes or places inaccessible to mechanical equipment. On areas subject to severe erosion, care shall be taken not to pulverize the soil as this may contribute to loss of seed and/or plant nutrients.
- (D) All large or unsightly clods or stones, and other foreign materials brought to the surface shall be removed, and any



gullies, washes, or disturbed areas shall be repaired before seed is applied.

- (E) Prepare a seedbed and incorporate a minimum of 100 pounds of nitrogen, 100 pounds of phosphate, 100 pounds of potash, and 3 tons of agricultural limestone per acre.
- (F) Add additional fertilizer and agricultural limestone as needed.
- (G) Do not apply dry agricultural limestone when it may generate a traffic hazard.
- (H) Remove all rock and dirt clods over 4 inches in diameter from the surface of the seedbed.
- (I) Unless the ENGINEER directs otherwise, track all slopes 3:1 or greater. Ensure that tracking is performed up and down and not across.
- (J) Native Grass seed should be calculated figuring seed on a pure live basis (PLS), using the least amount of inert matter available. Seed and mulch to produce a uniform vegetation cover using the seeding rates as indicated to each application.
- (K) Mulch with clean, weed free straw. Place straw to an approximate 2 inch loose depth (2 tons per acre) and anchor it into the soil by mechanically crimping it into the soil surface or applying tackifier to provide a protective cover.
- (L) For the periods of March 1 through May 15 and from September 1 through November 1, the option of using hydromulch at minimum rate of 1,500 pounds per acre in place of straw with tackifier will be allowed.
- (M) Seed shall be drilled or worked approximately 1/4 inch into the soil, or covered by means of a cultipacker or light roller; the Engineer may waive this requirement on very steep slopes or inaccessible places provided the soil surface is rough and open.
- (N) When the contract includes a bid item for crownvetch, crownvetch seed shall be uniformly sown at the rate of 30 pounds per acre on all areas having a slope of 3:1 or steeper and consisting of soil or mixtures of broken rock and soil. Crownvetch shall also be sown on soil seams and crevices within or adjacent to rock cuts, and the flat areas of benched slopes. Crownvetch seed shall be sown separately from other seeds unless seeding is done hydraulically.
- (O) Each type of leguminous seed, such as crownvetch, shall be inoculated in accordance with the recommendations of the inoculant manufacturer. Five times the recommended quantity of inoculant shall be used when seeding is done hydraulically. Inoculation shall be performed the same day the seed is sown, and before the inoculated seed is mixed with the other seed.

### 5.3 PROTECTION

The methods of protection shall be as specified in the contract. Placing of mulch for protection shall follow seeding as soon as possible, and no later than 48 hours after seeding. In no instance shall the mulch be placed or crusted seeded areas, and any eroded areas shall be repaired and reseeded before mulch is applied. The mulch material shall be placed uniformly, all clumps loosened and scattered, and care shall be taken to avoid thicker applications than those specified as excessive mulch may hinder germination and survival of the seedlings.

After the seeding has been satisfactorily completed, the following methods or protection shall be used as required by the contract or the Engineer.

Method 1: Mulch and Netting. This method shall be used at bridge abutments, adjacent to pavements, or other areas designated on the plans or by the Engineer. Installation shall be in accordance with Standard Drawing No. RRE-002. Mulch material used under netting may be either plain or bituminous treated, unless otherwise directed, and shall be uniformly applied to approximately 2 inches loose depth (approximately 2 tons per acre).

Method 2: Bituminous Treated Mulch. Bituminous treated mulch shall be placed by equipment that will blow or eject a controlled quantity of mulch material uniformly over the entire seeded area, without appreciable cutting or breaking of the mulch material, and to a loose depth of approximately 2 inches (approximately 2 tons per acre).

Bituminous material shall be uniformly applied by jet nozzles installed at the discharge spout of the equipment at the minimum rate of 250 gallons per acre. When the initial application is less than 250 gallons per acre, neat bituminous material shall be uniformly sprayed over the mulch material until the minimum quantity had been applied.

In cool weather, the CONTRACTOR shall heat the bituminous material to ensure uniform distribution.

The CONTRACTOR shall take all necessary precautions to prevent the bituminous material from defacing structures or other roadway appurtenances, pavements, utilities, plant growth, traffic, or private property. Any such items defaced by bituminous material shall be cleaned to the satisfaction of the Engineer.

### 5.4 STAGE II TOPDRESSING

When quantities for 20-10-10 fertilizer are included in the plans and/or proposal, all seeded and sodded areas on the project shall receive a top-dressing of 20-10-10 fertilizer. Top-dress applications of fertilizer and agricultural limestone shall be made on all areas within the right-of-way limits on which satisfactory vegetation has been established or preserved. Top-dress applications shall be made at the time designated in the contract or by the Engineer, but shall not be made during the months of

December and January, nor until a satisfactory stand or vegetation exists.

Both dry and/or liquid fertilizer will be acceptable and may be delivered to the project in bags, bulk or tank. If the dry form is used a 20-10-10 analysis fertilizer shall be uniformly applied at the rate of 500 pounds per acre (11.5 lbs. per 1,000 square feet). If the liquid is used, liquid fertilizer having an analysis ratio of 2-1-1 shall be applied at the rate required to furnish 100 lbs. of Nitrogen, 50 lbs. of Phosphorus, and 50 lbs. of Potassium per acre. The CONTRACTOR shall utilize application equipment, properly calibrated before use, capable of applying the fertilizer evenly over the entire designated areas at the specified rate without excessive drifting of material or damage to existing vegetation. The hydroseeder, power sprayer and/or mechanical blower type of broadcast spreaders are considered acceptable for slope and level areas. The minimum solution rate per acre to ensure uniform coverage shall be 200 gallons if a hydroseeder or power sprayer is used. Incorporation of these materials into the soil will not be required. Any areas which are top-dressed and later exhibit streaked or missed areas shall be refertilized at no additional cost to the Owner. Any vegetation severely damaged or destroyed because of Owner an excessive application of fertilizer shall be reestablished at no additional cost to the Owner.

When seeding performed during the latter part of a project has not had time to attain significant growth before all other contract items are completed, the project will be declared complete without regard topdressing work Topdressing shall then be performed at a later time approved by the Engineer. The time necessary to complete topdressing work will not be included in the contract time and no liquidated damages will be assessed, provided the work is completed within the time limits specified in KDOH Section 108-09.

#### 5.5 EROSION CONTROL BLANKET

Install erosion control blankets in ditches, except those to be paved or rock lined, to flow depth of 1.5 feet. Install erosion control blankets on final soil-like slopes as designated on the Erosion Control Plan and as the ENGINEER directs. Prepare the bed by loosening the soil to a depth of 2 to 3 inches. Apply fertilizer, limestone, and seed t the permanent seeding rate. Cover with the erosion control blanket. Roll out the blanket in the direction of the anticipated runoff flow. Anchor the blanket at the top and toe of slopes and at the top, toe, and edges of channels and ditches as the "Anchoring Edges and Ends" figure shows. Secure the blanket by stapling as the "Stapling Pattern" figure shows. At seams, overlap the blanket as the "Seam Overlaps" figure shows. Rework areas that become unstable or do not establish vegetation.

#### 5.6 MAINTENANCE OF SEEDED AREAS

From the time seeding and protection work begins until the date the project is declared complete, the CONTRACTOR shall keep all seeded areas in good condition at all times. Any damage to seeded areas or to mulch materials shall be promptly repaired as directed.

All work and materials necessary to protect, maintain, and/or restore seeded areas during the life of the contract shall be performed at no additional cost to the Owner, except additional work caused by changes in the project by the Owner. When it becomes necessary to disturb previously seeded areas due to slope changes, addition of paved ditches not previously located, or other changes made at the direction of the Engineer, payment for a reasonable amount of additional work, as determined by the Engineer, will be made at the original contract unit prices.

No payment will be made for additional work due to changes made for the benefit of the CONTRACTOR, such as slope changes to obtain balance excavation in lieu of borrow excavation, nor will payment be made for additional work required because the CONTRACTOR has failed to properly coordinate his entire erosion control schedule thus causing previously seeded areas to be disturbed by operations that could have been performed prior to the seeding.

#### 5.7 ACCEPTANCE OF SEEDING

An inspection to determine the acceptability of the seeding will be made by an authorized representative of the Owner no less than 3 months but no more than 6 months after completion of the entire project, except that the Engineer may delay the inspection when conditions are such that the acceptability of the seeding cannot be determined at the end of the 6 month period. At the time of inspection, at least 90 percent of each seeded area shall have a minimum of 150 live seedlings representative of the specified seed mixture per square foot, with no vacant areas larger than 250 square feet each. This requirement shall apply to all permanent seeding performed in conjunction with the project, regardless of the type protection used or the season in which the seeding is performed.

When the seeding does not meet the live seedling requirement at the time of inspection, additional work will be required and may include preparation of a new seedbed, refertilizing, reseeding, remulching, or any erosion control items that were originally required.

Payment for additional seed mixture and protection ordered by the Engineer will be made at the agreed unit prices listed below, which payment shall be full compensation for all labor, equipment, materials and incidentals required to acceptably complete required work:

- (A) The corrective seed mixture rate of application will be determined by the Engineer and shall be derived from the permanent seed mixture specified in the contract. All seed used for corrective seeding will be paid for at the rate of \$1.50 per pound. This price includes all seed bed preparation, application, labor, and incidentals as directed by the Engineer.
- (B) Straw mulch for corrective seeding shall be applied at the rate per acre as designated by the Engineer. The mulch shall include asphalt emulsion at a rate of 100 gallons per ton of straw. All straw mulch used for corrective seeding will be paid for at the rate of \$185.00 per ton. This price shall include straw mulch,

asphalt, labor, equipment, and incidentals necessary to satisfactorily perform the mulching operation.

- (C) The Engineer may direct other items such as fertilizer, limestone, and crownvetch to be applied. These items will be paid for at the contract unit price.

## 6. SODDING

This item shall consist of furnishing, hauling, and placing sod on a prepared sod bed at locations specified in the contract or by the ENGINEER.

### 6.1 CUTTING SOD

Prior to cutting sod, the grass shall be mowed to a height of no more than 3 inches and the mowed area shall be raked to eliminate all clippings, cuts and trash. The sod shall be cut into rectangular sections as required. Sections may vary in length not exceeding 8 feet but shall be of uniform width of 10 inches or more, and shall be cut to a depth of at least one inch and no more than 2 inches, depending on the nature or kind of sod. The sod shall be cut to such thickness that practically all of the dense root system will be retained but exposed in the sod strip, and to such width and length so that it can be handled without undue tearing and breaking. When cut in strips, the sod shall be rolled without damage with the grass folded inside.

The sod shall be cut by means of an approved mechanical sod cutter. During dry weather, the sod shall be watered before cutting to prevent loss of soil while handling. Sod shall not be cut when in a sufficiently wet condition which would interfere with proper handling.

All sod must be delivered to the project and placed within 24 hours after being cut, unless placing is prevented by circumstances beyond the CONTRACTOR'S control, in which case the ENGINEER may permit temporary storage.

### 6.2 TEMPORARY STORAGE

When temporary storage of sod is permitted, the sod shall be placed in layers with grass to grass and roots to roots. To prevent the sod from drying out, the stack shall be sprayed with water and covered with moist burlap as directed.

Sod will be rejected when permitted to decay or dry to the extent that, in the judgement of the ENGINEER, its survival is doubtful. Rejected sod shall be disposed of at no cost to the OWNER.

### 6.3 PREPARATION OF SOD BED

The sod bed shall be loosened to a depth of 3 inches and shaped to a smooth even surface and shall be graded to such elevation so the sod, when in place, shall be flush with any adjacent seeded or turfed area, pavement, curb, or other structures, except when otherwise directed.

Prior to placing the sod, the fertilizer and limestone shall be applied uniformly at the rates specified, and shall be harrowed, raked, or otherwise incorporated into the soil. The sod bed, when dry, shall be moistened to the loosened depth.

#### 6.4 PLACING SOD

Sod shall be placed as the earthwork progresses insofar as practicable. Quantities of less than a normal truckload of sod will be deemed impracticable and will not be required until a truckload can be used, unless extremely erosive conditions are encountered which demand immediate attention in the judgment of the ENGINEER.

Sod shall not be placed when the atmospheric temperature is below 32°F, or when the sod or sod bed is frozen, or during other weather or soil conditions detrimental to the work.

The sod shall be carefully placed by hand so that each section closely joins the adjacent sections without overlapping. All open spaces or gaps shall be plugged with sod cut to the appropriate size and shape.

When placed on slopes, the sod shall be laid with the long edges of the strips parallel to the contour starting at the bottom of the slope. Successive strips shall be neatly matched and all joints staggered or broken. The sodding shall be carried at least 18 inches beyond the top of the slope to prevent surface water from undermining the sod.

When placed on slopes 2:1 or steeper and 6 feet or more in height, and in all sodded ditches, each strip or section of sod shall be staked securely with at least 2 wood stakes or wire staples no more than 2 feet apart and driven flush with the surface. The stakes or staples will be subject to approval by the ENGINEER on the project.

The sod, after it is placed, shall be wetted thoroughly and tamped sufficiently with approved tampers to incorporate the roots into the sod bed and to ensure tight joints between the sections or strips.

#### 6.5 CARE AND RESTORATION

All sodded areas, including the sod bed, shall be kept thoroughly moist for at least 2 weeks after sodding. The sod shall be maintained in a good state of repair at all times during the life of the contract.

#### 6.6 GUARANTEE

The CONTRACTOR shall guarantee a minimum of 90 percent live sod on the sodded areas at the inspection between 3 and 6 months after completion of the project and no vacant area of dead sod shall be larger than 15 square feet.

7. METHOD OF MEASUREMENT

The quantity of Agricultural Limestone and Fertilizer to be measured for payment, including materials used for top-dress applications, will be the number of tons each material weighed separately, complete and accepted in place in the final work. When 100-mesh ground limestone is substituted for agricultural limestone at the rate specified in subsection 7. 4-2 (d), the actual number of tons substituted will be converted to its equivalent in tons of Agricultural Limestone for pay purposes.

Sod measured for payment will be the number of square yards of surface area of sod conforming to the requirements specified herein complete and accepted by the ENGINEER. Additional sod necessary to restore areas that fail to meet the guarantee requirements will not be measured for payment.

8. BASIS OF PAYMENT

The accepted quantities thus measured will be paid for at the contract unit prices. Payment shall be full compensation for all work required by this Section, including all work and material necessary to fulfill guarantee requirements.

Payment will be made under:

PAY ITEM	PAY UNIT
Sodding	Square Yard
Seeding & Protection, Method I	Square Yard
Seeding & Protection, Method II	Acre
Special Seeding, Crown Vetch	Pound
Agricultural Limestone	Incidental
Fertilizer (Analysis)	Incidental
Erosion Control Blanket	Square Yard

## SECTION 02105 - WATER POLLUTION CONTROL

1. DESCRIPTION
2. GENERAL
3. TEMPORARY CONTROL MEASURES
4. SILT CHECKS, SILT TRAPS AND SILT FENCES
5. PROGRESS REQUIREMENTS
6. METHOD OF MEASUREMENT
7. BASIS OF PAYMENT

### 1. DESCRIPTION

This work shall consist of temporary control measures as shown on the plans or ordered by the ENGINEER during the life of the contract to control water pollution through use of silt checks; and coordinating these measures with the permanent erosion control features specified elsewhere in the contract to the extend practicable to assure effective and continuous erosion control throughout the construction and post construction period.

### 2. GENERAL

The intent of this specification is to protect the quality of water through the prevention, control and abatement of any pollution resulting from the OWNER'S construction projects.

The CONTRACTOR shall exercise every reasonable precaution at all times to prevent the pollution of all streams, lakes, and reservoirs. He shall construct all permanent drainage structures and ditch checks, as soon as practicable. He shall conduct and schedule his operations so as to avoid or minimize the muddying or siltation of all streams, lakes, and reservoirs and to avoid damage to fish habitats.

No partially completed item of work shall be left in a manner that will contribute to erosion during the period in which work on the item is suspended.

Material removed from the roadway shall not be deposited in streams, stream channels, other areas subject to flooding, or other locations where it may be washed away by high stream flows or fast runoff.

Fuels, oils, bitumens, calcium chloride, or other harmful materials shall not be placed where they may be carried into a stream or underground waters at any time.

Lands outside the limits of the construction, as staked, shall not be disturbed, except as may be found necessary and as permitted. Before final acceptance of the work, all such disturbed areas, including storage areas, and plant sites, shall be reshaped to conform to the adjacent ground and shall be revegetated by the CONTRACTOR at his expense.

The CONTRACTOR shall provide and maintain adequate sanitation facilities for the duration of the work. Temporary sanitation facilities shall be of the portable type.



### 3. TEMPORARY CONTROL MEASURES

The ENGINEER may limit the surface area of erodible earth material exposed by clearing and grubbing, the surface area of erodible earth material exposed by excavation, borrow, and fill operations, and may direct the CONTRACTOR to provide immediate permanent or temporary pollution control measures to prevent contamination of watercourses or other areas of water impoundment.

The temporary pollution control measures shall be coordinated with the permanent erosion control features to the extent deemed practicable by the ENGINEER to assure effective and continuous erosion control throughout the construction and post construction periods.

Temporary erosion control measures shall be used at any time during the life of the project when directed to prevent soil erosion and pollution of streams.

Clearing and grubbing operations shall be so scheduled and performed that grading operations and permanent erosion control features can follow immediately thereafter if project conditions permit; otherwise, temporary erosion control measures may be required at the CONTRACTOR'S expense between successive construction stages.

Temporary pollution controls may include construction work outside the project area where such work is necessary as a result of roadway construction such as equipment storage sites.

The erosion control features installed by the CONTRACTOR shall be acceptably maintained by him.

### 4. SILT CHECKS

Dams constructed of crushed stone, broken rock, soil or straw shall be constructed to retard the flow of water which is laden with eroded material in a manner to cause the eroded material to settle behind the dams. Silt checks shall be constructed, before major earth excavation takes place, at location designated on the plans or as directed, wherever it appears that eroded material will pollute adjacent property or streams. Construction methods shall be as specified herein.

Silt Check Type I - Straw bales, staked so as to remain in place, placed in the numbers and at the locations designated.

Silt Check Type II - Crushed stone such as Cyclopean Stone Rip Rap, Quarry Run Stone, or other size material approved as suitable for this use, dumped in place, at the locations designated and shaped to the configuration required.

Silt Check Type III - Blasted or broken rock dumped in place at the locations designated and shaped to the configuration required.

Unless otherwise provided or directed, the CONTRACTOR may select the type of ditch check to be constructed at each location.

Sediment deposited at silt checks shall be removed properly disposed of when deemed necessary. When their usefulness has ended, the silt checks shall be removed, surplus materials disposed of in accordance with section 4.6, and the

entire area disturbed shall be seeded and protected, as directed. Silt checks may remain in place upon completion of the project only when permitted by the ENGINEER.

#### 4.1 SILT TRAPS

Silt traps shall be constructed by excavating basins in natural or excavated channels, and shall be one of the following types:

Silt Trap Type A - Excavated pits, from 2 to 3 feet in depth, 20 to 30 feet in length, and 5 to 10 feet in width.

Silt Trap Type B - Excavated pits with the addition of a dike and overflow pipe. Dimensions of the pit and the overflow pipe shall be in accordance with the plans and/or standard drawings.

Sediment deposited in silt traps shall be removed each time the silt trap is approximately 50 percent filled. When their usefulness has ended, the silt traps shall be removed, surplus materials disposed of in accordance with KDOH Section 204.09, and the entire area disturbed shall be seeded and protected or sodded, as directed. Silt traps may remain in place upon completion of the project only when permitted by the Engineer or the plans.

#### 4.2 TEMPORARY SILT FENCES

Temporary silt fences shall be constructed by installation of posts, and installation of metal fence fabric and geotextile fabric, in accordance with the plans and standard drawings.

Fence posts shall be at least 5 feet long, and metal fence fabric shall be at least 14 gage, 36 inches high, and with openings no larger than 6 inches x 6 inches. Geotextile fabric shall be a material recommended for this use by the manufacturer.

Fence posts and fabric will be accepted based on visual inspection by the Engineer in the field; geotextile fabric will be accepted upon receipt of a certification from the manufacturer that it is suitable for use as silt fence.

The silt fence shall be constructed at locations shown on the plans or directed by the Engineer. The silt fence shall be erected before grading is begun in the area to be protected. Posts shall be installed at 6 to 10 feet spacing (The closer spacing should be used in areas where rapid runoff can be expected) and the fence fabric attached. The geotextile fabric shall be attached to the fence, on the upstream side, using staples, hog-rings, or another approved method. The bottom 12 inches of the fabric shall be buried in a 6-inch trench cut into the ground or covered by 6 inches of fill material, to prevent sediment escaping under the fence. All earthwork shall be on the upstream side of the fence.

During the useful life of the silt fence, it shall be maintained by the CONTRACTOR, and silt accumulations that threaten damage to the fence shall be removed. After the usefulness of the fence has ended it shall be removed and disposed of, the accumulated silt shall be either

removed or dressed in place as directed, and the entire area shall be seeded and protected.

5. PROGRESS REQUIREMENTS

Both permanent and temporary erosion control measures including, but not limited to, ditch checks, seeding, etc., shall be progressively coordinated with the grading operations throughout the duration of the project.

As areas of erodible earth material are exposed to the elements of erosion, every effort should be made to stabilize and protect the areas as quickly as possible, as directed. Upon failure of the CONTRACTOR to coordinate the erosion control measures with the grading operations in a manner to effectively control erosion and to prevent water pollution, the ENGINEER may suspend the CONTRACTOR'S grading operations and/or withhold monies due the CONTRACTOR on current estimates until such time that all aspects of the work are coordinated in an acceptable manner.

In case of repeated failures on the part of the CONTRACTOR to control erosion, pollution, or siltation, the ENGINEER reserves the right to employ outside assistance or to use his own forces to provide the necessary corrective measures. Such incurred direct costs plus project engineering costs will be charged to the CONTRACTOR and appropriate deduction made from the CONTRACTOR'S pay estimate.

6. METHOD OF MEASUREMENT

The final quantity of silt checks and silt traps will be the actual number acceptably constructed, maintained, and removed. The final quantity of temporary silt fence will be the actual length acceptably constructed, maintained, and removed. All such structures shall be fully maintained and replaced, if necessary at no additional cost.

7. BASIS OF PAYMENT

The accepted quantities thus measured will be paid for at the contract unit prices.

Payment will be made under:

PAY ITEM	PAY UNIT
Silt Trap	Each
Silt Check	Each
Silt Fence	Linear Foot
Modified Silt Check	Each
Best Management Practices	Lump Sum

## SECTION 02110 - CLEARING, GRUBBING AND REMOVAL

1. DESCRIPTION
2. GENERAL
3. CLEARING AND GRUBBING
4. METHOD OF MEASUREMENT
5. BASIS OF PAYMENT

### 1. DESCRIPTION

This Work shall consist of clearing, grubbing, stripping, and stockpiling all topsoil or unsuitable material, removing and disposing of all vegetation and foundations not removed by others, and debris which are within the construction limits, except those objects which are designated to remain or are to be removed in accordance with other sections these specifications. This work shall also include the preservation from injury or defacement of all vegetation and objects designated to remain. This work will also include the removal of fences within the construction limits. Fences will be relocated outside the construction limits of the project.

### 2. GENERAL

The ENGINEER will designate all trees, shrubs, plants, and other items remain. Paint required for cut or scarred surfaces of trees or shrubs selected for retention shall be an approved asphaltum base paint prepared especially for tree surgery.

### 3. CLEARING AND GRUBBING

The entire area within the construction limits shall be cleared of all weeds, brush, briars, bushes, trees, stumps, and other protruding obstructions not designated to remain, except within areas the ENGINEER may designate to remain undisturbed. In addition, all bushes, trees, roots, and stumps within the line of slope stakes shall be grubbed, except undisturbed stumps, roots, and nonperishable solid objects which will be a minimum of 3 feet below subgrade or slope of embankments. Stumps and nonperishable solid objects to be left under embankments shall not extend more than 6 inches above the ground line or low water level.

The ENGINEER may permit sound trees and stumps 6 inches or larger in diameter to be cut within 3 inches of the groundline and all other trees, stumps, shrubs, and bushes to be cut flush with the groundline and left without grubbing in areas cleared outside the construction limits.

All topsoil and/or unsuitable material shall be stripped and stockpiled during the clearing and grubbing operations.

All fences within the construction limits will be removed and stored in a manner to preserve the structural strength of the fence. Upon completion of the project the fences will be replaced outside the limits of construction, or as directed by the ENGINEER, in as good as the existing condition and to the satisfaction of the ENGINEER. If the ENGINEER determines that the fence has been significantly

damaged during removal, then the CONTRACTOR will replace the facility incidental to the clearing and grubbing.

Right-of-way areas lying between separate roadways, whether the roadways are constructed in the same plane or different planes, and right-of-way areas lying outside the construction limits shall be selectively cleared as directed.

All clearing and grubbing operations shall be performed in accordance with applicable provisions of Section 2100, Erosion Control, and Section 2105, Water Pollution Control.

All materials resulting from clearing and grubbing shall be completely disposed of by the CONTRACTOR. Any burning of perishable material shall be done in accordance with the requirements of the OWNER.

Materials and debris which cannot be burned and perishable materials may be disposed of by approved methods and at approved locations on or off the project.

When disposal is by burying, the cover material shall be earth, shall provide a cover of at least 12 inches, and shall be graded and shaped to present a pleasing appearance.

In no case shall the CONTRACTOR place on adjacent property any material obtained from clearing and grubbing without written permission from the property OWNER, a copy of which shall be furnished to the OWNER. No material shall be placed within view of any public road, without written approval.

The ENGINEER may require material placed within view of a public road to be covered with soil that will support vegetation, and seeded and protected as required on the remainder of the project.

All merchantable timber in the clearing area which has not been removed from the right-of-way prior to the beginning of construction shall become the property of the CONTRACTOR.

Low hanging branches and unsound and unsightly branches on trees or shrubs designated to remain shall be removed as directed. Branches of trees extending over the roadbed shall be trimmed to provide a minimum clear height of 20 feet above the roadbed surface. All trimming shall be performed in accordance with accepted practice.

#### 4. METHOD OF MEASUREMENT

The plans will indicate the entire area within the construction limits in acres. The final pay quantity of Clearing and Grubbing will be measured per acre by plane surveying standards.

The area shown on the plans is approximate only, and the contract unit price for Clearing and Grubbing shall include all work necessary to clear and grub the original construction limits in accordance with these specifications and all other requirements of the plans or proposal applicable to Clearing and Grubbing, regardless of the area actually cleared and grubbed.

No claim will be allowed for any increase over the estimated area of Clearing and Grubbing unless work is performed outside the construction limits shown on the original plans, and then only when such work is caused by a change in the plans

approved, in writing, by the ENGINEER. The area of Clearing and Grubbing will not be decreased unless the total area of the original construction limits is decreased by a change in plans approved, in writing, by the ENGINEER. Approved increases and decreases will be measured in acres.

5. BASIS OF PAYMENT

The accepted quantities thus measured will be paid for at the contract unit price for Clearing and Grubbing. Payment shall be full compensation for all work required by this Section.

Necessary Clearing and Grubbing, including the removal of trees (regardless of size), property fence and right-of-way fence, not listed as a separate pay item shall be considered as incidental to the work being performed and no additional payment will be made.

Changes in payment for Clearing and Grubbing, due to approved plan changes, will be computed at a unit price rate.

Payment will be made under:

PAY ITEM	PAY UNIT
Clearing and Grubbing	Lump Sum



## SECTION 02222 - ROADWAY AND DRAINAGE EXCAVATION

1. DESCRIPTION
2. GENERAL
3. CLASSIFICATION
4. SLOPES
5. DITCHES
6. USE OF EXCAVATED MATERIALS
7. ROADBED
8. METHOD OF MEASUREMENT
9. MISCELLANEOUS
10. BASIS OF PAYMENT

### 1. DESCRIPTION

Roadway and drainage excavation shall consist of the removal and satisfactory disposal of all materials taken from within limits of the work contracted, meaning the calculated material lying between the original groundline and the excavation limits established or approved by the ENGINEER as shown on the final cross sections or grading plan.

### 2. GENERAL

Included in this work shall be excavation for widened cuts and roadbeds, embankment subgrades, under-cutting subgrades in cut sections, shoulders, slopes, removal of unsuitable material, ditches, waterways, intersections, approaches, balance excavation, and inlet and outlet ditches, all as indicated on the plans or as directed.

Roadway and drainage excavation shall also included removal and satisfactory disposal of miscellaneous structures removed from within the limits of the roadway and drainage cross sections such as, but not limited to, all types of pavements and pavement bases, whether rigid or flexible; sidewalks; all curbs and gutters; and all conduits that have no salvage value, such as unserviceable drainage pipe, sewer pipe, waterlines, and other unserviceable utility lines. The plans may or may not indicate the exact locations of the various types and quantities of these miscellaneous items to be removed and disposed of; however, it is the intent of these specifications that the removal of any such items that fall within the limits of the roadway and drainage cross sections as hereinbefore defined, whether or not shown on the plans, shall be paid for as Roadway Excavation Unclassified.

When quantities and bid items are shown on the plans or in the proposal for the removal of various types of miscellaneous items, it is the intent of these specifications that such quantities and bid items shall include only those miscellaneous structures that are found outside of the roadway and drainage cross sections.

Except as otherwise specifically stated roadway and drainage excavation shall also include inlet and outlet ditches, regardless of the classification of the material encountered, whether shown or not shown on the plans and whether or not on the right-of-way as shown. When the work is extended by the OWNER beyond the



project area limits shown on the plans, easements or additional property will be obtained by the OWNER.

All drilling, grinding, and sawing of rock, shale, concrete and other similar dust-producing materials shall be performed in accordance with the requirements of the ENGINEER.

All excavation operations shall be conducted in accordance with the applicable requirements of Section 02100, Erosion Control, and Section 02105, Water Pollution Control.

Clearing and grubbing operations for excavation areas shall be completed prior to beginning excavation operations. The CONTRACTOR shall be responsible for and shall take all necessary precautions to protect and preserve any and all existing culverts, pipelines, conduits, subdrains, or parts thereof which may be affected by his operations on the contract and which, in the judgement of the ENGINEER, may be continued in use without any change. The CONTRACTOR shall, at his own expense, satisfactorily repair or replace any damaged part of any such culvert, pipeline, conduit, or subdrain which may result from his operations or negligence during the life of the contract.

During construction, all areas effected by excavation shall be maintained at all times in such condition that it will be well drained.

### 3. CLASSIFICATION

Without regard to the materials encountered, all roadway and drainage excavation shall be unclassified and shall be designated as Roadway Excavation. It shall be distinctly understood that any reference to rock, earth, or any other material on the plans or cross sections, whether in numbers, words, letters, or lines, is solely for the OWNER'S information and is not to be taken as an indication of classified excavation or the quantity of either rock, earth, or any other material involved.

The bidder must draw his own conclusions as to the conditions to be encountered. The OWNER does not give any guarantee as to the accuracy of the data and no claim will be considered for additional compensation when the materials encountered are not in accord with the classification shown.

### 4. SLOPES

All excavation shall be performed in such a manner as will ensure against removing or loosening any material outside of the required slopes. Slopes shall be shaped to reasonable close conformity with the lines and cross sections shown on the plans, with no deviations, therefrom readily discernible from the road, except as otherwise directed. All rock cut slopes shall be left with a reasonable uniform surface and all loose and overhanging rock shall be removed. Under no condition shall holes be gouged or dug in back slopes or in embankment slopes.

The slopes in cuts may be varied by the ENGINEER during construction, depending upon the material encountered in excavation. The cuts may be widened and the slopes may be varied to secure sufficient material for the formation of embankment and shoulders, to prevent landslides, to improve sight distance, or for any other reasons that such widening or variations are deemed to be to the best advantage of the work. When a cut is made on any section of the

roadway in any material that may slide, the excavation shall be removed to the slope lines as designated on the plans or as directed, and no vertical slopes will be allowed during the process of excavation of such cuts, except in stage construction when material is left in cuts for future shoulder construction. No payment will be made for any excavated material which is used for purposes other than those designated.

#### 5. DITCHES

Ditches shall include inlet and outlet ditches and such other ditches as may be required for the satisfactory completion of the work.

Material removed from ditches shall be disposed of as provided in Section 02222 or as indicated on the plans and shall be paid for as Roadway Excavation.

#### 6. USE OF EXCAVATED MATERIALS

All suitable material removed from excavation shall be used, insofar as practicable, in the formation of embankments, subgrade, or shoulders; as backfill for structures; or for other purposes shown on the plans or as directed. No payment will be made for any excavated materials used for any purpose other than that indicated on the plans or approved.

All sod and soft or spongy material shall be removed and disposed of as directed. Such materials shall not be used in the construction of the grade, except as provided in Section 02223.

All rocks and boulders, when directed, shall be placed in the embankments, provided the embankments are of sufficient depth to provide 12 inches or more soil cover over such rocks or boulders placed within the shoulder limits. Such rock and boulders shall be placed under the shoulders rather than under the pavement foundation when the embankment is constructed principally of soils.

No excavated material shall be wasted without permission. Excavated material in excess of that required for normal embankment construction shall not be wasted within the project area limits, except when and as specifically directed or approved. When so directed or approved, excess material may be wasted adjacent to or incorporated in the normal embankment construction, and any material so wasted shall be uniformly distributed as directed. Irregular or partial widening of embankments will not be permitted. Stones and boulders wasted along embankments shall not exceed 1/3 cubic yard each in volume. Excess material shall not be wasted between cut slopes and the project area limits, except for the purpose of filling depressions, gullies, and other cavities; and, when so wasted, the material shall be shaped to conform with the adjacent ground.

Material wasted off the project area shall be placed on approved sites obtained by the CONTRACTOR at no cost to the OWNER. Material placed within view from any public road shall be placed to avoid an unsightly appearance. All waste shall be placed to avoid the obstruction of drainage, and the wasted material shall be seeded and protected in accordance with these specifications at no additional cost to the OWNER. The application rates of agricultural limestone, fertilizer, seed, and mulch shall be the same as those on the project where the waste material originated, but the variety of seed may be altered, upon written request from the property OWNER.

The ENGINEER may require the CONTRACTOR to submit drawings of proposed waste areas, showing the configuration of the original ground and the anticipated configuration of the area upon completion of the waste operation; any preparatory work such as benching; provisions for surface and subsurface drainage of the area after wasting is completed; and any other information the ENGINEER may require before considering approval of the proposed waste area.

The CONTRACTOR shall furnish cross sections and hydraulic computations for waste area sites situated in the flood plain of any stream. This flood plain shall be defined as that area required to pass the 100 year flood. The computations shall indicate the effect that the waste site will have both the design and the 100 year flood.

The CONTRACTOR shall furnish to the OWNER copies of written agreement with the property OWNER, approval of the OWNER(S) of utilities of any nature existing within the proposed waste area.

## 7. ROADBED

In addition to the limits of the roadbed, the work required herein shall extend to the ditch lines or cub lines in cuts when so directed.

Where rock is encountered in the excavation, it shall be removed between ditch lines or curb lines to a depth below the required grade as shown on the plans with no points of rock projecting above such depth. The final surface of the rock shall be left so that complete drainage will be provided, and no water will be pocketed at any point. The refill over this surface shall be made of selected materials and shall contain no stone or spalls larger than 4 inches. All refill shall be placed in layers not exceeding 12 inches in depth, loose measurement, and compacted as specified in Section 02223. No allowance will be made for excavation and refill material to a greater depth below the required grade than as shown on the plans. When not designated on the plans, the refill material shall be selected by the ENGINEER.

In cut sections the roadbed, whether it consists of existing material or refill material, shall be compacted in accordance with the requirements of Section 02223. When the material in place does not contain sufficient moisture to obtain proper compaction, the roadbed shall be thoroughly scarified and broken to minimum depth of 6 inches, the moisture content increased as directed, and the roadbed compacted. Material unsuitable for the roadbed, when encountered at subgrade elevation, shall be removed to such depths as indicated on the plans or as directed, and disposed of as directed and replaced with suitable refill or #2 stone. Material that is unstable due to excessive moisture but that is otherwise suitable for the roadbed shall either be scarified, allowed to dry, and compacted; or removed, dried, and used for refill or embankment, as directed by the ENGINEER. Manipulation to speed drying will be permitted. No additional payment will be made for scarifying or manipulation necessary to increase or decrease the moisture content as this is considered incidental to the work. Payment will be made for existing material to be removed. When the ENGINEER directs that the material removed be wasted or requires the material to be used as refill or in embankment, then any additional material necessary for refill will be incidental to Roadway Excavation.

The CONTRACTOR shall conduct roadway excavation operations so that a sufficient quantity of selected materials is available, stockpiled, or otherwise reserved for providing the required volume of material necessary to complete the roadbed in accordance with the plans and as indicated herein.

## 8. METHOD OF MEASUREMENT

Roadway and drainage excavation will not be measured for direct payment.

Water used to provide sufficient moisture for compaction of the roadbed in cut sections will not be measured for separate payment but will be considered incidental to other items in the contract.

### 8.1 PAYMENT FOR DESIGN QUANTITIES

Final payment will be made at the contract unit price for the design quantity shown within the neat lines of the cross sections or grading plans, increased or decreased by authorized adjustments.

### 8.2 AUTHORIZED ADJUSTMENTS

Adjustments to the design quantities of Roadway Excavation authorized by the ENGINEER will be made only for the following purposes:

- A. Include changes in the quantity of work due to benching, changing slopes or grades, removing slides, and any other procedures required by the ENGINEER on the project.
- B. Correct major errors on the plans. Major errors are defined as individual mistakes of 5 percent or more in the quantity of earthwork between 2 consecutive cross sections, and are intended only to include omissions, duplication, arithmetical mistakes, or other errors in the survey or plans, but are not intended to include minor discrepancies in the plotting of cross sections, in the planimetry of cross sections, and in the resulting computation of the volume of earthwork. When errors in the lines or grades shown on the plans cause major errors in earthwork quantities, the earthwork quantities will be corrected throughout the entire span of the errors. Earthwork quantities will not be adjusted when errors in the lines or grades do not cause major errors in the earthwork quantities.

## 9. MISCELLANEOUS ITEMS

Removing and salvaging or disposal of all other items within the project area or easements not included in this Section such as guardrails, headwalls, inlet boxes, etc., whether shown on the plans or not shall be considered incidental to the contract and no direct payment shall be allowed, unless otherwise provided.

In removing manholes, catch basins, and inlets, any live sewers connected thereto shall be rebuilt and properly reconnected, and satisfactory by-pass service shall be maintained during such construction operations.

10. BASIS OF PAYMENT

No direct payment shall be made for roadway and drainage excavation.

## SECTION 02223 - EMBANKMENT

1. DESCRIPTION
2. MATERIALS
3. GENERAL
4. EMBANKMENT FORMATION
5. COMPACTION
6. EMBANKMENT ADJACENT TO STRUCTURES
7. METHOD OF MEASUREMENT
8. BASIS OF PAYMENT

### 1. DESCRIPTION

This work shall consist of forming embankments with materials from sources indicated on the plans or from other approved sources, in accordance with these specifications, to conform to the lines, grades, and cross section specified.

### 2. MATERIALS

Only acceptable materials from sources indicated on the plans or from other approved sources shall be used in embankment formation. No frozen material, stumps, logs, roots, or other perishable materials shall be placed in any embankment. No stone or masonry fragment greater than 4 inches in any dimension shall be placed within 12 inches of the finished subgrade elevation.

### 3. GENERAL

Clearing and Grubbing, including removal of topsoil, of embankment areas shall be completed in accordance with the requirements of Section 02110 before embankment is placed thereon.

Sod shall be removed from all embankment areas. Sod thus removed may be uniformly distributed along the toe of the slopes or upon the embankment slopes, unless otherwise provided. Sod shall not be placed within the limits of the embankment. The removal of sod will not be required where embankments are to be constructed over marshy areas, except when otherwise specifically provided. No direct payment will be allowed for removing sod from embankment areas.

Excavation of ditches and channel changes adjacent to embankment areas should be among the first operations on the project, and shall be performed prior to placing the adjacent embankment.

Embankments shall not be constructed upon frozen areas. All snow and ice shall be removed from the area to be covered prior to placement of embankment material.

When the height of the embankment, at subgrade elevation, is greater than 3 feet above an existing rigid pavement, the pavement shall be broken to such extent that none of the fragments shall have a dimension greater than 3 feet, or the pavement may be removed entirely when the CONTRACTOR so elects. When the height of the embankment, at subgrade elevation, is 3 feet or less above the existing rigid pavement, the pavement shall be removed entirely. the broken

pavement thus removed may be utilized as embankment material provided none of the fragments has a dimension greater than one foot.

Existing flexible pavements shall be scarified or broken until all cleavage planes are destroyed or shall be removed entirely as conditions demand.

Benches with horizontal and vertical faces shall be cut into the original ground of embankment foundations when indicated on the plans or directed, and shall be of the dimensions indicated or directed. The horizontal face of the benches will be paid for as Roadway Excavation or Embankment-in-Place, as applicable.

Embankment foundations shall be compacted as directed.

When noted on the plans or when directed, unsuitable materials encountered in embankment areas shall be removed prior to placement of any embankment material thereon. Materials thus removed shall be wasted, stockpiled, or otherwise disposed of as directed, and payment for such work will be made at the contract unit price per cubic yard for Roadway Excavation.

#### 4. EMBANKMENT FORMATION

Embankments constructed of earth, soil-like shale (SDI 50 or less by KM 64-513), intermediate shale SDI greater than 50 but less than 95 by KM gravel, creek gravel, or similar materials, shall be formed by distributing the materials in successive uniform horizontal layers not exceeding 12 inches in thickness, loose depth, to the full width of the cross section. However, layers less than 12 inches in loose thickness will be required when necessary to obtain the specified density.

Each layer shall be compacted to the requirements of Section 02223. The upper surface of the embankment shall be shaped so as to provide complete drainage of surface water at all times. The forming of ruts will not be permitted.

In embankments that are constructed principally of unweathered limestone, rock-like shale (SDI equal to or greater than 95 by KM 64-513), or durable sandstone, the layer thickness shall not exceed 3 feet; the maximum dimensions of boulders or large rocks placed in the embankment shall be 3 feet vertically and approximately 4.5 feet horizontally. Rocks having any dimension greater than 2 feet shall be kept at least 2 feet below subgrade elevation. The rock shall not be dumped into final position, but shall be distributed by blading or dozing in a manner that will ensure proper placement in the embankment so the voids, pockets, and bridging will be reduced to a minimum. The slopes shall conform substantially with the requirements of the plans. The rock embankment shall not be constructed to an elevation higher than 12 inches below subgrade elevation, unless otherwise provided. The remainder layers not exceeding 12 inches loose thickness and compacted as specified for embankments. Rolling will not be required in construction of rock embankment.

In areas where layers of rock and shale or soil are encountered and embankments are constructed of a mixture of rock and shale or rock and soil, the material shall be placed, manipulated, and compacted in layers not exceeding 12 inches in thickness; however, when the thickness of the rock exceeds 12 inches, the thickness of the embankment layers may be increased as necessary due to the nature of the material and as approved by the ENGINEER. In no case shall the layer thickness exceed 3 feet. The mixture shall not be dumped into final position but shall be distributed by blading or dozing in a manner that will ensure proper

placement in the embankment so that voids, pockets, and bridging will be reduced to a minimum. The mixture shall then be compacted with suitable compaction equipment. When directed, the material shall be wetted to aid compaction.

When crossing marshy or otherwise unstable areas, the first embankment layer may exceed 12 inches loose depth when noted on the plans or directed. This first layer shall consist of rock or granular material, when available, and shall be constructed by placing material behind the leading edge of the layer and blading into place, to avoid unnecessary disturbance to the original ground. The maximum layer thickness shall be 3 feet unless otherwise provided or directed, and required compaction shall be as directed.

## 5. COMPACTION

The embankment shall be compacted to a density of at least 95 percent of maximum density as determined by KM 64-511. The in-place density will be determined by KM 64-512 or by using nuclear gages. Tests will be made at such frequencies as deemed necessary to assure that the entire embankment is compacted to the specified density.

During compaction, the moisture content of embankment or subgrade shall not vary from the optimum moisture content as determined by KM 64-511 by more than plus 2 percent or minus 4 percent. This moisture content requirement shall have equal weight with the density requirement when determining the acceptability of embankment or subgrade construction. Embankment material which does not contain sufficient moisture to obtain proper compaction shall be wetted as directed, and thoroughly mixed as deemed necessary. Embankment material containing an excess of moisture shall be allowed to dry before being compacted. The manipulation of wet material to speed drying will be permitted.

Construction operations shall be performed in such a manner that simultaneous rolling and placing of material in the same lane or section will be prevented. To avoid uneven compaction, the hauling equipment shall traverse, as much as possible, the full width of the cross section. Each layer shall be compacted as required before material for the next layer is deposited. Equipment shall be such as will satisfy the density requirements at all times.

### 5.1 WAIVING OF MOISTURE AND DENSITY CONTROLS

When specified on the plans or by the ENGINEER, the moisture and density control requirements will be waived, in which case at least one piece of compacting equipment meeting the minimum requirements set out hereinafter and operating continuously shall be provided for each 200 cubic yards, or fraction thereof, placed per hour at each location. Tamping or sheepsfoot rollers shall be the dual-drum self-cleaning type, mounted with rows of tamping feet projecting at least 7 inches from the surface of the drum. The tamping feet in each row shall be staggered with those in the alternate rows. The tamping surfaces shall have at least 5 square inches of area. All tamping feet on each roller shall have the same length and tamping area. The rollers shall be of such design as will exert contact pressures, which may be varied as directed, over a range of 200 to 450 pounds per square inch of tamping surface when supported by one row of tamping feet. The 2 drums shall be mounted abreast in a manner that will permit each drum to oscillate independently



of the other. A single-drum roller will be permitted to operate only over those areas that are inaccessible to a double-drum roller. The operating speed under normal conditions shall not exceed 8 miles per hour. Pneumatic-tire rollers shall be equipped with tires of the same size, and all tires shall be uniformly inflated so the air pressures in the several tires does not vary more than 5 pounds per square inch. The rollers shall be of such design as will exert contact pressures which may be varied as directed over a range of 400 to 600 pounds per inch of tire width. The operating speed under normal conditions shall not exceed 8 miles per hour.

Heavier equipment than that specified may be used when approved.

Although moisture and density tests will not be performed when control requirements are waived, the ENGINEER may direct that extremely dry material be wetted during compaction or that material so wet as to be unstable be manipulated and/or allowed to dry prior to compaction.

#### 6. EMBANKMENT ADJACENT TO STRUCTURES

Embankments adjacent to culverts, headwalls, and similar structures shall be constructed compacting the material in successive uniform horizontal lifts not exceeding 6 inches in thickness, loose measurement. Each layer shall be compacted as required by means of approved mechanical tampers. Each layer shall be compacted at the proper moisture content to ensure the same minimum density adjacent to the structure as that specified for the embankment. Rock larger than 4 inches in any dimension or other material that cannot be compacted by mechanical tampers shall not be placed in embankments adjacent to structures, unless approved by the ENGINEER, and then only in the manner the ENGINEER directs.

Embankment, when placed around adjoining or opposite faces of a structure, shall be compacted to the same level on all sides before proceeding to the next lift. As precaution against wedging action, compaction for each layer shall begin next to the structure.

Embankments adjacent to structures shall be constructed as outlined, to the height of the structure and shall slope to a sufficient distance from the structure to permit easy access of compacting equipment used in normal embankment construction.

#### 7. METHOD OF MEASUREMENT

Payment for embankment in place will be based on design quantities.

Removing and/or scarifying existing pavements in embankment areas is considered incidental to other earthwork bid items and will not be measured for separate payment.

Water used to obtain proper compaction will not be measured for separate payment, but will be considered incidental to other items in the contract.

#### 8. BASIS OF PAYMENT

No direct payment shall be made for embankment.

## SECTION 02224 - BORROW EXCAVATION

1. DESCRIPTION
2. CONSTRUCTION REQUIREMENTS
3. METHOD FOR MEASUREMENT
4. BASIS OF PAYMENT

1. DESCRIPTION

This work shall consist of removal and placement of all acceptable material taken from borrow site as designated on the plans used in refill, backfill, embankment construction, or other portions of the work.

2. CONSTRUCTION REQUIREMENTS

All borrow material shall be obtained from sites approved by the ENGINEER. In all instances the borrow site shall be excavated and maintained in a manner satisfactory to the ENGINEER. After use of the sites as sources of borrow material is terminated, the sites and haul roads shall be shaped to blend with the adjacent natural terrain and to have complete natural drainage unless otherwise approved by the ENGINEER.

Before ground is broken for excavation, all weeds and other vegetation shall be cut and disposed of properly. Sod and soft or spongy material shall not be used in embankments, or other construction, unless permitted by the ENGINEER. All topsoil and/or unsuitable material shall be stripped and stockpiled in accordance with Section 02110.

Material removed from the borrow site shall be placed where directed and in accordance with the requirements of Section 02223. All borrow sites shall be cut to uniform lines.

All borrow operations shall be conducted in accordance with Section 02100, Erosion Control, and 02105, Water Pollution.

3. METHOD FOR MEASUREMENT

Borrow excavation will not be measured for payment.

4. BASIS OF PAYMENT

No direct payment shall be made for borrow excavation.



## SECTION 02225 - SLOPE PROTECTION AND CHANNEL LINING

1. DESCRIPTION
2. MATERIALS
3. GENERAL FOR SLOPE PROTECTION
4. CYCLOPEAN STONE RIPRAP SLOPE PROTECTION
5. CRUSHED AGGREGATE SLOPE PROTECTION
6. GENERAL FOR CHANNEL LINING
7. CHANNEL LINING, CLASS II, III, IV
8. CHANNEL LINING, CLASS IA
9. GEOWEB SYSTEM
10. METHOD OF MEASUREMENT
11. BASIS OF PAYMENT

### 1. DESCRIPTION

This work shall consist of furnishing and placing the specified material for a protective covering for slopes or linings in channels and ditches, placed at the locations shown on the plans or as directed, all in accordance with applicable provisions of these specifications and in reasonably close conformity with the lines, grades, thickness and to the area shown or otherwise designated. Slope protection includes the following types:

Cyclopean Stone Riprap, and Crushed Aggregate Slope Protection. Channel Lining includes 4 classes: IA, II, III, IV.

### 2. MATERIALS

Materials shall meet requirements specified in the following Sections.

Coarse Aggregate	KDOH 805
Drain Pipe	KDOH 810
Mattress Units	KDOH 813.14
Natural Sand	KDOH 804.03

#### 2.1 CYCLOPEAN STONE RIPRAP AND CHANNEL LINING, CLASS III

Material for cyclopean stone riprap and Channel Lining, Class III shall meet the general requirements of KDOH Section 805. No less than 80 percent, by volume, of individual stones shall range in size from 1/4 to 1 1/2 cubic feet. Stones of smaller sizes are permissible for use in filling voids in the upper surface and dressing to the proper slope.

#### 2.2 COARSE AGGREGATE FOR CRUSHED AGGREGATE SLOPE PROTECTION

Coarse aggregate for crushed aggregate slope protection shall meet the general requirements of KDOH Section 805 and shall be of such gradation that 100 percent passes the 4-inch sieve, 25 to 100 percent passes the 2 1/2-inch sieve, and a maximum of 15 percent passes the 1 1/2-inch sieve. Coarse aggregate meeting the gradation requirements for either size No. 1 or No. 2 will meet this requirement.

### 2.3 AGGREGATE FOR CHANNEL LINING, CLASS IA

Aggregate for Channel Lining, Class IA shall be limestone meeting the general requirements of Section 805. This material shall be produced by using a crusher, grizzly, or sieve with openings of 5 inches, and by such additional processing as may be necessary so that no more than 20 percent of the finished product will pass through square openings 1 1/2 inches by 1 1/2 inches.

### 2.4 AGGREGATE FOR CHANNEL LINING, CLASS II

Aggregate for Channel Lining, Class II shall be limestone meeting the general requirements of Section 805. This material shall be produced by using a crusher, grizzly, or sieve with openings of 9 inches, and by such additional processing as may be necessary so that no more than 20 percent of the finished product will pass through square openings 5 inches by 5 inches.

### 2.5 MATTRESS UNITS FOR CHANNEL LINING, CLASS IA

Mattress units for Channel Lining, Class IA shall meet requirements of KDOH Section 813.14.

### 2.6 ANCHOR BARS OF CHANNEL LINING, CLASS IA

Anchor bars for Channel Lining, Class IA shall be grade 40 or better steel reinforcing bars of the dimensions shown on the standard drawing. Acceptance of the anchor bars will be based on visual inspection by the Engineer.

### 2.7 CHANNEL LINING CLASS IV

See KDOH Subsection 204.09.01

### 2.8 GEOWEB SYSTEM

The Geoweb Cellular Confinement System shall be as manufactured by Presto Products Co., or equal.

The base material shall be a polyethylene polymer with a density of 58.4-60.2 IB/FT<sup>3</sup>.

The web shall be black in color.

The polyethylene strips shall be textured and perforated such that the peak friction angle between the surface of the textured/perforated plastic and #40 silica sand at 100% relative density shall be no less than 85% of the peak friction angle of the silica sand in isolation when tested by the direct shear method per ASTM D 5321.

The short term peel strength for 8" cell depth shall be 640 IBF.  
CONSTRUCTION REQUIREMENTS

### 3. GENERAL FOR SLOPE PROTECTION

Slopes on which protection is placed shall be no steeper than the natural angle or repose, unless otherwise indicated on the plans or directed. The slopes shall be shaped to the slope and contour indicated or directed. Slope templates shall be used in determining the slope. Depressions shall be brought to the required slope line with fill material moistened and compacted as directed.

Unless otherwise shown on the plans or unless solid rock is encountered all slope protection, except crushed aggregate slope protection, shall begin in a trench 2 feet below the natural ground. Where solid rock is encountered, the lower terminus of the slope protection shall stop at the solid rock line unless otherwise directed.

### 4. CYCLOPEAN STONE RIPRAP SLOPE PROTECTION

Cyclopean stone riprap shall be constructed to a minimum thickness of 2 feet measured perpendicular to the slope. The stone may be dumped in place and placing shall be conducted in a manner to produce a surface of approximate regularity not varying more than 6 inches from a true plane.

### 5. CRUSHED AGGREGATE SLOPE PROTECTION

Unless otherwise shown, the aggregate shall be placed to a depth of one foot measured perpendicular to the slope flush with the embankment slopes under the bridge; shall extend from the face of the abutments or end bents across the berm and down the slope to the toe of the slope; and shall extend laterally to 1 1/2 feet beyond the outer edges of the superstructure.

The crushed aggregate may be dumped in place. Placing shall be conducted in a manner to produce a uniform surface varying no more than 1 1/2 inches in 4 feet from a true plane. Hand placing will not be required except as necessary to correct irregularities exceeding the specified tolerances.

### 6. GENERAL FOR CHANNEL LINING

Before placing any channel lining materials, all excavation and shaping of the area to receive the channel lining shall be performed, so that the completed channel lining will be uniform, and will conform to the designated lines, grades, and cross sections.

### 7. CHANNEL LINING, CLASS II, III, IV

Channel Lining Classes II and III shall be constructed to the dimensions shown on the plans or directed by the Engineer. The stone may be dumped in place, and the placing shall be conducted in a manner to produce a surface of approximately regularity, varying no more than 3 inches from a true plane. Hand placing will not be required except as a necessary to correct any surfaces irregularities exceeding the specified tolerance.

#### 7.1 CHANNEL LINING, CLASS IV

See KDOH subsection 204.09.01 and Section 204.11 for requirements covering Channel Lining, Class IV

8. CHANNEL LINING, CLASS IA

Empty mattress units shall be set to the required line and grade. Lacing wire shall be used to join the units together.

After the mattress units are set to line and grade, they shall be stretched to remove any kinks from the mesh and to hold alignment.

The mattress units shall be filled carefully with stone fill placed by hand or machine to ensure good alignment and to avoid bulging of the mesh with a minimum of voids between the stones. After a unit has been filled, its top shall be placed so that it meets the sides and ends of each mattress unit. The top shall then be secured to the sides, ends, and the diaphragms with lacing wire as shown on the standard drawing.

If the mattress unit is placed on a grade the placing of the stone shall begin at the bottom of the slope and progress up grade. Mattress units shall be overfilled approximately one inch to allow for settlement.

When a complete mattress unit cannot be installed on the slope because of space limitations, the unit shall be cut to fit, in the manner indicated on the plans.

When required, anchor bars shall be driven in place at the location shown on the standard drawing.

9. GEOWEB SYSTEM

The Geoweb Cellular Confinement System shall be installed in accordance with the manufactured specifications.

A manufacturer's representative shall be on site to monitor the installation and shall approve all connections, tendons, and anchors prior to backfilling.

10. METHOD OF MEASUREMENT

Cyclopean stone riprap or crushed aggregate for slope protection will be measured in tons for the material complete and accepted in the final work.

Stone used in each class of channel lining except channel lining, Class IV will be measured in tons complete and accepted in the final work.

All excavation required for the construction of slope protection will be considered incidental to the construction and will not be measured for separate payment. No separate measurement will be made for excavation below the upper surface of any channel lining as this is considered incidental to the channel lining.

No separate measurement will be made for anchor bars, wire mesh, lacing wire, or other material necessary to acceptably complete the wire mattress units for Channel Lining, Class IA, as these materials are considered incidental to Channel Lining, Class IA.

11. BASIS OF PAYMENT

The accepted quantities of cyclopean stone riprap or crushed coarse aggregate will be paid for at the contract unit price per ton. The accepted quantity of stone for each specified class of channel lining will be paid for at the contract unit price. Such payment shall be full compensation for furnishing all materials, labor, and equipment necessary to complete the work.

Payment will be made under:

PAY ITEM	PAY UNIT
Cyclopean Stone Riprap	Ton
Crushed Aggregate Slope Protection	Ton
Channel Lining, Class IA	Ton
Channel Lining, Class II	Ton
Channel Lining, Class III	Ton
Channel Lining, Class IV	See KDOH Section 204.12
Geoweb	Square Yard
No. 2 Stone	Ton





## SECTION 02230 - SUBGRADE

1. DESCRIPTION
2. GENERAL
3. CONSTRUCTION TOLERANCES
4. PROTECTION AND MAINTENANCE
5. METHOD OF MEASUREMENT
6. BASIS OF PAYMENT

### 1. DESCRIPTION

Preparation of the subgrade shall include compacting to the required density and shaping to conform to the required lines, grades, and cross sections, all in accordance with the applicable provisions of these specifications.

### 2. GENERAL

Before construction of the base course, pavement, or surface is begun, the subgrade shall be prepared to the full width of the widest course plus one foot additional width beyond each edge, unless otherwise shown on the plans.

The subgrade shall be shaped to conform to the lines, grades, and cross section indicated on the plans or established by the ENGINEER. All high areas of the roadbed shall be removed, by scarifying when necessary, and all low areas shall be filled with approved material and compacted. The roadbed shall not be disturbed below subgrade elevation, except when necessary to comply with requirement herein specified.

The subgrade shall be compacted, as nearly as practicable, to a uniform density throughout. Except when otherwise provided, the compaction and moisture control requirements shall be in accordance with the requirements of Section 02223 as governed by the requirements for the embankment construction in the same contract. Should the subgrade subsequently lose its density due to exposure to severe weather conditions, after having been previously compacted to the required density during the construction of the grade, it shall be recompacted to the required density.

Areas of yielding or unstable material shall be excavated and backfilled with approved material as directed. The expense of such work in embankment areas shall be borne by the CONTRACTOR.

When the material in place does not contain sufficient moisture, or is too wet, to obtain proper compaction, the moisture content shall be increased or reduced as directed, and the material compacted. Scarifying of the subgrade may be required.

When a sheepsfoot roller is used, the compaction shall be finished by either a 3-wheel roller or a multiple-wheel pneumatic-tire roller of sufficient weight to smooth out and compact the indentations made by the sheepsfoot roller. On subgrade for traffic bound courses, the indentations, may be removed by a blade grader.

When excess dust is present on the subgrade, it shall either be wetted or completely removed and replaced by suitable material before any aggregate is placed thereon, at no additional cost to the OWNER.

A grading machine shall be operated over all subgrades as necessary to maintain a uniform cross section free from irregularities. All subgrades shall be prepared a sufficient distance ahead of the base course or pavement construction to permit the required testing and checking of the subgrade before any aggregate is placed.

The CONTRACTOR shall furnish templates and labor required for checking the subgrade.

When the original grade is constructed to an elevation higher than that of the subgrade, the subgrade shall be formed by trenching. This work shall consist of cutting a channel in the roadway to the width of the base or pavement plus one foot additional width beyond each edge. All provisions set forth in this Section shall be required as applicable to the type of construction.

### 3. CONSTRUCTION TOLERANCES

All subgrades being prepared for base or surface courses, except traffic bound courses, shall show no deviation greater than 1/2 inch from the specified crown section, and shall be constructed uniformly so the subsequent base and/or surface courses can be constructed within their specified tolerances.

### 4. PROTECTION AND MAINTENANCE

All ditches and drains shall be completed in order to drain the roadbed effectively before any construction materials are placed thereon. The CONTRACTOR shall take every precaution to protect the subgrade and shall repair and restore to proper condition all damage that may be caused by hauling of material or by other causes, and not material shall be placed on any subgrade until it has been restored and accepted.

Equipment used for hauling materials over the completed subgrade shall be equipped with pneumatic tires. Equipment of such weight as to cause rutting shall not be permitted to operate over the subgrade.

No storage or stockpiling of materials will be permitted on a completed subgrade unless otherwise provided.

No surfacing materials shall be placed on a frozen, muddy, soft, or yielding subgrade.

Under no circumstances shall holes be gouged or dug in the back slopes or the embankment to obtain materials for correcting the subgrade, or for any other purpose.

### 5. METHOD OF MEASUREMENT

Preparation of the subgrade will not be measured for payment.

Water used for maintaining moisture for subgrade compaction and water used for conditioning the subgrade immediately in advance of base or pavement

construction will not be measured for payment, but will be considered incidental to other items in the contract.

Roadway Excavation to be paid for as herein specified, will be measured in accordance with Section 02222.

6. BASIS OF PAYMENT

The accepted quantities thus measure will be paid for at the contract unit prices. Payment shall be full compensation for all work required by this Section.

Payment will be made under:

PAY ITEM

PAY UNIT

Roadway Excavation

See Section 02222



## SECTION 02231 - DENSE GRADED AGGREGATE BASE

1. DESCRIPTION
2. MATERIALS
3. GENERAL
4. MIXING
5. TRANSPORTING
6. PLACING AND SPREADING
7. COMPACTING
8. MAINTENANCE AND PROTECTION
9. SURFACE TOLERANCES
10. METHOD OF MEASUREMENT
11. BASIS OF PAYMENT

### 1. DESCRIPTION

This base course shall consist of graded aggregate and water mixed with or without an admixture, placed on a prepared subgrade, and shaped and compacted to the line, grades, and cross sections shown on the plans.

### 2. MATERIALS

Materials shall meet the requirements specified in the following KDOH sections.

Aggregate	805
Calcium Chloride	825

Water used in the mixture will be subject to approval by the ENGINEER on the project.

When approved by the ENGINEER, the aggregate may be produced by blending 2 or more aggregate sizes. When blending is permitted, the separate aggregate sizes shall be fed uniformly into the mixer and a synchronized proportioning system between the separate feeders shall be provided.

### 3. GENERAL

The subgrade shall be prepared in accordance with Section 6, and shall be maintained free from irregularities.

It is intended that the dense-graded aggregate base course shall be completely covered with the specified pavement courses before the work is suspended for the winter months. The CONTRACTOR shall make every reasonable effort to accomplish this objective. When the dense-graded aggregate base course is not completely covered with the specified pavement courses, the ENGINEER will then determine the extent of any further work necessary to protect and maintain the uncompleted work during the winter months and until the beginning of spring paving operations. When extra materials, methods, and construction techniques, not a part of the specified construction, are determined to be necessary to protect, maintain, and repair any portion of the uncompleted work, the cost of such extra materials, methods, and techniques shall be borne by the CONTRACTOR.

#### 4. MIXING

The dense-graded aggregate and the water shall be thoroughly mixed in a twin shaft pugmill type mixer, unless another type of mixer is approved. The amount of water added to the aggregate shall be approved and shall be an amount which will provide the mixture with a satisfactory moisture content for compaction to the specified in-place density. The rate of flow of the water to the pugmill shall be controlled by valves or other devices which can be easily reset when a change in the rate of flow is desirable. The water supply system shall be equipped with a positive cut-off control which will stop the flow of water simultaneously with any stoppage in the flow of aggregate in the pugmill.

#### 5. TRANSPORTING

The plant-mixed material shall be transported in such manner as to deliver the mix to the project without loss or segregation. Each truck load shall be covered with a heavy canvas sheet to reduce the loss of moisture in transit whenever the time between loading the truck and spreading the mixture exceeds 30 minutes.

#### 6. PLACING AND SPREADING

The mixture shall be placed and shaped, by power equipment, to the specified lines, grades, cross sections, and depths, without segregation.

Placing, spreading, shaping, and compacting shall be continuous as practicable during each day's run. The base shall be wetted as directed during shaping and compaction operations to maintain the moisture content at the level necessary to ensure proper compaction.

Unless otherwise provided or permitted, the compacted depth of each layer shall be no less than 3 inches nor more than 6-1/2 inches.

Before placing the base material, the subgrade or previous base layer shall be wetted as directed.

#### 7. COMPACTING

Each layer of base material, after being shaped to the required lines and cross section, shall be compacted to a density of no less than 84 percent of solid volume throughout the layer. The density determination will be based on the oven-dry, bulk specific gravity KM 64-607.

When the total compacted thickness of the base is 4 inches or less, acceptability of compaction will be determined either by nuclear gages or by visual inspection, at the option of ENGINEER; in all other cases in-place density will be determined by nuclear gages or by KM 64-512. When compaction of base 4 inches or less in thickness is accepted by visual inspection, no reduction of compactive effort is intended.

Manually operated mechanical tampers shall be used in areas inaccessible to power equipment

Initial layers of base shall be maintained to a uniform grade and cross section during compaction. the final layer shall be shaped, with additional material added

when necessary, so that the completed base is true to the required lines, grades, and cross sections.

8. MAINTENANCE AND PROTECTION

Traffic on the completed base should be held to the minimum necessary to complete the work and/or maintain public traffic. Any damage such as raveling or areas which lose density shall be repaired as directed before covering with base or surface courses. Areas subject to traffic shall be moistened as directed, to avoid the loss fine materials, and the surface of these re-checked for grade and cross section and necessary corrections made as directed, before base or surface courses are constructed. At the CONTRACTOR'S option, dilute emulsified asphalt may be used for dust control, at the CONTRACTOR'S expense.

9. SURFACE TOLERANCES

The surface of the top course of the base shall be smooth and uniform and shall not deviate more than 1/2 inch from the specified cross section at any point and shall not deviate from the specified longitudinal grade more than 3/8 inch in 10 feet at any location. When final grading is to be performed by an automatic grading machine, the base shall be trimmed to such accuracy that the succeeding base and/or surface courses will meet their respective specified surface and thickness tolerances.

The CONTRACTOR shall furnish all devices necessary to check the surface, such as stringlines, straightedges, etc., and the labor necessary to handle the devices.

10. METHOD OF MEASUREMENT

Water used to moisten the subgrade prior to placing base, in mixing the base material, and to maintain moisture during compaction and maintenance of the base will not be measured for separate payment, but will be considered incidental to DGA Base.

11. BASIS OF PAYMENT

Dense Graded Aggregate Base shall be considered incidental to the street repairs and no direct payment shall be made.





## SECTION 02510 - BITUMINOUS CONCRETE BASE, CLASS I

1. DESCRIPTION
2. MATERIALS
3. GENERAL
4. DENSITY REQUIREMENTS
5. THICKNESS TOLERANCES
6. METHOD OF MEASUREMENT
7. BASIS OF PAYMENT

### 1. DESCRIPTION

This base course shall consist of one or more courses of hot-mixed, hot-laid bituminous concrete mixture constructed on a prepared subgrade, old surface, or underlying course, and in reasonably close conformity with the lines, grades, and typical cross sections shown on the plans, or as otherwise directed.

### 2. MATERIALS

Materials shall conform to the requirements of KDOH Sections 401.02 through 401.05.

### 3. GENERAL

The requirements of KDOH Section 401.01, and KDOH Sections 401.06 through 401.22 shall apply, except as provided herein.

Each layer of bituminous concrete base, Class I shall be constructed to a compacted thickness no less than 2 inches nor more than 4 inches, unless otherwise directed.

### 4. DENSITY REQUIREMENTS

Resurfacing and Initial Treatment Projects. All requirements of KDOH Section 401.17 concerning roller coverage shall be met when the total bituminous concrete base is less than 4 inches thick. Unless otherwise specified in the contract, the density requirements specified hereinafter for New Construction shall apply to resurfacing, initial treatment, reconstruction, or rehabilitation projects when bituminous concrete base has a total thickness of 4 inches or more.

New Construction. In lieu of the roller coverage requirements of KDOH Section 401.17, density requirements as specified in this Section will be applicable on all new construction projects. Laboratory density determinations will be made in accordance with KM 64-411 using the Marshall Stability test method in order to establish a job-mix formula design density for the bituminous mixture to be used in the work. The ENGINEER will make one density determination in accordance with KM 64-412 for each 1,200 square yards of base course placed. The density of each 1,200 square yard section determined by KM 64-412 shall not be less than 95.0 percent of the job-mix formula design density as established by KM 64-411, and the average density of any 10 consecutive sections no less than 96.0 percent of the job-mix formula design density. In the event the in-place density is less than 95.0 percent of the design density, the CONTRACTOR shall resume and

continue compaction until such time additional tests indicate satisfactory density has been obtained, or until the ENGINEER determines it is impractical to continue rolling. Compaction equipment shall be such that the required density is obtained and all other requirements of KDOH Section 401.17 are met.

When the specified density is not being consistently obtained, the ENGINEER may suspend placing operations until the CONTRACTOR makes such changes in equipment, or other phases of the operation, as may be necessary to obtain the specified density.

The ENGINEER may accept density less than specified for the first course of bituminous concrete base placed directly on DGA base, gravel base, subgrade, or an existing pavement, if the CONTRACTOR provides suitable compaction equipment and procedures, and the ENGINEER determines that additional compactive effort may be detrimental.

The lift thickness may be increased when approved, providing satisfactory results are obtained.

No additional payment will be made for special equipment or work necessary to obtain the specified density as this is considered incidental to the price bid for Bituminous Concrete Base.

## 5. THICKNESS TOLERANCES

### 5.1 Initial Treatment and Resurfacing Projects

Total combined thickness of all layers of bituminous concrete base shall be in reasonable close conformity with the requirements of the plans. Thickness will be controlled by controlling the rate of application. The mixture shall be placed at the weight per square yard designated by the plans or by the ENGINEER. The rate of application shall not exceed the designated rate by more than 5 percent. No payment will be made for any material placed in excess of this 5 percent tolerance.

### 5.2 New Construction

A. General. The ENGINEER will make thickness checks in accordance with KM 64-420, as soon as is practical after completion of all, or a major portion, of the bituminous concrete base. When the CONTRACTOR so elects, coring may be performed in accordance with KM 64-420 by the CONTRACTOR'S personnel and equipment, provided the work is performed under the ENGINEER'S supervision and all measurement of cores is performed by the ENGINEER.

When an overlay is placed as hereinafter required, the gradation of the overlay material may be modified when thin overlays are necessary, but any modification must be approved before the material is used. When an overlay is constructed, adjacent work such as storage lanes, approaches, entrances, etc., shall be overlaid to the extent necessary to match their grades to the overlay section, whether these adjacent areas are deficient in thickness or not.

All core holes shall be filled by the CONTRACTOR, either with compacted bituminous mixtures or portland cement concrete, and all remedial overlay work completed before the final course is placed. Neither measurement and payment nor deduction will be made for material and labor necessary to fill core sample holes.

B. Payment on Basis of Weight. When payment for Bituminous Concrete base is based on tonnage placed, the total combined thickness of all layers shall be within plus or minus 0.5 inch of compacted plan thickness.

In the event core thickness in excess of 0.5 inches of compacted plan thickness is encountered, a theoretical deduction of Bituminous Concrete Base as determined excess shall be deducted from payment. The deduction shall be for that thickness exceeding the 0.5 inch tolerance. When calculating the deduction for excess thickness, any leveling course placed at the CONTRACTOR'S expense will not be included in the thickness measurements. Leveling or other material placed on top of the completed base at the direction of the ENGINEER, and at the OWNER'S expense, will not be included when calculating excess thickness.

If the ENGINEER deems it necessary to check the thickness of the overlaid area by coring, the cost of this additional coring will be deducted from monies due or to become due to the CONTRACTOR when deficient thickness is found on recording.

If the placement of additional material is not feasible due to the proximity of structures, blocking of drainage, or other engineering reasons, the ENGINEER may waive the requirement for overlaying. In this event, the ENGINEER will require a deduction from payment of the theoretical quantity of Bituminous Concrete Base as determined deficient.

#### 6. METHOD OF MEASUREMENT

Unless otherwise provided, Bituminous Concrete Base will be measured in tons and shall be weighed in accordance with the requirements of KDOH Sections 109 and 401.23.

#### 7. BASIS OF PAYMENT

Bituminous Concrete Base shall be considered incidental to the street repairs and no direct payment shall be made.



## SECTION 02511 - BITUMINOUS CONCRETE SURFACE, CLASS I

1. DESCRIPTION
2. MATERIALS
3. CONSTRUCTION REQUIREMENTS
4. METHOD OF MEASUREMENT
5. BASIS OF PAYMENT

### 1. DESCRIPTION

This work shall consist of constructing one or more courses of bituminous concrete surface on a prepared base in accordance with these specifications, and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the plans or established by the ENGINEER.

This bituminous surface shall be composed of a mixture of aggregate, filler when required, and bituminous material.

### 2. MATERIALS

See KDOH Section 401.02 through 401.05.

Bituminous Concrete Surface, Class I mixtures used in the final surface course shall contain polish resistant aggregate meeting the requirements of KDOH Sections 804 and 805.

### 3. CONSTRUCTION REQUIREMENTS

See KDOH Section 401.01, and KDOH Sections 401.06 through 401.22.

### 4. METHOD OF MEASUREMENT

The bituminous concrete mixture will be weighed in accordance with KDOH Sections 109 and 401.23.

### 5. BASIS OF PAYMENT

Bituminous Concrete Surface shall be considered incidental to the street repairs and no direct payment shall be made.



## SECTION 02512 - BITUMINOUS PRIME AND TACK COAT

1. DESCRIPTION
2. MATERIALS
3. GENERAL
4. WEATHER LIMITATIONS
5. EQUIPMENT
6. PREPARATION OF SURFACE
7. APPLICATION
8. METHOD OF MEASUREMENT
9. BASIS OF PAYMENT

### 1. DESCRIPTION

This work shall consist of preparation of existing bases or surfaces, and the application thereto of liquid bituminous material prior to the placing of courses of bituminous mixtures or treatments.

### 2. MATERIALS

Any of the following emulsions are permitted for use as a tack material: SS-1, SS-1h, CSS-1, CSS-1h, AE-60, RS-1, or CRS-1. Cutback asphalts may be used only with the written permission of the ENGINEER, and shall be in conformance with all applicable laws and regulations concerning air pollution control. All tack materials shall meet the applicable requirements of KDOH Section 806.

Bituminous material for prime shall meet the requirements of KDOH Section 806. Primer-L shall be furnished unless other material is permitted by the contract.

### 3. GENERAL

Bituminous Prime Coat shall consist of the application of liquid bituminous material, having penetrating properties, to granular type bases.

Bituminous Tack Coat shall consist of the application of liquid bituminous material to the surface of concrete or brick pavements and bases, to existing bituminous surfaces, and, when necessary, to newly constructed bituminous courses.

All equipment required for performance of this work shall be approved before construction is started, and shall be maintained in a satisfactory operating condition.

The CONTRACTOR shall provide hand brooms and other small tools and equipment essential to the completion of the work in addition to a mechanical broom or sweeper, bituminous heating equipment, and a pressure distributor as hereinafter described.

The temperature limitations for applying prime and tack coats shall be that specified for the type of construction with which such work is included. Prime and tack coats shall not be applied to wet surfaces.



4. WEATHER LIMITATIONS

The temperature limitations for applying prime and tack coats shall be that specified for the type of construction with which such work is included. Prime and tack shall not be applied to wet surfaces.

5. EQUIPMENT

A mechanical broom or sweeper shall be provided which is adjustable to uniform contact with the surface and designed to thoroughly clean without cutting into the surface being swept.

Equipment for heating bituminous material in tanks, railroad cars, trucks and distributors shall meet with the approval of the ENGINEER and shall be capable of heating the material to the required temperature without introduction of moisture, localized overheating or otherwise changing the characteristics of the material.

The pressure distributor shall be mounted on a self-propelled motor vehicle equipped with pneumatic tires and shall have sufficient power to maintain a constant and uniform speed under all operating conditions. The distributor shall be designed to apply the material uniformly at the rate required for the type of construction. For tack coat treatments, a minimum rate of application of 0.8 pound (0.05 gallon) per square yard will be required. The distributor shall meet the following requirements:

- A. Tank. The tank shall have a capacity of at least 600 gallons. It shall be equipped with a removable manhole cover, an overflow pipe, and a dial gage for indicating the contents mounted so as to be plainly visible to the operator. An accurate measuring stick shall be carried on the distributor at all times.
- B. Heating System. The heating system shall be so designed that even heating of the bituminous material will be ensured with efficient and positive control at all times. A temperature measuring device shall be provided that will quickly and accurately determine the temperature of the material.
- C. Distributing System. The pressure distributing system shall contain a separate power and pump unit of sufficient capacity to distribute the required quantity of bitumen at constant flow and uniform pressure. A dial pressure gage shall be mounted so as to be plainly visible to the operator.
- D. Spray Bar and Nozzles. The spray bar shall be full circulating and shall be adjustable in length to conform to the width of the application being made without overlapping. The spray bar shall be designed to swing laterally over a distance of 9 inches or more. There shall be provided a positive and immediate cut off and means for preventing dripping of the material onto the road surface when the flow is shut off. The nozzles shall be designed and maintained to provide an equal flow from all nozzles at the same time. To prevent clogging the nozzles, the circulating system shall be provided with screens which shall be kept clean. A hand spray bar and nozzle having an adequate length of flexible steel hose with packed couplings shall also be provided.
- E. Tachometer or Synchronizer. A tachometer shall be attached to the truck in such a manner as to be visible to the truck operator and to enable him to

maintain the constant speed necessary for the correct application of the specified quantity of bitumen. Suitable charts shall be furnished showing the truck speeds necessary to obtain the required results.

When a synchronizer is used, the tachometer may be omitted. The synchronizer shall deliver a specified quantity of bituminous material onto the road surface independent of the speed of the truck.

## 6. PREPARATION OF SURFACE

All surfaces shall be thoroughly cleaned of all dirt and other matter foreign to the surface being treated. Mechanical sweepers will be required for cleaning old paved surfaces when necessary. Sweeping with wire hand brooms will be required when necessary. Sweeping shall extend beyond the edges of the surface to ensure a thorough cleaning of the full width to be treated.

Under extremely dry conditions and prior to the prime treatment, the ENGINEER may require an application of water to granular bases, applied at the rate of approximately 0.15 gallon per square yard.

Existing traffic-bound base receiving an application of bituminous prime shall be graded and shaped to the required grade and cross section before any bituminous material is applied. Floater material shall be wetted and rolled into the existing traffic-bound macadam or wasted, as directed.

The surface as prepared shall be approved before the prime coat or tack coat is applied.

## 7. APPLICATION

Prime coats shall be applied at the rate specified in the contract, or as directed when conditions justify variations in the rates of application.

The number of applications of the prime coat shall be as directed. The material shall be applied under pressure. Hand pouring shall not be used except for special conditions, and then only when approved.

The prime shall be allowed to cure for at least 36 hours before being covered by the bituminous course unless otherwise approved.

At the time of application, the temperature of prime and tack materials shall be within the following ranges, in degrees Fahrenheit:

PRIME

MC-30	85*
MC-70	120*
Primer L	60-120
RT-2	60-125

TACK

SS-1, SS-1h, CSS-1, CSS-1h, AE-60	70-160
RS-1, CRS-1	70-140
RC-70	120*
RC-250	165*

\* These temperatures should be used unless higher temperatures are required for satisfactory coverage. Caution must be exercised to prevent fire or explosion.

When RS-1, CRS-1, RC-70, or RC-250 is furnished for tack they shall be applied undiluted at the rate of 0.4 pound (0.05 gallon) per square yard, unless otherwise specified in the requirements for the bituminous mixture being placed.

When SS-1, SS-1h, CSS-1, CSS-1h, or AE-60 is furnished for tack the material may be applied without dilution providing uniform and satisfactory coverage is achieved. If an acceptable tack coat is not consistently achieved, the ENGINEER may direct that the SS-1, SS-1h, CSS-1, CSS-1h, or AE-60 be diluted with an equal quantity of water conforming to Section 803, be thoroughly mixed before application, and be applied a sufficient time in advance of the paver to ensure that all water has evaporated before the bituminous mixture is placed. Unless otherwise specified in the requirements for the bituminous mixture being placed, the application rate for undiluted SS-1, SS-1h, CSS-1, CSS-1h, or AE-60 shall be 0.4 pound (0.05 gallon) per square yard; when the ENGINEER requires dilution, the diluted material shall be applied at 0.8 pound (0.1 gallon) per square yard.

As specified in KDOH Section 405.05, tack material for Open Graded Friction Course shall be applied undiluted at the rate of 0.8 pound (0.1 gallon) per square yard.

If the initial application of any tack material is not uniform, the CONTRACTOR shall apply additional material as directed at no additional cost to the OWNER.

The tack coat may be applied with a spray bar which can be raised to a sufficient height so as to uniformly and completely coat the entire surface. When a uniform application, at the rate required, cannot be obtained from a spray bar, then the tack coat shall be applied by fogging with a hand spray attachment, and only complete and uniform coverage will be acceptable.

When, on newly constructed bituminous base courses or binder courses, the bituminous coating has been stripped from the aggregate due to abrasive action from traffic or to other causes, a light application of tack coating may be required.

Bituminous material applied in excess of requirements shall be removed, or shall be covered with blotter course of dry sand or stone chips as directed.

On projects over which public-traffic is being maintained, the tack coat shall be applied over one-half of the pavement width not to exceed one-half day's work in advance of the construction of the bituminous cover course; provided, that at no time shall the tack coat application end at a location hazardous to traffic. Tack coat application requiring an overnight lane closures will not be allowed, unless approved in writing. The work shall be arranged so that at the end of runs all tack shall be covered with the bituminous mat or a sand blotter course. At road intersections or other traffic crossings, the ENGINEER may require the application of a sand blotter course over the tack coat.

When a bituminous paving material is placed adjacent to curbs, existing pavement, or other structures, the contact surface of the existing structure shall first be coated with tack material.

When RC-70 or RC-250 is furnished for the tack coat, a sufficient time and distance shall be allowed in advance of the paver to ensure that the volatiles have evaporated before any of the surface mixture is laid on the tacked surface. The surface mixture shall not be placed on the tacked surface until authorized.

When Sand for Blotter is included in the contract as a item, the tack coat shall be covered with surface dry natural sand in a minimum quantity sufficient to prevent pickup by traffic. The sand shall be applied uniformly at the rate as directed not to exceed 5 pounds per square yard. ( The normal rate is 2 to 3 pounds per square yard.) All necessary precautions shall be exercised to prevent spotting or discoloring curbs, headwalls, and other structures. When any such discolorations occur, they shall be removed at the CONTRACTOR'S expense.

The CONTRACTOR shall provide necessary barricade, warning sign, and flagmen to ensure against traffic traveling over freshly applied prime or tack coat, and shall further provide for public convenience and safety as specified in Sections 104 and 107.

#### 8. METHOD OF MEASUREMENT

When an approved cut-back asphalt is furnished for the tack coat, the actual quantity will be measured for payment. Only the actual quantity of undiluted SS-1, SS-1h, CSS-1, CSS-1h, or AE-60 furnished will be measured for payment, as the cost of the water for dilution will be considered incidental to the contract unit price for Bituminous Tack Coat. No measurement will be made for water used to prepare dry surfaces for prime, as this is considered incidental to the prime coat.

Bituminous materials for prime or tack will be weighed in accordance with the requirements of KDOH Section 109.

Sand for blotting tack coat will be weighed in accordance with the requirements of KDOH Section 109.

#### 9. BASIS OF PAYMENT

No direct payment shall be made for bituminous prime and tack coat.



## SECTION 02732 - SANITARY AND WATER PIPING

1. SCOPE
2. RELATED WORK
3. DESCRIPTION OF SYSTEM
4. QUALIFICATIONS
5. SUBMITTALS
6. INSPECTION
7. DUCTILE IRON PIPE
8. POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (GRAVITY SEWERS)
9. POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (FORCE MAINS)
10. HIGH DENSITY POLYETHYLENE PIPE (FORCE MAIN & GRAVITY SEWER APPLICATIONS)
11. STEEL ENCASEMENT PIPE
12. LAYING NON-PRESSURE PIPE - GENERAL
13. LAYING PIPE IN COMMON TRENCH
14. PRESSURE PIPE INSTALLATION - GENERAL
15. UNDERGROUND INSTALLATION OF DUCTILE IRON PIPE
16. DUCTILE IRON SEWER PIPE INSTALLATION
17. DETECTABLE UNDERGROUND UTILITY WARNING TAPES
18. BLASTING
19. METHOD OF MEASUREMENT
20. BASIS OF PAYMENT

### 1. SCOPE

Furnish all labor, materials, equipment and incidentals necessary to install and test pipe and fittings as shown on the Drawings and required by the Specifications.

Piping shall be located as shown. The ENGINEER reserves the right to make such modifications in locations as may be found desirable to avoid interference between pipes or for other reasons. Pipe fitting notation is for the CONTRACTOR'S convenience and does not relieve him from laying and jointing different or additional items where required without additional compensation.

Wherever the word pipe or piping is used it shall mean pipe and fittings unless otherwise noted.

### 2. RELATED WORK

Concrete is included in Division 3, Section 03300.

Small Drainage Structures are included in Division 3, Section 03400.

### 3. DESCRIPTION OF SYSTEM

Piping shall be installed as shown on the Drawings so as to form a complete smooth flow path and workable system.

The piping and materials specified herein are intended to be standard types of pipe for use in transporting the fluids as indicated on the Drawings. The pipe and

fittings shall be designed, constructed, and installed in accordance with the best practices and methods and the manufacturer's recommendations.

#### 4. QUALIFICATIONS

All pipe and fittings under this section shall be furnished by manufacturers who are fully experienced, qualified, and regularly engaged in the manufacture of the materials to be furnished.

#### 5. SUBMITTALS

Submit to the Engineer within 30 days after execution of the Contract a list of materials to be furnished, the names of the suppliers and the approximate date of delivery of materials to the site.

#### 6. INSPECTION

The manufacturer shall inspect all pipe joints for out-of-roundness and pipe ends for squareness.

#### 7. DUCTILE IRON PIPE

##### 7.1 GENERAL

- A. Ductile iron pipe shall be centrifugally cast of ductile iron conforming to ASTM Specification A 746-82. The pipe design conditions shall be as follows:
1. Pressure: Minimum of 200 psi operation plus 100 psi water hammer allowance.
  2. Trench Loading: Laying condition Type 4. Trench depth not less than 2' nor more than that shown on the Drawings.
  3. Metal Design Strengths:

Bursting Tensile	40,000 psi
Modules of Rupture	90,000 psi
- B. The manufacturing tolerances included in the nominal thickness shall not be less than specified by ANSI/AWWA C151/A21.51-81.
- C. Minimum wall thickness shall be Class 350.
- D. For the bases of design, see ANSI/AWWA C151/A21.51-81.
- E. Pipe may be furnished in 16', 16 1/2', 18' or 20' nominal laying lengths; and the weight of any single pipe shall not be less than the tabulated weight by more than 5 percent for pipe 12" or smaller in diameter, nor by more than 4 percent for pipe larger than 12" in diameter.

- F. The hydrostatic and acceptance tests for the physical characteristics of the pipe shall be as specified in ANSI/AWWA C151/A21.51-81.
- G. Any pipe not meeting the ANSI/AWWA specifications quoted above shall be rejected in accordance with the procedure outlined in the particular specification.
- H. The ENGINEER shall be provided with 3 copies of a certification by the manufacturer that the pipe supplied for this Contract has been tested in accordance with the referenced specifications and is in compliance therewith.
- I. The net weight, class or nominal thickness and sampling period shall be marked on each pipe. The pipe shall also be marked to show that it is ductile iron.

## 7.2 LINING AND COATING DUCTILE IRON PIPE

All buried ductile iron pipe shall have manufacturer's outside coal tar or asphaltic base coating and a cement lining and bituminous seal coat on the inside and shall be coated with Protector 401 ceramic epoxy in accordance with the LFUCG Sanitary Sewer Specification. Cement mortar lining and bituminous seal coat inside shall conform to ANSI/AWWA C104/A21.4-80, except that 1/2 thickness will be allowed.

## 7.3 MECHANICAL JOINT FITTINGS DUCTILE IRON PIPE

- A. Ductile iron mechanical joints shall conform to ANSI/AWWA C111/A21.11-80 for centrifugally ductile iron water pipe.
  - 1. 3" to 12", All Working Pressures - Fittings shall conform to ANSI/AWWA Specification C110/A21.10-82 for 250 psi water working pressure plus water hammer.
  - 2. Fittings 12" and Over, for 150 psi and Less WWP - Fittings for use on 150 psi WWP pipe shall be AWWA Class D Pattern.
  - 3. Fittings 12" and Larger, for 200 psi and Above WWP - Fittings shall be ductile iron or gray iron rated at 250 psi water working pressure plus water hammer. Ductile iron fittings only will be used with ductile iron pipe.
- C. All ductile iron fittings shall be rated at 250 psi water working pressure plus water hammer. Ductile iron fittings shall be ductile cast iron per ASTM Specifications A536-84.
- D. All mechanical joint fittings shall be cement lined and bituminous coated per Federal Specification WW-P-421b.



7.4 DUCTILE IRON PIPE AND FITTINGS - SMALLER THAN 3"

- A. Small size ductile iron pipe shall conform to ANSI Specifications A21.12 (AWWA C-112). Fittings shall conform to ANSI Specifications A21.10 (AWWA C-110).
- B. Pipe may be furnished with either mechanical joints or slip-on joints as specified in paragraph 2 hereinbefore. Underground fittings shall be furnished with mechanical joints.

8. POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (GRAVITY SEWERS)

PVC (poly-vinyl-chloride) pipe shall meet all requirements of ASTM Specification D-3034, latest revision. Pipe and fittings shall meet the extra strength minimum of SDR-35 of that specification.

All pipe and fittings shall be inspected at the factory and on the job site. Testing of PVC pipe and fittings shall be accomplished in conformance with the latest revision of ASTM D3034, ASTM D2444, ASTM D2412, and ASTM D2152. The manufacturer shall submit 5 copies of certification of test for each lot of material represented by shipment to the job site.

The pipe shall be homogeneous throughout and free from cracks, holes, foreign inclusions or other defects. The pipe shall be as uniform in color as commercially practical. PVC pipe shall have a ring painted around spigot ends in such a manner as to allow field checking of setting depth of pipe in the socket.

Pipe must be delivered to job site by means which will adequately support it, and not subject it to undue stresses. In particular, the load shall be so supported that the bottom rows of pipe are not damaged by crushing. Pipe shall be unloaded carefully and strung or stored as close to the final point of placement as is practical. Pipe shall not be stored outside where subject to sunlight.

Jointing of PVC pipe shall be by a natural rubber ring inserted into the belled end of the pipe or double hub joints. Solvent weld joints are not acceptable.

The PVC pipe manufacturer shall provide special fittings, acceptable to the ENGINEER to make water-tight connections to manholes.

9. POLYVINYL CHLORIDE (PVC) PIPE AND FITTINGS (FORCE MAINS)

A. GENERAL

PVC pipe used for force main applications shall comply with ANSI/AWWA C900 Standard for PVC water transmission pipe, nominal diameters 4" through 12" and ANSI/AWWA C905-88, Standard for PVC Water Transmission Pipe, Nominal Diameters 14 inch through 36 inch.

PVC pipe shall be made from Class 12454A or 12454B Virgin Compounds as defined in ASTM D1784, with an established hydrostatic design basis of 4000 psi for water at 73.4°C. Clean rework material generated by the manufacturer's own production may be used if the pipe produced satisfied all requirements of this specification.

Elastomeric gaskets shall comply with the requirements specified in ASTM F477.

The lubricant used for joint assembly shall be a water soluble lubricating agent which will not support bacterial growth and will not adversely affect the potable qualities of the water to be transported. The lubricant shall not be detrimental to the gasket or the pipe.

The manufacturer shall, upon written request by the purchaser, furnish an affidavit that all basic materials used in pipe production meet the requirements of this recommended standard.

The PVC compound used to manufacture pipe and joints shall contain no ingredient or contaminant that is in an amount that has been demonstrated to migrate into water in quantities considered to be toxic.

The PVC compound used in the pipe shall be tested for chemical extractants and certified as suitable for potable-water applications by an accredited testing agency. Testing shall be performed in accordance with requirements no less restrictive than the applicable chemical extractant requirements specified in the latest edition of NSF Standard No. 14.

Pipe shall be homogenous throughout. It shall be free from voids, cracks, inclusions, and other defects. It shall be uniform as commercially practical in color, density, and other physical properties. Pipe surfaces shall be free from nicks and scratches. Joining surfaces of spigots and joints shall be free from gouges and imperfections that could cause leakage.

Pipe shall be nominal sizes and dimension ratio as shown on the Drawings or specified elsewhere. Pipe outside diameters shall be consistent with cast iron pipe outside diameters.

#### B. QUALITY CONTROL RECORDS

The manufacturer shall maintain for a period of not less than two years a record of all quality control tests and shall, if requested, submit the pertinent record to the purchaser.

#### C. MARKINGS

Pipe and couplings shall bear identification markings that will remain legible during the normal handling, storage and installation. Markings shall be applied in a manner that will not weaken or damage the pipe or coupling. Marking shall be applied at intervals of not more than five (5) feet on the pipe.

Marking on the pipe and coupling shall include the following:

- a. Nominal size and OD base (e.g. 24 CI)
- b. PVC
- c. Dimension ratio and pressure rating (e.g. DR25 PR165)
- d. UNI-B-11

- e. AWWA C-905 or AWWA C-900
- f. Manufacturer's name or trademark
- g. Manufacturer's production code to include day, month, year, shift, plant and extruder of manufacture.
- h. Certification seals pertaining to entire documents or specific sections, if desired or requested.

10. HIGH DENSITY POLYETHYLENE PIPE (FORCE MAIN AND GRAVITY SEWER APPLICATIONS)

10.1. GENERAL

High density polyethylene pipe shall be "Driscopipe" as manufactured by Phillips Product Co., Inc., or equal.

The polyethylene pipe and fittings shall be made of polyethylene resins classified in ASTM D 1248 as Type III, Category 5, Grade P34 (pipe designation PE 3408 defined per ASTM D 3035), having specific base resin densities of 0.941 g/cc minimum and 0.955 g/cc maximum, respectively; and having melt index less than 0.15 grams/10 min.

Pipe made from these resins must have a long-term strength rating of 1,600 psi or more.

The polyethylene resin shall contain antioxidants and shall be stabilized with carbon black against ultra-violet degradation to provide protection during processing and subsequent weather exposure.

The polyethylene resin compound shall have a resistance to environmental stress cracking as determined by the procedure detailed in ASTM D 1693, Condition B with sample preparation by procedure C of not less than 200 hours.

Polyethylene shall have cell classification of 345434C as defined by ASTM D 3350-84.

10.2 POLYETHYLENE PIPE AND FITTINGS

Polyethylene pipe furnished and installed under this Contract shall be of nominal diameter and SDR ratio shown on the Drawings, or as shown in the Form of Proposal. The pipe shall be designed for a normal internal working pressure and earth cover over top of the pipe to suit the conditions of proposed use.

Each length of pipe shall be marked, at no more than 10' foot intervals, with the following information:

- Nominal pipe size
- Type plastic material - PE3408
- Pipe pressure rating
- Manufacturer's name, trademark and code

All pipe shall be made from virgin material. No rework compound.

Pipe shall be homogeneous throughout, and be free of visible cracks, holes, foreign material, blisters, or other deleterious faults.

Fittings for the polyethylene pipe line shall be molded or fabricated from the same material as specified hereinbefore for the high density polyethylene pipe.

Fittings for bends 22 1/2 degrees or greater shall be provided as shown on the Drawings. For alignment changes of less than 20 degrees deflection, the pipe may be laid in curves with a radius of 100 feet or greater.

All run-of-the-pipe fittings shall be fusion welded into the pipe line. Tee branches shall be of the size shown on the Drawings and shall be furnished with flanged ends per ANSI B-16.1. All fittings shall be factory made.

Fittings shall be capable of withstanding the same pressure and loading conditions specified for the pipe.

Wye branches shall be true wyes.

### 10.3 PIPE JOINTING

Pipe to be joined by leakproof, thermal, butt fusion joints. All fusion must be done by personnel trained by the pipe supplier using tools approved by the pipe supplier.

The fusion machine shall have hydraulic pressure control for fusing 2 pipe ends together; it shall include pressure fusion indicating gauges to correctly monitor fusion pressures. The machines shall be equipped with an electric or gasoline engine powered facing unit to trim irregularities from the pipe ends. The heating plate on the fusion machine shall be electrically heated and thermostatically controlled and shall contain a temperature gauge for monitoring temperature.

Joint strength must be equal to that of adjacent pipe as demonstrated by tensile test. In addition, results of tensile impact testing of joint should indicate a ductile rather than a brittle fracture. External appearance of fusion bead should be smooth without significant juncture groove.

Threaded or solvent cement joints and connections are not permitted.

### 10.4 JOINING, TERMINATING OR ADAPTING BY MECHANICAL MEANS

The polyethylene pipe shall be connected to systems or fittings of other materials by means of an assembly consisting of a polyethylene flange adapter butt-fused to the pipe, a backup ring of either cast iron, steel, or high silica aluminum alloy made to ANSI B-16.1 dimensional standards (with modified pressure ratings), bolts of compatible material (insulated from the fittings where necessary) and a gasket of reinforced black rubber, or other material approved by the ENGINEER, cut to fit the joint. In all cases, the bolts shall be drawn up evenly and in line.

Termination of valves, or fittings such as tees, bonds, etc., made of other materials shall be by the flange assemblies specified hereinbefore. The pipe adjacent to these joints and to joints themselves must be rigidly supported for a distance of one pipe diameter or 1 foot, whichever is greater, beyond the flange assembly.

Appurtenances must be placed on their own foundations, unsupported by the pipe, in accordance with the detail plans.

10.5 TOOLS AND PROCEDURES

Fusion jointing and other procedures necessary for correct assembly of the polyethylene pipe and fittings will be done only by personnel trained in those skills by the pipe supplier.

Only those tools designed for aforementioned procedures and approved by the pipe supplier shall be used for assembly of pipe and fittings to insure proper installation.

11. STEEL ENCASEMENT PIPE

11.1 Shall be steel, plain end, uncoated and unwrapped, conforming to AWWA specification C-200, latest revision have a minimum yield strength of 35,000 psi and conform to ASTM A252 Grade 2 or ASTM A130 Grade B without hydrostatic tests. The steel pipe shall have welded joints and be furnished in at least 18 foot lengths.

	Minimum Wall Thickness	
	<u>Under Railroad</u>	<u>All Others</u>
20" or less	0.250	0.250
22"	0.281	0.250
24"	0.312	0.250
26"	0.344	0.281
28"	0.375	0.375
30"	0.406	0.375
Greater than 30"	0.500	0.375

11.2 CASING CHOCKS

- A. Shall be Powerseal Model 4810 or equal.
- B. Shall have a bolt on shell made in two sections.
- C. Shall have an elastomeric liner to insulate the shell from the carrier pipe.
- D. Shall have runners attached to the shell and shall be designed to provide a minimum of 0.75 inches clearance between the carrier pipe's greatest outside diameter and the casing pipe's inside diameter.
- E. Materials

- 1. All metal components shall be type 304 stainless steel.

2. The liner shall be Neoprene Rubber for extended service life.
3. Chock runners shall be UHMW polyethylene with high abrasion resistance and low friction coefficient.

## 12. LAYING NON-PRESSURE PIPE - GENERAL

### 12.1 GENERAL

- A. All pipe may be tested for uniform diameter, straightness and defects before laying and rejected pipe shall be removed from the project.
- B. All pipe after being inspected and accepted shall be laid to the lines and grades shown on the Drawings and/or as directed by the ENGINEER. All gravity pipelines shall be laid to constant grades between invert elevations shown on the Drawings. Grades shown on Drawings are invert of pipe, unless specifically noted otherwise. The pipe lengths shall be fitted together and matched to form a smooth and uniform invert.
- C. Subgrade, undercut, bedding and backfilling under, around and over the pipe shall all be in accordance with the details shown on the Drawings. No pipe shall be laid until the subgrade is properly in place.
- D. Unnecessary walking upon the completed pipelines shall be avoided until trench has been backfilled to over the top of the pipe.
- E. The interior of the pipe shall be cleaned of all dirt, jointing materials and superfluous materials of every description. When laying of pipe is stopped, the end of the pipe shall be securely plugged or capped. Care should be taken to prevent flotation of the pipe in the event the trench should flood. The CONTRACTOR will be responsible for relaying and/or relocating pipe if the pipe is laid before trenching has progressed far enough to eliminate the possibility of grade conflicts or realignment on account of existing structures, pipelines, or conduits.
- F. In trench conditions where pipe is in danger of sinking below grade or floated out of grade or line, or where backfill materials are of such a fluid nature that such movements of pipe might take place during the placing of the backfill, the pipe shall be weighted or secured permanently in place.
- G. Pipes shall be laid free from all structures other than those planned. Openings in and joints to contact walls shall be constructed as shown on the Drawings.
- H. Non-pressure pipes entering structures underground and unsupported by original earth for a distance of more than 3',

shall be supported by Class "B" concrete, where depth of such support does not exceed 3'. All pipes entering buildings or basins, below original ground, which are higher than 3' depth above subgrade, span more than 3' between wall and original earth, and with more than 24" of cover or under a roadway, shall be supported by concrete beams with piers at 6' intervals between structural wall and edge of excavation for the structure, in order to prevent breakage from settlement of backfill about the structure. Concrete and reinforcing steel for these supports shall be in the lump sum portion of the contract; and no extra payment will be allowed. Pipe entering structures shall have flexible joint within 18" of exterior of structure or from point of leaving concrete support.

- I. No backfilling, except for securing pipe in place, shall be done until the ENGINEER or LFUCG has inspected the joints, alignment, and grade in the section laid. Such inspection, however, does not relieve the CONTRACTOR of liability in case of defective joints. Joints that show leakage will not be accepted. If after backfilling and inspection, any joints are found that are allowing groundwater to enter the sewer, such joints shall be sealed by the CONTRACTOR.

## 12.2 TRENCH EXCAVATION

- A. The CONTRACTOR shall include in his bid all trenching and backfill necessary for installation of all pipelines as planned and specified. Trenching shall include clearing and grubbing of all trash, weeds, briars, trees and stumps encountered in the trenching. The CONTRACTOR shall dispose of such material at no extra cost to the OWNER. Trenching also included such items as railroad, street, road, sidewalk, pipe, and small creek crossings; cutting, moving or repairing damage to fences, posts, gates, and other surface structures regardless of whether shown on the Drawings.
- B. All existing facilities shall be protected from danger or damage while pipelines are being constructed and backfilled, and from damage due to settlement of the backfill.
- C. In the event any existing structure is damaged, repair and restoration shall be made at once and backfill shall not be replaced until this is done. Restoration and repair shall be such that the damaged structure is equal to or better than its original condition and can serve its purpose as completely as before. All such restoration and repair shall be done without extra cost to the OWNER.
- D. Trenches must be dug to lines and grades shown on the Drawings. Hand trenching may be required in areas where machine trenching would result in damage to existing structures and facilities.

- E. Excavation shall be open trenches, except where otherwise shown on the Drawings, for tunneling, boring, or jacking under structures, railroad, sidewalks and roads.
- F. Sheeting and shoring of trenches shall be provided at the expense of the CONTRACTOR where necessary to protect life, property and the new or existing structures from damage or to maintain maximum permissible trench widths at top of pipe. All necessary materials, including but not limited to, sheeting sheet piling, trench jacks, braces, shores and stringers, shall be used to hold trench walls. Sheeting and shoring may be withdrawn as the trenches are being backfilled, after backfill has been tamped over top of the pipe at least 18 inches. If removal before backfill is completed to surface endangers adjacent structures, such as buildings, pipelines, street paving, and sidewalks, then the sheeting and shoring shall be left in place until such danger has passed, and then pulled if practical. Voids caused by sheeting withdrawal shall be backfilled and tamped. If not withdrawn, sheeting shall be cut off at least 18 inches below final surface grade, so there is no obstruction at the ground level.
- G. Where subgrade of trench has insufficient stability to support the pipeline and hold it to its original grade, the ENGINEER may order stabilization by various means. Exclusion of dewatering normally required for construction, and instability caused by neglect of the CONTRACTOR, the necessary stabilization shall be paid for at unit prices set up in the Contract. In the event no particular bid price is applicable, then the payment for stabilization will be negotiated.
- H. The location of the pipelines and their appurtenances as shown are those intended for the final construction. However, conditions may present themselves before construction on any line is started that would indicate desirable changes in location. The OWNER reserves the right to make reasonable changes in line and structure locations without extra cost, except as may be determined by extra units of materials and construction actually involved. The OWNER is under no obligation to locate pipelines, so they may be excavated by machine.
- I. Dig trenches to the uniform width required for particular item to be installed, sufficiently wide to provide ample working room. Provide 6" to 9" clearance on both sides of pipe or conduit.
  - 1. Excavate trenches to depth indicated or required. Carry depth of trenches for piping to establish indicated flow lines and invert elevations. Beyond building perimeter, keep bottoms of trenches sufficiently below finish grade to avoid freeze-ups.
  - 2. Where rock is encountered, carry excavation 6 inches below required elevation and backfill with a 6-inch



layer of crushed stone or gravel prior to installation of pipe.

3. For pipes or conduit 3 inches or less in nominal size and for flat-bottomed, multiple-duct conduit units, excavate to subbase depth indicated or, if not indicated, then to 4 inches below bottom of work to be supported.
4. For pipes or conduit 6 inches or larger in nominal size, tanks, and other mechanical/electrical work indicated to receive subbase, excavate to subbase depth indicated or, if not otherwise indicated, to 6 inches below bottom of work to be supported.
5. Except as otherwise indicated, excavation for exterior water-bearing piping (water, steam, condensate, drainage) so top of piping is no less than 2 feet 6 inches below finish grade.
6. Grade bottoms of trenches as indicated, notching under pipe bells to provide solid bearing for entire body of pipe.
7. Backfill trenches with concrete where trench excavations pass within 18 inches of column or wall footings and which are carried below bottom of such footings, or which pass under wall footings. Place concrete to level of bottom of adjacent footing.
8. Concrete is specified in Division 3.
9. Do not backfill trenches until tests and inspections have been made and backfilling authorized by the ENGINEER. Use care in backfilling to avoid damage or displacement of pipe systems.
10. For piping or conduit less than 2 feet 6 inches below surface of roadways, provide 4-inch thick concrete base slab support. After installation and testing of piping or conduit, provide minimum 4-inch thick encasement (sides and top) of concrete prior to backfilling or placement of roadway subbase.

#### J. COLD WEATHER PROTECTIONS

Protect excavation bottoms against freezing when atmospheric temperature is less than 35°F (1°C).

### 12.3 TRENCH BACKFILL

- A. Backfilling shall be accomplished as soon as practical after pipe has been laid and jointing and alignment approved. Packing of crushed rock between joints shall be the usual procedure as the laying progresses. This is in order to avoid danger of misalignment from slides, flooding or other causes. The ENGINEER shall be given a maximum of 24 hours for inspection before backfilling.
- B. Any special requirements of the Railroad Company or Highway Department in regard to backfilling will take precedence over the following general Specifications.
- C. The backfill over the pipe shall be in accordance with the standard details for bedding and backfilling pipe. All backfill shall meet compaction requirements of embankment construction as specified in Section 02223.
- D. In case maximum permissible trench widths (as designated by the pipe manufacturer) are exceeded, the CONTRACTOR shall furnish crushed rock backfill to a minimum of 12 inches over the top of pipe at no extra cost to the OWNER.
- E. After the foregoing cover requirements over top of the pipe have been met, rock may be used in the backfill in pieces no larger than 3 inches in any dimension and to an extent not greater than one-half the backfill materials used. If additional earth is required for backfilling, it must be obtained and placed by the CONTRACTOR. Filling with rock and earth shall proceed simultaneously, such that no voids are left in the rock. After cover requirements over top of pipe have been met, backfilling may be employed without tamping, provided caution is used in quantity per dump and uniformity of level of backfilling. Surplus material shall be uniformly ridged over trench and excess rock hauled away, with no rock over 1 1/2 inch diameter in the top 6 inches. Ridged backfill shall be confined to the width of the trench and no higher than needed for replacement of settlement of backfill. All rock over 1 1/2 inch diameter shall be broomed to remove all earth and loose rock, all immediately following backfilling.
- F. Where traffic on streets, driveways, railroads, sidewalks and highways requires temporary surfacing, backfilling shall be terminated 4 inches below original ground level and 4 inches to 6 inches of dense graded aggregate shall be placed on the trench. Backfills shall be maintained easily passable to traffic at original ground level, until acceptance of project or replacement of paving or sidewalks.

- G. Excavated materials from trenches and tunnels in excess of that required for backfill shall be disposed of on the OWNER's property, as shown on the Drawings, and where not shown, as directed by the ENGINEER.
- H. The CONTRACTOR shall protect all sewer, gas, electric, telephone, water, and drain pipes or conduits from damage while pipelines are being constructed and backfilled, and from danger due to settlement of trench backfill.
- I. No extra payment shall be made for backfilling of any kind, except as specified hereinbefore. Backfilling shall be included as a part of the bid. No extra payment will be made to the CONTRACTOR for supplying outside materials for backfill.
- J. On completion of the project, all backfills shall be dressed; holes filled; and surplus material hauled away. All permanent walks, street paving, roadway, etc., shall be restored and seeding and sodding performed as required.

#### 12.4 TRENCH BACKFILL - MECHANICALLY TAMPED

##### A. Materials

In areas specified on the contract drawings as "mechanically tamped backfill", backfill material shall contain no sod, organic topsoil, roots, brush, or other deleterious material. Backfill materials shall be rock free and approved by the ENGINEER prior to placement and shall conform to requirements of the "materials" specifications.

##### B. Bedding and Backfilling

Bedding for pipe trenches in areas designated as "mechanical tamped backfill" shall consist of compacted clay, placed uniformly to the line and grade of the pipe. Bedding beneath pipe bells shall be notched to provide solid bearing for entire body of pipe.

Backfill shall be placed in approximately horizontal layers. The thickness of each layer before compaction shall not exceed 6 inches (6").

##### C. Testing

Density and compaction testing shall conform the requirements of Section 02223.

During the course of the work, the OWNER will employ a testing company to perform such tests as are required to identify materials, to determine compaction characteristics, moisture content, and density of in place backfill. These tests performed shall be used to verify that backfilling conforms to the requirements of the specifications.

In place density testing as defined for this specification shall be required for every other lift with a minimum of three (3) tests being performed for each isolated area designated for "mechanically tamped backfill".

D. Compaction

Each layer of backfill shall be compacted as necessary to make density of fill matrix not less than the minimum density specified. The fill matrix is defined as the portion of the fill material finer than the maximum particle size used in the compaction test method specified. The backfill material shall be compacted to minimum field densities as specified in Section 02223. Compaction by methods of drop weights operating from a chain or hoist will not be permitted.

12.5 PIPE BEDDING

- A. Stone for bedding and backfilling opposite 4 inch through 16 inch sewer pipe in earth and for bedding on solid rock or with concrete arch shall be No. 8 to 1/2 inch size crushed rock (Kentucky State Highway Standard Size No. 78) or No. 8 to 1/2 inch size Ohio River pea gravel or equal.
- B. Stone for bedding and backfilling opposite 18 inch through 36 inch sewer pipe in earth or solid rock shall be No. 8 to 3/4 inch size crushed stone (Kentucky State Highway Standard Size No. 68). River gravel of approximately same size and gradation may be used. Both shall meet State Highway Department Standards for road surfacing. Stone shall be used to stabilize soft and yielding trench bottoms, and where not caused by operations of the CONTRACTOR, it shall be paid for at the negotiated price.

12.6 TESTING - GENERAL

On completion of sewer lines, all sewers and manholes will be inspected for foreign matter, including sand brought in by infiltration, and any such matter shall be removed before final acceptance of the lines.

- A. Testing of the pipe as specified shall be carried out after all appurtenances have been installed. All pipelines shall be tested for compliance with the Specifications. If leaks are discovered, they shall be repaired by the CONTRACTOR as part of the work of laying this pipe and appurtenances and as approved by the ENGINEER. The CONTRACTOR shall supply all labor, equipment, material, gauges, pumps, etc. required to conduct the tests.
- B. All equipment, pipe and appurtenances shall be repaired or replaced and the tests repeated at the CONTRACTOR'S expense until the pipe, appurtenance and equipment are in satisfactory compliance with these Contract Documents, in the judgment of the ENGINEER.

## 12.7 AIR TESTING

- A. Air testing shall be required on all sewer lines less than 30 inches nominal diameter.
- B. All lines shall be flushed and cleared of debris prior to air testing. The maximum length of line to be air tested at any one time shall be from manhole to manhole.
- C. Air shall be slowly supplied to the plugged pipe until the internal pressure reaches 4.0 pounds per square inch (PSI) greater than the average back pressure of any groundwater that may be above the pipe. Two minutes shall be allowed for a stabilization period before proceeding further.
- D. The acceptance of the pressure test shall be determined by measuring the time required for the internal pressure to decrease from 3.5 PSI to 2.5 PSI. The time (minutes) for this one PSI loss of air pressure shall be equal to  $0.472 \times \text{pipe diameter (inches)}$ .
- E. Tees and service laterals shall be considered as part of the line being tested. All plugs shall be firmly blocked to insure that they will not be displaced during testing. Descriptive literature for all equipment and procedures to be used in air testing must be submitted to the ENGINEER for acceptance.
- F. All defective work, as so proven by the air test, shall be immediately repaired and retested until proven to be satisfactory.
- G. Inspection in pipe laying and air testing shall in no way relieve the CONTRACTOR of the responsibility for passing subsequent test for infiltration or correcting poor workmanship.
- H. All air tests must be witnessed by the ENGINEER, with 24 hours notice.

## 12.8 TV INSPECTION AND TESTING

All lines shall be subjected to a TV inspection following the completion of the air test and manhole vacuum test. The TV inspection shall be directed by the ENGINEER.

## 12.9 MANHOLE VACUUM TESTING

- A. The CONTRACTOR shall furnish all test equipment, labor and incidentals required to vacuum test all manholes constructed under this Contract.
- B. The manholes shall be air vacuum tested before backfilling in accordance with the requirements listed below.

1. Temporarily plug, with the plugs being braced to prevent the plugs or pipes from being drawn into the manhole all pipes entering the manhole at least eight inches into the pipe(s). The plug must be inflated at a location past the manhole/pipe gasket.
2. The test head shall be placed inside the access at the top of the manhole and inflated, in accordance with the manufacturer's recommendations.
3. A vacuum of 10" inches of mercury shall be drawn on the manhole. Shut the valve on the vacuum line to the manhole and disconnect the vacuum line.
4. The pressure gauge shall be liquid filled, having a 3.5 inch diameter face with a reading from zero to thirty inches of mercury.
5. The manhole shall be considered to pass the vacuum test if it holds at least 9 inches of mercury for the following time durations:

**Minimum Test Times for Various Manhole Diameters (seconds)  
(from ASTM C 1244)**

Manhole Depth (ft)	Manhole Diameter (ft)				
	4.0	4.5	5.0	5.5	6.0
	Time (seconds)				
8	20	23	26	29	33
10	25	29	33	36	41
12	30	35	39	43	49
14	35	41	46	51	57
16	40	46	52	58	67
18	45	52	59	65	73
20	50	53	65	72	81
22	55	64	72	79	89
24	59	64	78	87	97
26	64	75	85	94	105
28	69	81	91	101	113
30	74	87	98	108	121

Vacuum test time shall be a minimum of one minute.

6. If a manhole fails the vacuum test, the manhole shall be repaired with a non-shrinkable grout or other suitable material based on the material of which the manhole is constructed and retested, as stated above.

### 13. LAYING PIPE IN COMMON TRENCH

Pipelines, force mains and sewers laid in same trench shall, in all cases, be laid on original earth, regardless of divergence in their elevations. Pipe shall never be laid in backfill or one above the other. The CONTRACTOR shall include payment for all trenching and backfilling in his bid.

### 14. PRESSURE PIPE INSTALLATION - GENERAL

#### 14.1 GENERAL

- A. Pipe shall be handled with such care as necessary to prevent damage during installation. The interior of the pipe shall be kept clean and the pipe shall be installed to the lines and grades shown on the Drawings. Whenever pipe laying is stopped, the end of the pipe shall be securely plugged or capped.
- B. Fittings shall be firmly blocked to original earth or rock to prevent water pressure from springing pipe sideward or upward. Concrete or other blocking material shall be placed such that it does not cover the pipe joints, nuts, and bolts.
- C. Pipes shall be free of all structures other than those planned. Openings and joints to concrete walls shall be constructed as shown on the Drawings.

#### 14.2 PRESSURE PIPE LAYING

- A. Pressure pipe shall first be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the manufacturer. A copy of such instructions shall be available at all times at the site of the work.
- B. All pipes must be forced and held together, or "homes" at the joints, before sealing or bolting. Pipe must be aligned as each joint is placed, so as to obtain straight lines and grades. Curves and changes in grades shall be laid in such a manner that maximum allowable joint deflection is not exceeded.
- C. Trench excavation for pipe laying must be of sufficient width to allow the proper jointing and alignment of the pipe. Trenches in earth or rock shall be dug deep enough to insure 30" minimum cover over top of the pipe, unless otherwise indicated on the Drawings.
- D. Trench line stations shall be set ahead of the trenching at least each 100 feet of pipeline. Trenches shall be dug true to alignment of stakes. Alignment of trenches or pipes in trench must not be changed to pass around obstacles such as poles, fences and other evident obstructions without the approval of the ENGINEER. Lines will be laid out to avoid obstacles as far as possible, consistent with maintenance of alignment necessary to finding the pipeline in the future and avoiding obstruction of future utilities and structures.

- E. Cut pieces of pressure pipe 18" or more in length may be used in fitting to the specials and valves and fitting changes in grade and alignment. Cut ends shall be even enough to make first class joints.
- F. All water pipe must be laid in accordance with Kentucky American Water Company regulations.

#### 14.3 TESTING PRESSURE PIPE

- A. The CONTRACTOR shall furnish all necessary equipment for pressure testing.
- B. All force mains shall be given a hydrostatic test to the working pressure of the system under which leakage shall not exceed 10 gallons per 24 hours per inch of diameter per mile of pipe. Loss of water pressure during testing shall not exceed 2 psi in a 4 hour period.
- C. Where practicable, force mains shall be tested between line valves or plugs in length of not more than 1500 feet.
- D. Force mains shall be tested before backfilling at joints except where otherwise required by necessity.
- E. The duration of the test shall not be less than 4 hours.
- F. CONTRACTOR shall furnish a recording gage and water meter for measuring water used during the leakage test and recording pressure charts shall be submitted in accordance with Section 1300. The pressure recording device shall be suitable for outside service, with a range from 0-200 psi, 24 hour spring wound clock, designed for 9 inch charts, and shall be approved by the ENGINEER.
- G. Where leaks are visible at exposed joints and/or evident on the surface where joints are covered, the joints shall be recaulked, repoured, bolts tightened or relaid and leakage minimized, regardless of total leakage as shown by test.
- H. All pipe, fittings and other materials found to be defective under test shall be removed and replaced.
- I. Lines which fail to meet tests shall be repaired and retested as necessary until test requirements are complied with.
- J. Where nonmetallic joint compounds are used, pipelines should be held under normal operating pressure for at least three days before testing.



## 15. UNDERGROUND INSTALLATION OF DUCTILE IRON PIPE

Pipe shall be handled with such care as necessary to prevent damage during installation. The interior of the pipe shall be kept clean and the pipe shall be laid to the lines and grades shown on the Drawings and/or as established by the ENGINEER.

Whenever pipe laying is stopped, the end of the pipe shall be securely plugged or capped. Care should be taken to prevent flotation of pipe in the event the trench should flood.

Fittings shall be firmly blocked to original earth or rock to prevent water pressure from springing pipe sideward or upward. Concrete or other blocking material shall be placed such that it does not cover the pipe joints, nuts, and bolts.

Pipes shall be free of all structures other than those planned. Openings and joints to concrete walls shall be constructed as shown on the Drawings. Any cast iron pipe entering a structure below original ground level and unsupported by original earth for a distance of more than 6 feet shall be supported by concrete to original ground where depth of such support does not exceed 3 feet. When depth exceeds 3 feet, beams with piers shall be used for support.

All pipes entering buildings or basins below original earth level, which have less than 6 feet span between wall and original earth and having a cover of more than 24 inches of earth, or under roadway, must be adequately supported as approved by the ENGINEER or shown on the Drawings. All such supports are to be included in the contract price and no extra payment will be made for same.

Pipes entering structures shall have a flexible joint within 18" of exterior of structure, or from point of leaving concrete support to original earth or rock bedding.

Cast iron pipe shall first be thoroughly cleaned at joints, then joined according to instructions and with tools recommended by the manufacturer.

All pipes must be forced and held together, or "homed" at the joints, before sealing or bolting. Pipe must be aligned as each joint is placed, so as to obtain straight lines and grades. Curves and changes in grades shall be laid in such a manner that maximum allowable joint deflection is not exceeded.

Cut pieces of cast iron pipe 18" or more in length, may be used in connecting valves and fittings and for changes in grade and alignment. Cut ends shall be even enough to make first class joints. Sufficient excavation for bell holes will be required for tightening of bolts. No pipe shall be laid resting on rock, blocking, or other unyielding objects except where laid above ground on piers or in permanent tunnels.

## 16. DUCTILE IRON SEWER PIPE INSTALLATION

Ductile iron sewers shall be laid to line and grade and according to the manufacturer's specifications and with tools recommended by them. A copy of the manufacturer's instructions shall be available at the site of work at all times when pipe is being laid.

Sufficient excavation for bell holes will be required for tightening of bolts. No pipe shall be laid resting on rock, blocking, or other unyielding objects except where laid above ground on piers or in permanent tunnels.

Exact lines and grades will be required on exposed pipelines placed on piers.

Payment for all ductile iron sewer pipe, manholes, and appurtenances shall be included in the bid.

In permanent tunnels, pipe shall be laid with bells laying on tunnel liner or on blocks just behind bells. After pipe has been adjusted to proper line and grade, a bedding of Class "E" concrete shall be poured under pipe to support the whole bottom quadrant. Payment for such bedding shall be included in the price for tunnel liner.

#### 17. DETECTABLE UNDERGROUND UTILITY WARNING TAPES

Detectable underground utility warning tapes which can be located from the surface by a pipe detector shall be installed directly above non-metallic (PVC, polyethylene, concrete) pipe.

The tape shall consist of a minimum thickness 0.35 mils solid aluminum foil encased in a protective inert plastic jacket that is impervious to all known alkalis, acids, chemical reagents and solvents found in the soil.

The minimum overall thickness of the tape shall be 5.5 mils and the width shall not be less than 2" with a minimum unit weight of 2-1/2 pounds/1" x 1000'. The tape shall be color coded and imprinted with the message as follows:

<u>Type of Utility</u>	<u>Color Code</u>	<u>Legends</u>
Water	Safety Precaution Blue	Caution Buried Water Line Below
Gravity Sewer	Safety Green	Caution Buried Sewer Line Below
Force Main	Safety Brown	Caution Buried Sanitary Force Main

Detectable underground tape shall be "Detect Tape" as manufactured by Allen Systems, or equal.

Installation of detectable tapes shall be per manufacturer's recommendations and shall be as close to the grade as is practical for optimum protection and detectability. Allow a minimum of 18" between the tape and the line.

Payment for detectable tapes shall be included in the linear foot price bid of the appropriate bid item(s), unless it is listed as a separate payment item in the bid schedule.

#### 18. BLASTING

Permitted blasting operations shall be conducted in strict accordance with Kentucky Revised Statutes 351.320 to 351.340 and the rules and regulations promulgated under KRS 351.320 to 351.340, effective October 6, 1972, which shall be deemed to be included in these Specifications the same as though herein

written out in full. The CONTRACTOR shall also comply with applicable municipal ordinances, federal safety regulations and Section 9 of the Manual of Accident Prevention in Construction published by the Associated General Contractor's of America, Inc. All explosives shall be stored in conformity with said ordinances, laws and safety regulations. No blasting shall be done within five (5) feet of any water mains, except with light charges of explosives. Any damage done by blasting is the responsibility of the CONTRACTOR and shall be promptly and satisfactorily repaired by him.

In order to implement these requirements and unless otherwise required by ordinance or law, each excavation crew shall be provided with two metal boxes equipped with suitable locks. One of these boxes shall be for storing explosives and one for caps. The boxes shall always be locked except when in actual use. They shall be painted a bright color and stenciled with appropriate warning signs. At night, explosives and caps shall be stored in separate magazines.

All shots shall be covered with heavy timber, steel or rope blasting mats to prevent flying material. Unless otherwise specified or directed, delay caps shall be used to reduce earth vibrations and noises. In sparsely populated areas, the ENGINEER may permit the CONTRACTOR to use regular type caps.

The CONTRACTOR shall keep a blasting log and, for each blast, shall record the date, time of blast, number of holes, type of explosive, number of delays, amount of charge per delay, stemming, number and type of caps. An inventory of all explosives handled and stored shall also be kept.

Blasting operations shall be covered by comprehensive general liability insurance or separate public liability insurance to cover blasting as set forth in Section Five of the General Conditions. All blasting shall be supervised and performed by qualified personnel.

#### 19. METHOD OF MEASUREMENT

Pipe will be measured in linear feet for each type, class, and size complete and accepted in the final work. The number of linear feet for each type, class, and size shall be measured from the center of the manholes. Fittings, including lateral tees, shall not be measured and shall be considered incidental to the project. Thrust blocking for pressure pipe will also not be measured for payment.

Trench rock excavation shall be measured in cubic yards based on a trench width of 3.0 feet for 4, 6, or 8 inch pipe and the pipe outside diameter plus two feet for larger pipe. The depth of trench rock shall be an average of fifty foot stations as measured in the field to a depth of six inches below the pipe grade. Additional stone backfill in rock excavations will not be measured for payment.

20. BASIS OF PAYMENT

The accepted quantities of gravity sewer and force main shall be paid for at the contract unit prices per linear foot. Fittings and materials for bedding and backfill will not be paid for and shall be considered incidental to the project. Trench rock shall be paid for at the contract unit prices per cubic yard. Manholes shall be constructed with stubs as shown on the plans. No payment shall be made for providing openings within the manholes for the stubs. Casing pipe shall be paid for at the contract price per linear foot and shall include all boring and jacking. Casing chocks and end boots shall be considered incidental to the project.

Payment will be made under:

PAY ITEM	PAY UNIT
8" Sanitary Sewer	Linear Foot
4" Sanitary Force Main	Linear Foot



## SECTION 02800 - FENCE

1. DESCRIPTION
2. MATERIALS
3. CONSTRUCTION REQUIREMENTS
4. METHOD OF MEASUREMENT
5. BASIS OF PAYMENT

1. DESCRIPTION

This work shall consist of furnishing and erecting fence and gates of the height and type shown on the plans, or otherwise directed during construction.

2. MATERIALS

Materials shall conform to requirements specified in the following KDOH Sections:

Chain Link Fencing Materials	817
Woven Wire Fencing Materials (12 ga)	816
Concrete	601

The CONTRACTOR may select any class of concrete specified in Section 601, unless otherwise specified.

3. CONSTRUCTION REQUIREMENTS

Fence and gates shall be constructed with new materials in accordance with KDOH Section 722.

Fence shall be constructed in accordance with the KDOH Standard Drawing RFC-001-08 and RPG-005-06 for chain link right-of-way fence and gates.

4. METHOD OF MEASUREMENT

Fence will be measured in linear feet along the top of the fence from outside to outside of end posts of fence installed, with deductions made for gates, complete and accepted in the final work. Gates will be measured in individual units, complete and accepted in the final work.

5. BASIS OF PAYMENT

Fencing shall be paid for as a lump sum. Chain link fence gates shall be paid for at the unit price for each gate.

PAY ITEM	PAY UNIT
6' Chain Link Fence	Lump Sum
16' Chain Link Double Vehicular Gate	Each



## SECTION 03200 - CONCRETE REINFORCEMENT

1. DESCRIPTION
2. MATERIALS
3. PROTECTION OF MATERIAL
4. CONDITION OF MATERIAL
5. STRAIGHTENING
6. BENDING
7. PLACING AND FASTENING
8. SPLICING
9. METHOD OF MEASUREMENT
10. BASIS OF PAYMENT

### 1. DESCRIPTION

This work shall consist of furnishing and placing steel for reinforcement of concrete. The reinforcement shall consist of bars, of the quality, type, size, and quantity designated by these specifications and as shown on the plans.

### 2. MATERIALS

Materials shall meet requirements specified in the following KDOH Section.

Steel Reinforcement

811

The CONTRACTOR shall provide the Engineer with copies of the steel manufacturers manifest which indicates the heat or test identification numbers and the grade of steel provided.

### 3. PROTECTION OF MATERIAL

Proper care shall be used in handling and storing steel reinforcement to prevent bending, excessive rusting, or coating with objectionable substances.

### 4. CONDITION OF MATERIAL

Reinforcement, when incorporated into the work, shall be reasonably free from dirt, paint, oil, grease, loose-thick rust, or other foreign substance, and, when deemed necessary, shall be cleaned to the satisfaction of the ENGINEER. Tight-thin or powdery rust on these materials shall not be cause to require cleaning. Reinforcement which is rusted sufficiently to cause it to fail to meet specified physical properties shall be rejected.

### 5. STRAIGHTENING

Reinforcement which may have become bent during shipment or handling shall be straightened before being placed in the work. Straightening shall be done in a manner which will not injure the steel. Heating will not be allowed. Sharp kinks shall be cause for rejection.



## 6. BENDING

Reinforcement shall be bent cold. It shall be bent accurately to the dimensions and shapes shown on the plans and to within tolerances designated in the CRSI Manual of Standard Practice. In bending, care shall be taken not to injure the steel and only proper appliances and competent workmen shall be employed on the work. Bars shall be bent in the shop before shipment and shall not be bent in the field, unless otherwise noted.

## 7. PLACING AND FASTING

All steel reinforcement shall be accurately placed in positions shown and firmly held in position during placement and hardening of concrete. All steel reinforcement shall be spaced to within a tolerance of plus or minus 1/2 inch and placed to within a tolerance of plus or minus 1/4 inch of specified clearance from the face of concrete. Dimensions shown from the face of concrete to bars are clear distances, unless otherwise noted. Bar spacings are from center to center of bars. Bars shall be tied at all intersections, except where spacing is less than one foot in both directions, then alternate intersections shall be tied. Vertical stirrups shall always pass around the main tension members and shall be securely attached thereto.

Distances from forms shall be maintained by means of stays, blocks, ties, hangers, or other approved supports. Supports for holding reinforcement from contact with the forms shall be approved precast blocks composed of mortar or approved metal chairs. The tips of metal chair supports which are in contact with the surface of the concrete shall be plastic coated steel. When plastic coated steel supports are used, there shall be a minimum of 1/8-inch thickness of the plastic material between the metal tips and the exposed surface of the concrete. The steel placed in reinforced concrete slabs shall also be securely tied down with wire 0.148 inch or greater in diameter at intervals not greater than 8 feet in both the longitudinal and transverse directions to prevent any possibility of steel rising above the specified elevation during placing, vibrating, and finishing the concrete. Metal supports shall have a shape that will be easily enveloped by the concrete.

The top mat and bottom mat of bars shall be separated by precast mortar blocks or by other equally suitable devices. The use of pebbles, pieces of broken stone or brick, metal pipe, and wooden blocks shall not be permitted as separators. Reinforcement in any member shall be securely placed and then inspected and approved before the placing of concrete begins. Concrete placed in violation of this provision may be rejected.

## 8. SPLICING

No splicing of reinforcement will be permitted, except those splices of the type and at the locations shown, without written permission. Acceptable splices may include lapped splices, welded splices, mechanical splices, or other positive connection splices designated by the plans or ENGINEER.

Lapped splices, except splices for spiral shapes, shall have a length of no less than 40 times the nominal diameter of the reinforcement being spliced, unless otherwise designated. Lapped splices in areas not designated on the plans shall be rigidly clamped or wired together in an approved manner.

Welded splices shall be in conformance with the AWS Reinforcing Steel Welding Code, current edition. Bars to be welded shall be butted and welded so as to develop, in tension, at least 125 percent of the specified yield strength of the bars. Welded splices will not be permitted unless shown on the plans or approved by the ENGINEER.

Mechanical splices shall be used primarily for bars required for compression only. Mechanical splices for bars designed to carry critical tension or compression shall be equivalent in strength to approved welded splices.

All splices added in the field and not shown on the plans shall be made as far from the point of maximum tensile stress in the member as practicable and splice points shall be staggered 3 feet or more in adjacent bars, when possible. No splices shall be used which reduce the clear distance between the splice and the closest bar to less than the minimum clear distance of 4 inches.

All splices shall be made with clean, sound materials properly affixed to the members being spliced and shall be free of any substances that would weaken or contaminate the splice or concrete surrounding the splice.

When welded or mechanical splices are permitted, 2 test specimens of the spliced reinforcement shall be prepared and submitted to the ENGINEER for testing prior to the incorporation of such splices into the work, and one additional test specimen shall be submitted for each 100 splices made. The welded splices shall be made only by workmen who are qualified in conformance with the AWS Reinforcing Steel Welding Code.

## 9. METHOD OF MEASUREMENT

Reinforcing steel will be measured by the pound, based on the theoretical number of pounds complete in place as shown or as ordered and accepted in the final work.

The quantities of materials furnished and placed shall be based upon the calculated weights of the reinforcing steel actually placed in accordance with these specifications. Bars used to replace test specimens will also be measured for payment. The weights calculated will be based upon the following table.

7. METHOD OF MEASUREMENT

Newly constructed structures will be measured in individual structures of each size and type complete and accepted in the final work. The height of a structure, in new construction, may be increased up to 12 inches from the plan height of that structure and no measurement will be made for additional materials that may be necessary as a result of the change. When the change in height exceeds 12 inches, reinforcing steel and concrete placed in excess of the plan height plus 12 inches will be measured as specified in KDOH Sections 602.10 and 601.28, respectively. No separate measurement will be made of excavation of materials for backfill, as these items are considered incidental to the work.

No separate measurement will be made for reconstructed structures as this is considered incidental to the contract.

No separate measurement will be made for adjusting structures as this is considered incidental to the contract.

8. BASIS OF PAYMENT

All small drainage structures shall be considered incidental to the project and no direct payment shall be made. All manholes shall be paid for at the unit prices for each manhole.

PAY ITEM	PAY UNIT
4' Diameter Manhole	Each

## SECTION 03500 – SEGMENTED RETAINING WALL

1. DESCRIPTION
2. REFERENCE STANDARDS
3. DELIVERY, STORAGE AND HANDLING
4. SUBMITTALS
5. MATERIALS
6. LEVELING PAD AND DRAINAGE PIPE
7. CONSTRUCTION
8. QUALITY ASSURANCE
9. BASIS OF PAYMENT

### 1. DESCRIPTION

- A. Work includes designing, supplying and installing precast concrete retaining wall blocks to the lines and grades specified on the construction drawings.
- B. The contractor shall be responsible for the means and methods of construction.
- C. The wall shall be designed by a Professional Engineer licensed to practice within the State of Kentucky.

### 2. REFERENCE STANDARDS

- A. ASTM C39: Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- B. ASTM C94: Standard Test Method for Ready-Mixed Concrete.
- C. ASTM C136: Standard Test Method for Sieve analysis of Fine and Coarse Aggregate.
- D. ASTM C1372: Standard Test Method for Segmental Retaining Wall Units.
- E. ASTM D698: Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort.
- F. ASTM D1557: Standard Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort.
- G. ASTM D6916: Standard Test Method for Determining the Shear Strength between Segmental Concrete Units.

### 3. DELIVERY, STORAGE AND HANDLING

- A. Contractor shall check the materials upon delivery to assure proper material has been received.
- B. Contractor shall prevent excessive mud, wet concrete and like substances from adhering to the units.

3. Testing shall be done at a variety of locations to cover the entire backfill zone.
4. The inspection professional should perform sufficient testing and observation to verify that wall installation substantially conforms to the design drawings and specifications and complies to all ASTM standards.

9. BASIS OF PAYMENT

The segmented retaining wall shall be paid for at the unit price per square foot of wall face. All labor, design, submittals, excavation, stone backfill, geotextile fabric and perforated drain pipe shall be incidental to the cost of the wall.

PAY ITEM	PAY UNIT
Modular Retaining Wall	Square Foot

END OF SECTION

## SECTION 05995 - ALUMINUM HANDRAILS

1. SCOPE
2. REFERENCES
3. PERFORMANCE REQUIREMENTS
4. SUBMITTALS
5. QUALITY ASSURANCE
6. DELIVERY, STORAGE, AND HANDLING
7. PROJECT CONDITIONS
8. WARRANTY
9. EXTRA MATERIALS
10. PRODUCTS
11. EXECUTION
12. BASIS OF PAYMENT

### 1.0 SCOPE

Provide design and engineering, labor, material, equipment, related services, and supervision required, including, but not limited to, manufacturing, fabrication, erection, and installation for aluminum handrails and railings as required for the complete performance of the work, and as shown on the Drawings and as herein specified.

### 2.0 REFERENCES

- A. General: The publications listed below form a part of this Specification to the extent referenced. The publications are referred to in the text by the basic designation only. The edition/revision of the referenced publications shall be the latest date as of the date of the Contract Documents, unless otherwise specified.
- B. Aluminum Association, Inc. (AA):
  1. AA SAS-30, "Specifications for Aluminum Structures."
- C. American Architectural Manufacturers Association (AAMA):
  1. AAMA 611, "Voluntary Specifications for Anodized Architectural Aluminum (Revised)."
  2. AAMA 2604, "Voluntary Specification, Performance Requirements, and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels."
  3. AAMA 2605, "Voluntary Specification, Performance Requirements, and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels."
  4. AAMA Aluminum Curtain Wall Series No. 12, "Structural Properties of Glass."

- D. American Iron and Steel Institute (AISI):
  1. AISI SG-673, Part I, "Specification for the Design of Cold-Formed Steel Structural Members."
  
- E. American Welding Society (AWS):
  1. AWS D1.2, "Structural Welding Code – Aluminum."
  
- F. ASTM International (ASTM):
  1. ASTM B26/B26M, "Standard Specification for Aluminum-Alloy Sand Castings."
  2. ASTM B209/B209M, "Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate."
  3. ASTM B210/B210M, "Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes."
  4. ASTM B221/B221M, "Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes."
  5. ASTM B247/B247M, "Standard Specification for Aluminum and Aluminum-Alloy Die Forgings, Hand Forgings, and Rolled Ring Forgings."
  6. ASTM B429/B429M, "Standard Specification for Aluminum-Alloy Extruded Structural Pipe and Tube."
  7. ASTM C1048, "Standard Specification for Heat-Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass."
  8. ASTM C1107, "Standard Specification for Packaged Dry, Hydraulic Cement Grout (Non-Shrink)."
  9. ASTM E488, "Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements."
  10. ASTM E985, "Standard Specification for Permanent Metal Railing Systems and Rails for Buildings."
  
- G. Code of Federal Regulation (CFR):
  1. 16 CFR Part 1201, "Safety Standard for Architectural Glazing Material" (Consumer Products Safety Commission).
  
- H. National Association of Architectural Metal Manufacturers (NAAMM):
  1. NAAMM MFM, "Metal Finishes Manual."

### 3.0 PERFORMANCE REQUIREMENTS

A. General: Handrails and railings shall withstand structural loading as determined by allowable design working stresses of materials based on AA SAS-30

B. Structural Performance: Provide handrails and railings capable of withstanding the following structural loads without exceeding allowable design working stress of materials for handrails, railings, anchors, and connections:

1. Top Rail: Shall withstand the following loads:
  - a. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
  - b. Uniform load of 50 lbf per foot (730 N/m) applied horizontally or vertically downward.
  - c. Concentrated and uniform loads above need not be assumed to act concurrently.
2. Handrails not Serving as Top Rails: Shall withstanding the following loads:
  - a. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
  - b. Uniform load of 50 lbf per foot (730 N/m) applied in any direction.
  - c. Concentrated and uniform loads above need not be assumed to act concurrently.

C. Thermal Movements: Handrails and railings shall allow for movements resulting from 120 degree F (49 degree C) changes in ambient and 180 degree F (82 degree C) surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

D. Corrosion Resistance: Separate incompatible materials to prevent galvanic corrosion.

#### 4.0 SUBMITTALS

- A. General: Submit under provisions of Section 5.16 of the General Conditions
- B. Product Data:
  1. Submit manufacturer's data sheets on each product to be used, including, but not limited to, the following:
    - a. Preparation instructions and recommendations.
    - b. Storage and handling requirements and recommendations.
    - c. Installation methods.
  2. Submit product data for manufacturers product lines of handrails and railings assembled from standard components, including, but not limited to, the following:
    - a. Grout, anchoring cements and paint products.
- C. Shop Drawings: Submit shop drawings showing fabrication and installation of handrails and railings. Include plans, elevations, sections, details, and attachments to other work.
- D. Samples:
  1. Color Selection: Submit manufacturer's color charts showing the full range of colors available for products with factory-applied color finishes.



2. Finish Selection: Provide sections of railing or flat sheet metal which depict available mechanical surface finishes.
  3. Verification Samples: For each type of exposed finish required, prepared on components indicated below and of same thickness and metal indicated for the work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
    - a. 6 inch (152 mm) long sections of each different linear railing member, including handrails and top rails.
- E. Quality Control Submittals:
1. Design Data: For installed handrails and railing systems indicated to comply with certain design loadings, include structural analysis data signed and sealed by the professional engineer who was responsible for their preparation.
  2. Qualification Data: Submit documentation demonstrating capability and experience in performing installations of the same type and scope as specified by this Section. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

## 5.0 QUALITY ASSURANCE

- A. Qualifications:
1. Manufacturer Qualifications: Manufacturer shall be a firm engaged in the manufacture of aluminum handrails and railings of types and sizes required, and whose products have been in satisfactory use in similar service for a minimum of 15 years.
  2. Installer Qualifications: Installer shall be a firm that shall have a minimum of five years of successful installation experience with projects utilizing aluminum handrails and railings similar in type and scope to that required for this Project.
- B. Regulatory Requirements: Comply with applicable requirements of the laws, codes, ordinances, and regulations of Federal, State, and local authorities having jurisdiction. Obtain necessary approvals from such authorities.
- C. Single Source Responsibility: Obtain aluminum handrails and railings from a single source with resources to produce products of consistent quality in appearance and physical properties without delaying the work.

## 6.0 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.

- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

## 7.0 PROJECT CONDITIONS

- A. Environmental Requirements: Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

## 8.0 WARRANTY

- A. Warranty: Provide manufacturer's standard form outlining the terms and conditions of their Standard Limited Warranty:
  1. Surface Finish Warranty: One-year limited warranty.
  2. Material Integrity Warranty: One year limited warranty.

## 9.0 EXTRA MATERIALS

- B. All supplemental miscellaneous materials not expressly specified in this section shall be approved by the Engineer prior to installation.

## 10.0 PRODUCTS

### 10.1 MANUFACTURERS

- A. Basis of Design: Items specified are to establish a standard of quality for design, function, materials, and appearance. Equivalent products by other manufacturers are acceptable.

### 10.2 MATERIALS

- A. Metals: Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.
  1. Aluminum: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than strength and durability properties of alloy and temper designated below for each aluminum form required.
    - a. Extruded Bar and Tube: ASTM B221/B221M, Alloy 6063-T5/T52.
    - b. Extruded Structural Pipe and Tube: ASTM B429/B429M, Alloy 6063-T832.
    - c. Drawn Seamless Tube: ASTM B210/B210M, Alloy 6063-T832.
    - d. Plate and Sheet: ASTM B209/B209M, Alloy 6061-T6.
    - e. Die and Hand Forgings: ASTM B247/B247M, Alloy 6061-T6.

- f. Castings: ASTM B26/B26M, Alloy A356-T6.
  - 2. Brackets, Flanges, and Anchors: Provide cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.
    - a. Provide cast brackets with flange tapped for concealed anchorage to threaded hanger bolt.
    - b. Provide formed or cast brackets with predrilled hole for exposed bolt anchorage.
    - c. Provide formed steel brackets with predrilled hole for bolted anchorage and with snap-on cover that matches rail finish and conceals bracket base and bolt head.
    - d. Provide brackets with interlocking pieces that conceal anchorage. Locate set screws on bottom of bracket.
- B. Railing Components:
- 1. Extruded Aluminum Components: Provide manufacturer's standard extruded aluminum components as follows:
    - a. Standard Post: 2.376 inches (60.35 mm) by 2.376 inches (60.35 mm) with radiused corner, 0.100 inch (2.54 mm) wall thickness.
    - b. Bottom Rail: 1.6926 inches (42.99 mm) high by 1.676 inches (43.57 mm) wide with a 0.765 inch (19.43 mm) wide pocket on the top and an open bottom.
    - c. Picket: 0.750 inches (19.05 mm) by 0.750 inches (19.05 mm), 0.062 inch (1.57 mm) wall thickness.
    - d. Top Rail: Circular cross section, radius as indicated on the Drawings or, if not indicated, as selected by the Architect from the manufacturer's standards with an open bottom, 0.0866 inch (2.20 mm) wall thickness.
  - 2. Condensation Insert: Provide rigid plastic post insert to evacuate entrapped water in hollow sections of railing members, 2-3/8 inches (60 mm) by 2-3/8 inches (60 mm) by 4-1/8 inches (105 mm) high.
- C. Fasteners:
- 1. Handrail Anchors: Select fasteners of type, grade and class required to produce connections suitable for anchoring handrails and railings to other types of construction indicated and capable of withstanding design loads.
  - 2. Handrail and Railing Component Anchors: Use fasteners fabricated from same basic metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.
    - a. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are standard fastening method for handrail and railing indicated.
    - b. Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.
  - 3. Cast-in-Place and Post Installed Anchors: Provide anchors of type indicated below, fabricated from corrosion-resistant materials with capability to

sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four items the load imposed when installed in concrete, as determined by testing per ASTM E488 conducted by a qualified independent testing agency.

- a. Cast-in-place anchors.
- b. Chemical anchors.
- c. Expansion anchors.

D. Grout and Anchoring Cement:

1. Non-Shrink, Non-Metallic Grout: Provide factory-packaged, non-staining, non-corrosive, non-gaseous grout complying with ASTM C1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
2. Interior Anchoring Cement: Provide factory-packaged, non-shrink, non-staining, hydraulic-controlled expansion cement formulation for mixing with water at project site to create pourable anchoring, patching and grouting compound. Use for interior applications only.

### 10.3 FABRICATION

- A. Assemble handrails and railings in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- B. Form changes in direction of railing members as shown on the Drawings.
- C. Fabricate handrails and railings by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
- D. Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to connect handrail and railing members to other construction.
- E. Tempered glass shall be cut to final size and shape before heat treatment; provide for proper edge clearance and bite on glass. Provide thickness indicated on the Drawings, not less than required to support structural loads.
- F. Provide inserts and other anchorage devices to connect handrails and railings to concrete or masonry. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railings. Coordinate anchorage devices with supporting structure.

- G. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.
- H. Cut, reinforce, drill, and tap components as indicated on the Drawings to receive finish hardware, screws, and similar items.
- I. Close exposed ends of railing members with prefabricated end fittings.
- J. Provide mounted handrail wall returns at wall ends unless otherwise indicated. Close ends of returns, unless clearance between end of railing and wall is 1/4 inch (6 mm) or less.

#### 10.4 FINISHES

- A. General: Comply with NAAMM MFM for recommendations for applying and designating finishes.
  - 1. Appearance of Finished Work:
    - a. Variations in appearance of abutting or adjacent units are acceptable if they are within one-half of the range of final samples. Noticeable variations in the same unit are not acceptable.
    - b. Variations in appearance of other components are acceptable if they are within the range of final samples and are assembled or installed to minimize contrast.
- B. Aluminum Finish: Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
  - 1. Powder Coat Finish: AA-C12-C42-R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply manufacturer's standard baked powder coat finish. Comply with coating manufacturer's written instructions for cleaning, surface preparation, pretreatment, and application.
    - a. Material: Polyester powder coating, 3.0 mil (0.076 mm). Comply with AAMA 2604, including, but not limited to, average film thickness. Subject to compliance with requirements, provide one of the following products:
      - 1) "1PC-406 Series," Forrest Paint Co.
      - 2) "Series 38," TIGER Drylac U.S.A., Inc.
    - b. Color: Black
    - c. Gloss: Medium Matte.
  - 2. Class I Clear Anodized Finish: AA-M12-C22-A41 (Mechanical Finish: as fabricated, non-specular; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear film thicker than 0.7 mil [0.018 mm]) complying with AAMA 611.

3. Class I Color Anodized Finish: AA-M21-C22-A42/A44 (Mechanical Finish: as fabricated, non-specular; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, film thicker than 0.7 mil [0.018 mm] with integral color or electrolytically deposited color) complying with AAMA 611. Provide color to match the Architect's sample, or, if no sample, as selected by the Architect from within full range of industry colors and color density range.

## 11.0 EXECUTION

### 11.1 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Architect, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
  1. Examine substrates to receive anchors verifying that locations of concealed reinforcements have been clearly marked for the Installer. Locate reinforcements and mark locations if not already done.
  2. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

### 11.2 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installing anchors, such as sleeves, concrete inserts, anchor bolts, and miscellaneous items having integral anchors, that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to the Project site.

### 11.3 INSTALLATION

- A. General:
  1. Fitting: Fit exposed connections together to form tight, hairline joints.
  2. Cutting and Placement: Set handrails and railings accurately in location, alignment, and elevation measured from established lines and levels and free from rack.
    - a. Do not weld, cut, or abrade coated or finished surfaces of railing components that are intended for field connection by mechanical or other means without further cutting or fitting.
    - b. Align rails so variations from level or parallel alignment do not exceed 1/4 inch in 12 feet (1.6 mm per m).
    - c. Provide manufacturer's proprietary system to evacuate entrapped water in hollow sections of railing members that are exposed to exterior or to

moisture from condensation or other sources, in order to prevent water from entering the concrete slab. In lieu of the manufacturer's proprietary system, if acceptable to the Architect, provide another means to evacuate the entrapped water, i.e., a weephole and epoxy fill system ("drill-and-fill").

- d. Anchor posts in concrete with pipe sleeves preset and anchored into concrete. After posts have been inserted into sleeves, solidly fill annular space between post and sleeve with non-metallic, non-shrink grout, mixed and placed to comply with anchoring material manufacturer's directions.
  3. Corrosion Protection: Provide separation as recommended by manufacturer on concealed surfaces of aluminum that will be in contact with grout, concrete, masonry, wood, or dissimilar metals.
  4. Adjusting: Adjust handrails and railings before anchoring to ensure alignment at abutting joint's space posts at interval indicated, but not less than required to achieve structural loads.
  5. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing handrails and railings and for properly transferring loads to in-place construction.
- B. Non-Welded Railings Connections: Use mechanical joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings.

#### 11.4 ADJUSTING AND CLEANING

- A. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and appoint exposed areas with same material.
- B. Cleaning: Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in field to shop; make required alterations and refinish entire unit, or provide new units.

#### 11.5 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to the Installer, that shall ensure that the aluminum handrails and railings shall be without damage at time of Substantial Completion.
- B. Protect finishes of handrails and railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.

12.0 BASIS OF PAYMENT

Aluminum railing shall be paid for at the unit price. Payment will be made under:

PAY ITEM

PAY UNIT

Aluminum Railing

Linear Foot

END OF SECTION





## SECTION 15100 - VALVES

1. SECTION INCLUDES
2. RELATED SECTIONS
3. SUMMARY OF WORK
4. REFERENCES
5. PROJECT RECORD DOCUMENTS
6. SUBMITTALS
7. QUALITY ASSURANCE
8. DELIVERY, STORAGE, AND HANDLING
9. PRODUCTS - GENERAL
10. GATE VALVES
11. BUTTERFLY VALVES
12. CHECK VALVES
13. BALL VALVES
14. FIRE HYDRANTS
15. AIR RELEASE VALVES
16. SURGE RELIEF VALVES
17. EXAMINATION
18. INSTALLATION
19. BASIS OF PAYMENT

1. SECTION INCLUDES

Gate Valves

Butterfly Valves

Check Valves

Ball Valves

Fire Hydrants

Air Release Valves

Surge Relief Valves

2. RELATED SECTIONS

Section 02732 - Sanitary & Water Piping

Section 15250 - Sewage Pumps & Accessories

3. SUMMARY OF WORK

Furnish labor, materials and equipment required to install valves, fittings, valve boxes, and all other necessary accessories.

4. REFERENCES

ANSI/AWWA C500 - Gate Valves, 3 inch through 48 inches, for Water and Sewage Systems

ANSI/AWWA C111 - Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings

ANSI/AWWA C110 - Ductile Iron and Gray Iron Fittings, 3 inch through 48 inch, for Water and other liquids

ANSI/AWWA C153 - Ductile Iron Compact Fittings, 3 inch through 12 inch, for Water and other liquids

ANSI/AWWA C509 - Resilient Seated Gate Valves for Water and Sewage Systems

ANSI/AWWA C508 - Swing check valves for waterworks service, 2 inch through 24 inch, NPS.

5. PROJECT RECORD DOCUMENTS

Accurately record actual locations of piping mains, valves, connections, and invert elevations.

Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

6. SUBMITTALS

Submit product data in accordance with General Conditions.

7. QUALITY ASSURANCE

Perform Work in accordance with AWWA standards.

The manufacturers name and pressure rating shall be marked on the body of all valves.

8. DELIVERY, STORAGE, AND HANDLING

Deliver, store, protect and handle products at the site.

Deliver and store valves in shipping containers with labeling in place.

9. PRODUCTS - GENERAL

All valves shall be furnished with the same joint connection as the supply line or as indicated on the Drawings.

All valves shall be nut operated for underground service, unless otherwise shown on the plans. All nuts shall be located within 2 feet of finished grade and shall be capable of withstanding an overload input torque of 450 ft. lbs. at full-open or closed position without damage to the valve or valve operator.

Valve boxes shall be of cast iron, two or three piece, slip type consisting of a base, a center section, and a top section with a cover marked water.

The CONTRACTOR shall provide two nut wrenches for the operation of the valves to be installed.

#### 10. GATE VALVES

Manufacturers: Subject to compliance with requirements, manufactures offering gate valves which may be incorporated in the Work include, but are not limited to, the following:

- A. M & H Valve Co. - AWWA C509 Resilient Seated Gate Valve
- B. Clow Corp. - AWWA R/W Resilient Seated wedge Valves
- C. Mueller Co. - Super Seal Resilient Valve

All gate valves shall be of the iron body, bronze mounted, resilient seated type.

All resilient seated gate valves shall conform in all respects to ANSI/AWWA C509 with non-rising stems suitable for working pressures of 150 psi.

All valves shall be protected with epoxy coating on all exterior surfaces, applied in accordance with ANSI/AWWA C550.

#### 11. BUTTERFLY VALVES

Manufacturers: Subject to compliance with requirements, manufactures offering gate valves which may be incorporated in the Work include, but are not limited to, the following:

- A. M & H Valve Co. - 450 AWWA Butterfly Valve
- B. Clow Corp. - AWWA Butterfly Valve
- C. DeZurik - AWWA Butterfly Valve

Shall have iron bodies with ductile or cast iron discs and shall meet all requirements of ANSI/AWWA C504.

Shall have a minimum working pressure of 150 psi.

Shall be tight closing by means of corrosion resistant metal disc against a resilient seat of Buna-N, HCAR, or EPDM material.

#### 12. CHECK VALVES

Manufacturers: Subject to compliance with requirements, manufactures offering check valves which may be incorporated in the Work include, but are not limited to, the following:

- A. Golden-Anderson - Figure 250-D
- B. Mueller Co. - Cushioned Swing Check Valve
- C. APCO - Series 250 Air Cushioned Check Valve

The valve shall have a heavy-duty body of ASTM A126 Class B cast iron with integral flanges faced and drilled to ANSI B16.1 Class 125 for horizontal installation as listed in the schedule or shown on plans. Valve body shall be full waterway type, designed to provide a net flow area not less than the nominal pipe size area when swung open no more than 25 degrees. Valve shall have a replaceable bronze body seat.

Class 125 flanged valve body shall be rated for a shell pressure of 250 PSI.

Valve disc shall be faced with a renewable, resilient seat ring retained by stainless steel screws.

Disc arm shall be high strength ASTM A 536 ductile iron or steel, suspended from and keyed to an 18-8 stainless steel shaft which is completely above the waterway and supported at each end by heavy bronze bushings. Shaft shall rotate freely without the need for external lubrication.

Shaft shall be sealed where it passes through the body by means of a stuffing box and adjustable packing gland. O-ring type shaft seals are not acceptable.

Valve shall be supplied with an outside lever and adjustable counterweight to initiate valve closure. Final closure shall be dampened by means of a single, external, bronze air-cushion chamber directly mounted to the valve body on machine pads. The amount of air-cushioning shall be easily adjustable. Pre-charged air changers and/or commercial air cylinders which pivot or are attached with fabricated brackets, are not acceptable.

Shop paint outside surfaces with standard shop primer.

### 13. BALL VALVES

Shall have bronze body, Teflon coated bronze ball, rubber seats and steam seals, with steel lever handle.

Shall be rated to a pressure of 150 psi.

### 14. FIRE HYDRANT

Fire hydrants shall be Mueller A-425, or approved equal, with 5 1/4" main valve, two way, with 6" shoe and double 4 1/2" pumper nozzles.

### 15. SEWAGE AIR RELEASE VALVE

Sewage air release valve and valve box shall be installed at the points in the force main from the pump station as shown and detailed on the Drawings.

The valve shall have a 2" screwed inlet diameter with a minimum 1/4" size orifice. The body and cover shall be constructed of cast iron while the float shall be of stainless steel or hard rubber. Valves shall be suitable for use in sanitary sewer lines with an operating pressure range of 0 to 200 psi. Valve shall be fitted with blow off valves, quick

disconnect couplings and minimum 6 feet of hose to permit backflushing after installation without dismantling the valve. The valve shall be equal to ARI 64D0252T. A standard bronze saddle with stainless steel straps and screwed connection shall be used to connect the air release valve to the force main.

#### 16. SURGE RELIEF VALVE

Manufacturers: Subject to compliance with requirements, manufactures offering check valves which may be incorporated in the Work include, but are not limited to, the following:

- A. Golden-Anderson - Figure 625-D Long Radius Elbow Pattern
- B. APCO - Series 3000 Angle Surge Relief Valves

Main valve body shall be long radius elbow pattern of cast iron conforming to ASTM A126 Class B, with integral flanges, faced and drilled per ANSI B16.1 Class 125. The valve body shall be inherently self-cleaning and have a net flow area throughout the valve no less than the area of its nominal pipe size. The valve body shall have a removable stainless steel seat.

The valve disc shall be cast iron or steel with a renewable, resilient seat ring of rubber or other suitable material and retained by a stainless steel follower and screws. The valve stem shall be stainless steel and guided in a long bronze bushing retained in the valve cover.

The valve stem shall be sealed where it passes through the body by dual seals separated by a lantern ring with external leak detection port. An integral hydraulic system shall permit quick opening and adjustable, slow closing without the need of pre-charged cylinders.

Sizes through 8" shall be dual compression springs; 10" through 16" shall have a single compression spring. Springs shall be encased in steel cylinders; exposed springs or tension springs are not acceptable. The valve shall be fully capable of operating in any position.

The valve shall be factory tested and set to open at a pre-determined pressure. Springs shall permit field adjustment from near zero to 10 percent above factory setting.

Shop paint outside surfaces with standard shop primer.

#### 17. EXAMINATION

Verify existing conditions and that the Work is ready to receive work from this section.

## 18. INSTALLATION

Valves shall be installed at locations indicated on Drawings. Where the Drawings do not specifically indicated a valve size, valves shall be same diameter as pipe it serves.

All valves shall be installed with stems vertical.

Valves shall operate freely without binding or sticking in any position from fully open to fully closed.

Check valves shall be install with regard to the direction of flow.

Valves that are to be for underground service shall be bedded and backfilled according to the requirements of the supply line.

Center and plumb valve boxes over valve. Set box cover flush with finished grade.

Protect valve boxes, not protected by concrete slabs, with a 12" diameter RCP, 18" long sit 2" above finished grade.

## 19 BASIS OF PAYMENT

All valves shall be considered incidental to the project and no direct payment will be made.

## SECTION 15250 - SEWAGE PUMPS AND ACCESSORIES

1. SCOPE
2. RELATED WORK
3. SUBMITTALS
4. QUALITY CONTROL
5. PRODUCTS
6. GAUGES
7. PUMP TEST
8. PUMP WARRANTY
9. BASIS OF PAYMENT

### 1. SCOPE

Furnish all labor, materials, and equipment necessary for installing a duplex non-clog submersible pumping station complete with piping, lift out rail system, valves, controls, level sensors, and all other appurtenances to make a complete system.

### 2. RELATED WORK

Section 02732 - Sanitary and Water Piping

Section 03300 - Cast in Place Concrete

Section 03400 - Small Drainage Structures

Section 15100 - Valves

Section 15410 - Plumbing

Section 16000 - Electrical

Section 16725 - Pump Control System and Related Instrumentation

### 3. SUBMITTALS

Shop Drawings shall be submitted in accordance with the General Conditions.

The manufacturer shall supply, in accordance with the General Conditions, Submittal Drawings, Operating and Maintenance Manuals and Parts Lists. Standard Submittals will consist of:

1. Pump curve
2. Complete technical data showing materials of construction, moments of inertia, weight, type and length of cable.
3. Complete motor data including input KW, shaft BHP, full load amps, locked rotor amps, NEMA code letter, motor efficiency, power factor, and moment of inertia.
4. Dimensional prints.
5. Details on accessories being supplied.



I. Impeller:

The impeller shall be ductile iron and of the 2 vane non-clog enclosed type. Vane inlet tips shall be carefully rounded to prevent stringy material from catching in vanes. Pump-out vanes shall be used in front and back chamber. Impeller shall be dynamically balanced.

Impeller to be driven by stainless steel shaft key and impeller held in place with lock screw and washer on a tapered shaft.

Impeller and motor shall lift of case as a unit without disturbing discharge piping.

Impeller neck shall run in bronze wear ring that is pressed into volute case.

J. Pump Case:

The volute case shall be cast iron and have a flanged center line discharge. Discharge flange shall be eight (8) inch standard with bold holes straddling center line. Bronze wear ring to be pressed into case for guiding impeller neck and to prevent corrosion freeze up. Wear ring to be held from rotating by locking with stainless steel set screw in end of ring.

K. Pump and Motor Casting:

All castings shall be of high tensile cast iron and shall be treated with phosphate and chromate rinse.

All fasteners shall be 302 stainless steel.

L. Bearing End Cap:

Upper motor bearing cap shall be a separate casting for easy mounting and replacement.

M. Power Cables:

Power cord and control cord shall be triple sealed. The power and control conductor shall be single strand sealed with epoxy potting compound and then clamped in place with rubber seal bushing to seal outer jacket against leakage and to provide for strain pull. A third sealing area shall be provided by a terminal board to separate the cable entry chamber from the motor chamber. Cords shall withstand a pull of 300 pounds to meet FM requirements.

Insulation of power and control cords shall be type SJOW/SJOW-A or SOW/SOW-A. Both control and power cords shall have a green carrier ground conductor that attaches to motor frame.

N. Cable Entry/Junction Chamber:

The cable entry design shall not require specific torque requirements to insure a watertight seal. The cable entry shall consist of a cylindrical elastomeric grommet, flanked by stainless steel washers. The cable entry casting shall incorporate the strain relief. The junction chamber, containing the terminal board shall be a separate chamber located in the top of the motor and shall be completely sealed from the motor chamber. Connection between the cable connectors and the stator leads shall be made with threaded compressed-type binding posts.

## 6. LIFT OUT RAIL SYSTEM

### A. General:

The lift-out rail systems shall be of non-sparking design and shall be FM listed for Class 1, Groups C and D explosion-proof service.

### B. Components:

Each lift-out rail system shall consist of: a cast iron base elbow, a cast iron pump attaching and sealing plate, and a ductile iron pump guide plate. All exposed nuts, bolts, and fasteners shall be of 300 series stainless steel. No fabricated steel parts shall be used.

### C. Elbow:

Discharge base elbow shall be a standard 125 lb. 8" flange.

### D. Sealing:

A sealing plate shall be attached to the pump. A simple downward sliding motion of the pump and guide plate on the guide rails shall cause the unit to be automatically connected and sealed to the base. The sealing plate shall have a machined groove to hold a molded urethane sealing ring in place. The sealing ring shall provide a leak-proof seal at all operating pressures.

### E. Guide Rails:

Two rail pipes shall be used to guide the pump from the surface to the discharge base connection. The guide rails shall be 2 inch stainless steel pipe. The weight of the pump shall bear solely on the discharge base and not on the guide rails. Rail systems which require the pump to be supported by legs which might interfere with the flow of solids into the pump suction will not be considered equal. The guide rail shall be firmly attached to the access hatch frame. Systems deeper than 20 feet shall use an intermediate guide for each 20 feet of wet well depth.

### F. Lifting Chain:

An adequate length of stainless steel lifting chain shall be supplied for removing the pump. The chain shall be of sufficient length and shall include an adequate number of lifting rings for easy removal. Lift chain shall be rated for overhead lifting with a minimum safety factor of 4 to 1.

## 7. GAUGES

Six inch indicating gauges shall be furnished for each pump discharge line. The gauges are to be pipe mounted, with lever handle brass cut-off cocks with brass or stainless steel pipe connections.

The gauges shall have bronze bourbon tubes, black or white laminated corrosion resistant plastic or Phenol dials and micrometer adjustment of pointers.

The case and ring shall be black Phenol, black cast iron, black aluminum or polished brass.

The movement shall be stainless steel, with running surfaces made with an extremely fine finish to minimize friction.

The socket shall be bronze or stainless steel with wrench flats.

The accuracy of the gauges shall be within one-half of one percent of the scale range.

The gauges shall be graduated in psi and feet of water pressure and shall range as follows:

Shop drawings shall be furnished for approval prior to installation.

## 8. PUMP TEST

### 8.1 PUMP/MOTOR INSPECTION

- A. Certified performance tests for each type of pump are required, the following procedures are to be followed:
  1. Connect motor to power supply and check for proper rotation.
  2. The pump shall be installed in the wet pit on the proper guide rail base.
  3. Starting at shut off record the flow, head, amps, power factor and input KW at 4 equally spaced points. Run one point at or near the design duty point and one point at shut off.
  4. Submit to the Engineer copies of all raw data as well as a plotted performance curve. All test procedures and test tolerances shall be in accordance with the Hydraulics Institute Test Standards.

## 9. PUMP WARRANTY

The pump manufacturer shall warrant the pumps to the OWNER against defects in workmanship and materials for a period of five years under normal and proper use.

Replacement of mechanical seals, impellers, pump housing, wear ring, ball bearings, and rotor and stator shall be prorated over the five year warranty period.

10. SPARE PARTS

The following spare parts are required to be placed in a common box and clearly marked "SPARE PUMP PARTS FOR BAKER COURT LIFT STATION", and given to LFUCG.

Fuses  
Starter Coil  
Motor Starters  
Seals  
Bearings  
Impeller

11. BASIS OF PAYMENT

All equipment necessary to construct a complete workable pumping system shall be considered incidental to the project and no direct payment shall be made.



## SECTION 16000 - ELECTRICAL

1. SECTION INCLUDES
2. RELATED SECTIONS
3. SUMMARY OF WORK
4. GENERAL
5. SUBMITTALS
6. DELIVERY, STORAGE, AND HANDLING
7. PROJECT CONDITIONS
8. MATERIALS
9. EXAMINATION/PREPARATION
10. INSTALLATION - GENERAL
11. CONDUIT INSTALLATION
12. WIRE & CABLE INSTALLATION
13. SECONDARY GROUNDING INSTALLATION
14. BOX INSTALLATION
15. DISCONNECT AND STARTER INSTALLATION
16. RECEPTACLE AND SWITCH INSTALLATION
17. PANEL BOARD INSTALLATION
18. MOTOR STARTER INSTALLATION
19. JUNCTION BOX
20. LIGHTING INSTALLATION
21. TIME SWITCH INSTALLATION
22. FUSE INSTALLATION
23. TESTING
24. CLEAN UP
25. BASIS OF PAYMENT

### 1. SECTION INCLUDES

Wiring shown or specified including electrical power distribution system and lighting systems.

Feeders and branch circuits to all electrical circuits to all electrically powered or controlled equipment including disconnects.

Starters, controllers, timers and interconnecting power and wiring for pumps, strainer and other equipment as required.

Fuses for all fusible equipment including disconnects.

### 2. RELATED SECTIONS

Section 03300 - Cast in Place Concrete  
Section 15250 - Sewage Pumps & Accessories

## Section 16725 - Pump Control and Related Instrumentation

### 3. SUMMARY OF WORK

Furnish all labor, materials, equipment, excavation, backfill, and other necessary item to install the electrical system as shown on the Drawings and specified herein to construct a complete workable system.

Includes installation and connection of all electrical utilization equipment included in this Contract.

It is the general intent of these specifications that all motors shall be furnished with the particular object of equipment it drives.

### 4. GENERAL

Electrical CONTRACTORS performing work under this Contract shall read and understand the Instructions to Bidders, General Conditions, Supplemental General Conditions, and Special Conditions. If any discrepancies are discovered between this Section and the above mentioned Contract Documents, the above mentioned Contract Documents shall overrule this Section. This Section is intended as a supplement to the above mentioned documents.

All electrical work shall be performed by a licensed electrician familiar with codes and industry standard methods.

The symbols and abbreviations generally follow standard electrical and architectural practice.

Work under this section shall be coordinated with that of other trades to ensure proper final location of all electrical equipment and/or connections.

The minimum standard for all work shall be the latest revision of the Kentucky Building Code (KBC) and the National Electrical Code (NEC). Whenever and wherever state laws and/or regulations and/or the ENGINEERS design require higher standards than the current NEC, then these laws and/or regulations and/or the design shall be followed.

Inspection of the electrical system shall be required. The inspection shall be performed by a state or local government appointed, state licensed inspector or, if not applicable, the CONTRACTOR shall select a state licensed inspector and shall submit credentials to the ENGINEER for approval.

Should a piece of electrically driven equipment be supplied of a different size or horsepower than indicated on the plans, the CONTRACTOR shall be responsible for installing the proper size wiring, conduit, starters, circuit breakers, etc. for proper operation of that unit and complete electrical system.

It is the intent of these specifications to provide for an electrical system installation complete in every respect, to operate in the manner and under conditions as shown on the Drawings and in these specifications. The CONTRACTOR shall notify the ENGINEER, in writing, of any omission or error prior to the opening of bids. In the event of the CONTRACTOR's failure to give such notice, he/she shall be required to correct the work and/or furnish items omitted at no additional cost.

Necessary changes or revisions in electrical work to meet any code or power company requirements shall be made by the CONTRACTOR at no additional cost.

Installation of equipment that has not been specifically detailed in the Drawings or in these Specifications shall be installed per that equipment manufacture's recommendations and industry standard methods. All hardware, labor, and materials required for said equipment installation shall be considered an incidental item.

## 5. SUBMITTALS

Submit layout drawing, complete schematic and composite wiring diagrams, control direct wiring diagrams, and descriptive literature in accordance with Section 01300.

Service manuals shall be submitted on all equipment and shall be bound in 3 ring binders. The manual shall include information on accessories such as timers, etc..

## 6. DELIVERY, STORAGE, AND HANDLING

Materials shall be suitably packaged by manufacturer to prevent damage during shipment. Damaged materials will not be acceptable for use.

Store materials on site in clean, dry storage area; when outside, elevated above grade and enclosed with durable watertight wrapping.

Handle all materials carefully to prevent damage. Minor scratches, marks or blemishes to finish shall be repaired to satisfaction of the ENGINEER.

## 7. PROJECT CONDITIONS

If the existing conditions prohibit proper installation or installation as shown on the Drawings the CONTRACTOR shall notify the ENGINEER.

The CONTRACTOR shall protect all electrical items and shall replace items which are damaged during construction.

## 8. MATERIALS

### 8.1 CONDUIT

#### A. Rigid Steel

1. All rigid conduit shall be aluminum.

#### B. PVC

1. Shall be schedule 40, manufactured to conform with UL standards for exposed work inside building.
2. Shall be schedule 40 direct burial with expansion joints in accordance with manufacturer's recommendation for underground installations.



- C. All fixtures shall be delivered complete with suspension and mounting accessories, ballasts, diffusers, reflectors, etc., all wired and assembled. All accessory wiring shall be furnished and installed.
- D. All outside luminaries shall be of the type that will prevent insect accumulation inside the luminaries.
- E. The manufacturers standard finish shall be acceptable.
- F. Conduits between fixtures shall be rigid metallic type. The use of flexible conduit for connection to fixtures is prohibited.

#### 8.10 TIMERS

- A. Time switches shall be 24-hour with carryover, NEMA 1 enclosure.
- B. Shall be UL listed.
- C. Contacts shall be rated 40 AMPS Tungsten at 120 to 277 volts AC and be of silver alloy type.
- D. Shall have a heavy duty synchronous timing self-lubricating motor suitable for operation between -40°F and +140°F.
- E. Shall be supplied with number of trippers as specified on drainage.
- F. Shall have a manual on/off lever.
- G. Carryover feature shall be capable of operating switch for a minimum of one hour.

#### 8.11 FUSES

- A. Shall have 200,000 AMP interrupting capacity at rated AC voltage.
- B. Shall have maximum operating temperature of 300°F.

#### 8.12 HEATERS

- A. Shall have casing of heavy gauge steel with a baked on enamel finish.
- B. Heating elements shall be of the metal sheathed pinned type or cast aluminum heating grind.
- C. The motor shall be totally enclosed and self-lubricating.
- D. Heater accessories shall include surface mounting wall box and tamper resistant DPST power circuit manual disconnect switch.
- E. Wall heaters shall be controlled by integral thermostat and shall include all necessary auxiliary relays. The thermostats shall be factory mounted by the heater manufacturer and have an adjustable range of 30-90°F.

### 9. EXAMINATION/PREPARATION

Verify existing conditions.

Locate all existing underground cables and verify the size and type of wire.

Notify utility company of work to be performed.

Obtain all necessary permits prior to commencing work.

## 10. INSTALLATION - GENERAL

Cooperate with other CONTRACTORS engaged in project. Execute work in a manner not to interfere with other CONTRACTORS or OWNER's operations.

Coordinate work with other CONTRACTORS regarding location, size of pipes, openings, switches, outlets, so there is no interference between installation or progress of any CONTRACTORS.

Install all equipment to allow for removal, repair, or changes to equipment.

Provide sleeves for all electrical conduit passing through walls, ceilings, floors and foundations. Provide sleeves of sufficient lengths to extend through full thickness of wall construction with ends flush. Extend floor sleeves one inch above finished floor.

Where cutting is required to facilitate construction, patch and repair, cut items to original state. Do not cut structural work without prior written approval of ENGINEER.

Cut holes through concrete and masonry with a diamond core drill or concrete saw. Pneumatic hammer, impact electric, hand or manual hammer type drills are not allowed, except where permitted by ENGINEER because of limited work space.

Layout holes in advance. Notify ENGINEER prior to drilling through structural sections, for determination of proper layout.

Where electrical equipment is located on damp or wet walls or locations as direct, it shall be "stand-off" mounted 1/2" from the wall in a manner so that the rear of the equipment is freely exposed to the surrounding air.

Make floor, exterior wall and roof seals watertight. Sleeve walls and floors which are cored for installation of conduit with steel tubing, grouted and space between the conduit and sleeve fill as specified herein.

Paint conduit and other electrical equipment where specified in accordance with Section 09900. Provide touch-up painting of all equipment marred in any way during shipment or installation.

## 11. CONDUIT INSTALLATION

11.1 All interior conduit shall be exposed.

11.2 Exterior underground conduits shall be degreased and pre-treated with Koppers 40 Passivator or Koppers 30 metal conditioner and painted with 2 coats of Koppers Bituminastic 300-M. Other finishes which are equivalent may be used.

- 11.3 All conduit shall be marked with the manufacturer's name or trade mark as well as type of conduit and size. The markings shall appear at least once every 10 feet.
- 11.4 The minimum sized conduit shall be 3/4". The following table shows the minimum burial depth required for all exterior conduit:
- |                        |     |
|------------------------|-----|
| Rigid Aluminum Conduit | 18" |
| Schedule 40 Burial PVC | 30" |
- 11.5 Wire pulling shall be facilitated by the use of a UL approved pulling compound in pulls over 30 feet in length or where there are 2 or more 90° bends.
- 11.6 Only polypropylene, nylon, or manila pulling ropes will be permitted. Standard Industry recognized wire pulling equipment shall be used.
- 11.7 All conduits entering and leaving instrument enclosures shall be sealed around the wires with silicone.
- 11.8 Should the elevation of the stubbed up end of an underground conduit be below the 100 year flood elevation where it enters the building, conduit sealing bushings shall be utilized. If a conduit contains more wires than can be sealed with standard sealing bushings, silicone rubber may be used.

11.9 WORKMANSHIP

- A. All conduit shall be installed in a first class workmanship manner. It shall be installed in horizontal and vertical runs in such a manner as to ensure against trouble from the collection of trapped condensation and shall be arranged do as to be devoid of traps wherever possible. All conduits entering a structure shall be above the 100 year flood elevation (elev 500) before coming through the wall. Special care shall be used in assuring that exposed conduit runs are parallel or perpendicular to walls, structural members, or intersections of vertical planes and ceilings.
- B. Fittings or symmetrical bends shall be required wherever right angle turns are made in exposed work. Bends and offsets shall be avoided wherever possible, but where necessary, they shall be made with an approved conduit bending machine. All conduit joints shall be cut square, reamed smooth and drawn up tight, using couplings intended for the purpose.
- C. Conduits shall be securely fastened to all sheet metal outlets, junction and pull boxes with double aluminum locknuts and insulating-grounding bushings as required by the NEC.
- D. Runs of exposed conduit shall be supported in accordance with the NEC using cast aluminum one hole pipe straps with spacers to provide an air space behind the conduit.
- E. All conduits in walls and slabs shall be securely braced, capped (wooden plugs are prohibited), and fastened to the forms to prevent dislodgment during vibration and pouring of concrete.

- F. During construction, all conduit work shall be protected to prevent lodgment of dirt, plaster or trash in conduits, fittings or boxes. Conduits which have been plugged shall be entirely freed of accumulations or be replaced.
- G. All conduits in floors or below grade shall be swabbed free of debris and moisture before wires are pulled. Crushed or deformed conduit shall not be permitted.
- H. All open conduit work through walls or slabs shall be run through sleeves as shown on the Drawings. (Typical small pipe openings in walls and slabs.) These sleeves shall be PVC of suitable diameter to permit the passage of the conduit used.
- I. The final section of conduit connecting each motor or piece of utilization equipment subject to vibration shall be of the flexible type, PVC covered aluminum containing a continuous copper ground built in on sizes up to 1-1/4 inch with fittings to match. On conduit sizes larger than 1-1/4 inch, type "UA" may be used. All flexible sections of conduit larger than 1-1/4 inch in diameter shall be paralleled with a braided copper bonding strap connected between the last section of rigid conduit and the frame of the equipment, to ensure a continuous ground. Samples of the flexible conduit shall be submitted with shop drawings for review. Flexible conduit to space heaters shall be long enough to allow swivel action.

11.10 AREAS OF USE FOR EACH TYPE OF CONDUIT

	PVC	Aluminum
A. Exterior underground runs		X
B. Exterior exposed runs		X
C. Interior exposed runs		X

11.11 Conduit shall be bedded firmly and continuously on sand or pea gravel and provide a minimum of 6 inches of covering of sand or pea gravel on all sides of conduit.

11.12 Maintain all trenches and excavations free of standing water.

11.13 Backfill all trenches in 8 inch layers and compact by tamping and puddling. Backfill material shall be clean dirt, free of solid material (rocks, concrete, brick, or other debris). Installation shall be approved by ARCHITECT/ENGINEER prior to backfilling.

11.14 Provide adequate barricades, signs, lights, etc. while excavations are open.

11.15 Provide warning tape at 12 inch depth.

12. WIRE & CABLE INSTALLATION

Wire shall be in first class condition when installed.

All connections and splices shall be made in accordance with conductor manufacturer's recommendations and as written herein.

No conductors shall be drawn into conduits until all work which may cause wire or cable drainage is completed.

Wire pulling shall be accomplished utilizing machinery and accessories intended for the purpose.

Provide each cable or conductor in panels, pull boxes or troughs with a permanent pressure-sensitive label with suitable numbers of letter for easy identification. Identify control wires at each end and in junction boxes with designated wire numbers corresponding to control schematic drawings.

Provide wires and cables entering equipment or panels with enough slack to eliminate stretched, angular connection. Neatly arrange wiring, bundle and fan out to termination panels. Make minimum bending radius for conductors in accord with National Electrical Code.

Support all conductors in vertical raceways in accord with National Electrical Code.

Leave at least 6 inch loops or ends at each outlet for installation of devices or fixtures. Roll up all wires in outlet boxes not for connection to fixture or device at that outlet, connect together and tape.

Upon completion of cable and wire installation, but before termination to equipment, test each wire for grounds and short circuits. Replace or correct defective wiring.

### 13. SECONDARY GROUNDING INSTALLATION

#### 13.1 GROUND RODS

- A. Installed vertically with top 18 inches below finished grade or as shown on Drawings.
- B. Connection to rod shall be with a compression type connector or a molecular weld (exothermic reaction) connection.
- C. Connections shall be made in accordance with connector manufacturers installation instructions.

#### 13.2 PROTECTIVE COATING

Connections shall be coated with a protective urethane seal coat after connections are complete. Apply four coats at 15 to 20 minute intervals or in accordance with manufacturers application instructions.

#### 13.3 CONNECTIONS

- A. Made with compression type connectors or a molecular weld connection.
- B. Made in accordance with manufacturers installation instruction.

#### 13.4 GROUND STRAPS

Installed on all piping where a meter, expansion joint, or dielectric unions are used in all water and conduit systems or other location where a bonding jumper is required by NEC.

### 13.5 GROUNDING BUSHINGS

Installed on all conduits which contain a ground wire or conduits used for main feeders or subfeeders and as required by NEC.

Contact services shall be thoroughly cleaned prior to connections being made.

Grounding conductors shall be installed to permit the shortest most direct path to ground.

Ground conductors shall be installed in conduit where not enclosed in a cabinet.

Exterior mounted equipment shall have their enclosures grounded directly to a separate 3/4 inch by 10 foot driven ground rod in addition to a conductor run directly from interior electrical system ground.

Solidly ground all electrical equipment.

A main building ground, bare copper conductor, shall be run in conduit from the main service to a driven ground field outside the building as shown on the drawings. The building ground field shall be constructed using a #2 bare solid tinned copper ground wire. The use of stranded copper or aluminum wire is strictly prohibited. The main building ground shall be extended to the water service and to a main effectively grounded main structural steel member of the building. Provide a properly sized bonding shunt strap around the meter(s). Multiple ground rods shall be a minimum of 10 feet apart.

Panelboards, Switchboards, Disconnects and Generators:

- A. Main Service Disconnect device (panelboard - disconnect switch) and first panelboard or disconnect switch on secondary side of transformer shall have the neutral and equipment ground bonded together. All other electrical equipment shall have the neutral isolated from the equipment ground.
- B. Ground bars in panelboards and switchboards shall have sufficient lugs for each overcurrent device and incoming equipment ground conductor. Ground bar shall be bonded to device enclosure.

### 14. BOXES

The location of all boxes shall be coordinated prior to rough-in.

Recessed unless otherwise noted on the drawings, face of box (or extension ring) shall be flush with wall finish, be plumb, have all unused openings closed with knock-out closures.

Boxes shall be accessible.

Installed per NEC requirements for area in which it is being installed.

Through wall boxes shall not be permitted.

The covers for surface mounted boxes shall be of the same material as the box.

Surface mounted boxes 10 feet above floor or less shall be cast type, unless otherwise noted.

## 15. DISCONNECT AND STARTER INSTALLATION

Supply motor or load from individual branch circuit in separate branch conduit except where otherwise shown.

Make all final connections to motors with flexible conduit, not less than 18 inch or more than 24 inch long. Provide ground wire to motor frame. Adequately support conduit at each motor.

Verify proper direction of rotation of all motors.

Provide nameplates or legends indicating equipment served or the function of all disconnects, combination starters, and control devices furnished by CONTRACTOR. Size nameplates or legends relative to the device. Make from engraved phenolic compound, and properly secure the device.

Starters and other devices furnished with equipment shall be installed by CONTRACTOR furnishing them, including all power field wiring between equipment and starters. CONTRACTOR furnishing equipment shall be fully responsible for providing adequate and correct wiring diagrams and instructions.

Motor sizes shown in schedules and their locations may differ from that provided, dependent upon manufacturer. Provide connections of proper capacity at proper locations regardless of those differences.

## 16. RECEPTACLE AND SWITCH INSTALLATION

### 16.1 RECEPTACLES

- A. Rated 20 AMP 125 volt.
- B. Installed in outlet boxes and have cover plates installed so they fit tight to surface without gaps or strain on plates.
- C. Install 4 feet above finished floor unless otherwise noted on the electrical drawings.
- D. Height may vary slightly to accommodate construction, all receptacles in any one room shall be installed at the same height, unless otherwise noted on the drawings.
- E. Furnish matching plugs with non-standard receptacles, one plug for every four devices of same type and rating.

### 16.2 SWITCHES

- A. Installed in boxes.
- B. Pulled up tight so switch is secure and rigidly mounted.
- C. Have a cover plate installed.

- D. If side wired, wire shall be looped in a clockwise direction and shall be fully under head of terminal.
- E. If back wired, conductor shall be fully seated, conductor shall not be visible when correctly installed.
- F. Have wire terminals tightened to a minimum of 14 inch pounds.
- G. Plates shall fit tight to surface without gaps or strain on plate.
- H. Install (54) inches above finished floor unless otherwise noted on the Drawings.
- I. When more than one switch is shown on the drawings in one location they shall be installed in gang type box of proper size for the number of devices and with one gang type cover plate.
- J. Where switches are installed gang mounted and more than one voltage is in the same box or switches are 277 volt, barriers shall be installed between switches.
- K. Installed plumb and parallel to adjacent surfaces.
- L. Single and double pole switches shall be installed so that they are in the up position where load is on.

#### 16.3 COVER PLATES

- A. Plates shall fit tight and flat to surface without placing a strain on plate.
- B. Plates shall be of the correct type of the location, box type and device.
- C. Exterior location plates shall be mounted correctly for the type plate used, and be of the type which are weathertight while in use.
- D. Weatherproof plates shall be installed where noted on the Drawings, exterior and wet locations.
- E. Blank plates shall be installed on all boxes which do not have devices installed in them.
- F. Use jumbo plates for outlets in masonry walls.

#### 16.4 COLORS

- A. Devices shall be ivory and coverplates shall be stainless steel unless otherwise required by these specifications.

### 17. PANEL BOARD INSTALLATION

Installed plumb and level.

When flush mounted, shall be rigidly secured and set so that flush trim will be flush with finished wall surfaces.



6. COMPLETION OF THE WORK

Upon completion of the work the Contractor shall provide the following:

A maximum of three (3) days of on-site training in programming of the Control system.

Provide as built drawings.

Provide three copies Operations and Maintenance Manuals

Provide LFUCG with all required programming assistance for a period of one (1) year following the final acceptance of the system.

7. PRODUCTS

A. CONTROL PANEL

The controls shall be housed in a NEMA 4X stainless steel enclosure for outdoor installation. The enclosure door shall be completely gasketed, hinged, and equipped with a padlockable latch. Stainless steel enclosure will be 304 type and will have 3 point latching with a dripshield.

Provide a removable inner swing door fabricated of 5052 brushed marine grade aluminum having a minimum thickness of .090 inches. The door shall have .5 in. flanges on three sides for increased strength. The door shall be adequately sized to cover all panel mount components, have a horizontal swing of a least 90 degrees and be held closed with a durable 1/4 turn latch. The door shall have a brushed high gloss luster. All inner door mount components will be labeled with phenolic engraved nameplates.

Control sub panel shall be 12 ga. steel with white enamel finish. Sub panels shall have flanges on at least two sides. All mounting holes shall be drilled and tapped at least 8/32 and parts mounted with machine screws. Self tapping screws will not be accepted.

Power wiring shall be properly sized black MTW rated 90 C. Control wiring shall be red #14 AWG. MTW rated 90 C. All wiring will have polyester or vinyl-cloth numerically identified labels on each end to indicate wire number. All panel mount components will be numerically labeled according to the wiring diagram. Labels will be polyester or vinyl. Labels shall be manufactured by Brady. Wire will be neatly routed in the panel through polyester wire duct except wiring from the back plate to the door shall be done in a separate bundled harness for control. A laminated As - Built wiring schematic shall be posted on the inside of the inner swing door.

Main disconnecting means shall be installed remote or in the control panel. The main disconnect shall consist of a fusible switch and operating handle properly sized in accordance with the National Electric Code.

Provide a properly sized thermal magnetic circuit breaker for each pump, telemetry system, and building with lights, heater and air conditioning.

Provide Allen Bradley Series AB SMC Dialog Plus (no alternate) soft starters for each pump. Overload and thermal protection shall be built into the soft

starter. Ramp up and ramp down time will be field adjustable for the pump motor control. MSCR bypass contacts IEC type only are to be provided.

Provide a 15 KVA, 460 volt primary/230 volt secondary, 40 amp transformer to serve receptacles, control circuits, odor control and other miscellaneous loads.

Each pump will have an H O A switch mounted on the inner door.

The water levels within each wet well shall be controlled by ball floats. Levels shall be as noted:

Low Water Level	All pumps off
Lead Level	One pump on
Lag Level	Two pumps on
HWA Level	Sound alarm light and bell

Redundant ball floats with mercury tube switches shall be provided in each wet well.

Provide UL listed intrinsically safe relays for operation of the floats at milliwatt levels. For use in class I., div. II. location.

A three phase voltage monitor shall protect against over voltage, under voltage, phase loss and phase sequence.

Provide a "Pump Running" green push to test transformer type indicator light for each pump, mounted on the inner door. All lights on the panel shall be LED type.

Each pump controller shall be equipped with a Time Mark 4082 liquid level controller, or equal, mounted on the inner door. Meters shall be wired to each starter, six digit, non-resetable, to indicate total run time in hours and tenths.

Over-temperature protection shall be provided in the control panel to operate in conjunction with the over-temperature switch in each pump motor. The control shall provide pump lockout of operation upon occurrence of high temperature and must be manually reset.

Pump seal failure protection shall be provided in the control panel to operate in conjunction with the moisture sensor or seal failure switch in each pump motor. Seal leaks shall be detected for in the motor housing and seal chamber. The circuitry shall include a red failure indicating light on the inner panel for each pump for alarm indication. Each alarm must be manually reset.

Inner door mounted ground fault circuit interrupter (GFCI) type convenience receptacle rated 20 amperes shall be provided for operation of drills, trouble lights, etc. NEMA WD1, heavy-duty, grounding type; UL 943, duplex type capable of detecting a current leak of 5 milliamps.

Provide circuit breakers for exterior lighting, 120v outlet, generator coolant heater, and odor control.

Provide a condensation heater with controlling thermostat.

Provide Lightning Arrestor.

Provide "Upper Bearing High Temperature" shutdown for each pump over 30 HP and a red indicator light, heavy duty oiltight class 52, as manufactured by Furnas or equal, mounted on the inner door. Each alarm must be manually reset.

Provide "Lower Bearing High Temperature" shutdown for each pump over 30 HP and a red indicator light, heavy duty oiltight class 52, as manufactured by Furnas or equal, mounted on the inner door. Each alarm must be manually reset.

Control panel spare parts and package for storage to include complete spare Time Mark 4082 level controller and six (6) fuses for the control panel.

Unpowered contacts shall be provided for future telemetry monitoring; Individual pump run, combined overtemperature and seal leak alarm for each pump, power failure from phase monitor, high level condition and building intrusion alarm.

## B. CONTROL SEQUENCE

**AUTOMATIC MODE OF OPERATION:** The control panels shall be set up to operate in duplex operation.

The control circuit shall be energized when the wetwell level rises to low water level. The amber low wetwell indicating light shall be de-energized on the panel.

As the wetwell level continues to rise to the lead pump level, the first (lead) pump shall start and the green pump running indicator light shall be energized on the panel.

As the wetwell level is pumped down, the lead pump shall continue to operate until the lowest level sensor contacts open. The green pump running indicator light shall de-energize and the amber low wetwell indicator light shall energize. The panel shall select the previous lag pump for operation as the lead pump during the next pumping cycle.

If the level of the wetwell continues to rise with the lead pump in operation, the lag pump shall also be started when the wetwell level rises to the lag pump level. The green pump running indicator light shall be energized.

If the wetwell level continues to rise until the next level the wetwell high level contact will open. When the wetwell level drops below the high level alarm sensor shall reset.

As the wetwell level drops with both the lead and lag pumps running, both pumps shall remain on until the wetwell level drops below the low water level. At that time both pumps shall stop and the green pump running indicator lights shall be de-energized. The panel shall select the previous lag pump for operation as the lead pump during the next pumping cycle.

In case of power failure with high water in the wet well, only one pump shall be allowed to start at a time. At no time shall all three pumps be

allowed to run at the same time. No pump shall be allowed to start within 10 seconds of each other even under manual operation.

### C. JUNCTION BOX

A junction box shall be furnished for each wet well. The junction box shall be NEMA 4X stainless steel for outdoor use. The box shall have a means for pad locking.

Each junction box shall contain terminals to accept float cords, a transducer cord and pump power and control cords coming from the wet well. If the floats are protected by intrinsically safe barrier relays, their terminals shall be positioned in such a manner as to maintain clearance from other conductors. Cord grips shall be installed through the bottom of the box to accept the cords from the wet well and to prevent gases from entering the box. The cord grips shall be rated for the atmosphere in which the junction box is installed.

Each junction box shall be mounted on a pedestal. If intrinsically safe circuits are entering the box, two pedestals shall be used to maintain required separation from non-intrinsically safe conductors. The pedestal shall be aluminum with expanded aluminum sides for ventilation. Minimum height of the pedestal shall be 24". The pedestal shall have a hinged access door for ease of pulling cables from the wet well into the junction box. Pedestals shall be designed for mounting directly to the wet well top and directly to the bottom of the junction box.

### 8. TESTING

The Contractor shall test the complete system, related to the instrumentation system.

### 9. WARRANTY

The Contractor shall provide a full one year warranty covering all components beginning on the date of final acceptance by the Owner and LFUCG.



**PART IX**

**ADDENDA**

All addenda issued during the bidding of the Project will be reproduced in the signed Contract Documents, on the pages following this heading sheet.

<u>Addendum Number</u>	<u>Title</u>	<u>Date</u>
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____



**Appendix A**  
**Standard Drawings**



MAYOR JIM GRAY



**LEXINGTON**

DOUG BURTON, P.E.  
DIRECTOR  
ENGINEERING

September 22, 2017

**Users of Lexington – Fayette Urban County Engineering Standard Drawings**

Re: Standard Drawings 2017

Attached is the latest edition of the LFUCG Standard Drawings for construction of storm, sanitary sewers, streets and roads in Lexington – Fayette County. These drawings supersede any and all Standard Drawings previously issued by the Division of Engineering.

These drawings become effective as of September 22, 2017 and any projects dedicated to public use after the above date must comply with or contain references to these Standard Drawings or revisions thereof where applicable.

Questions or comments should be directed to:

Urban County Engineer  
Division of Engineering  
Fourth Floor  
101 E. Vine Street  
Lexington, KY 40507  
859-258-3410

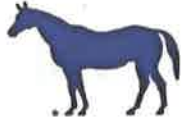
Sincerely,

A handwritten signature in blue ink, appearing to read 'W. Douglas Burton', with a long horizontal flourish extending to the right.

W. Douglas Burton, P.E.  
Urban County Engineer

WDB;MHF

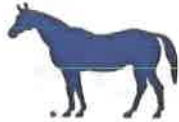




# LEXINGTON

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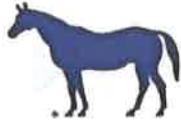
Drawing No.	Drawing Title
<b>Manholes-Storm Drainage:</b>	
100	Storm Sewer Manhole Type "A" - Circular Walls
101	Storm Sewer Manhole Type "B" - Non-Circular Walls
102	Storm Sewer Manhole Details
103	Manhole Frames, Covers and Steps
104	Storm Sewer Manhole Circular Slabs 4'-0" and 5'-0" Diameter
105	Storm Sewer Manhole Circular Slabs 6'-0" Diameter
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109	Reinforcement Detail 5' Non-Circular M.H. 7'-6" to 20' Depth, 8" Walls, 12" Slab
110	Reinforcement Detail 6' Non-Circular M.H. Less Than 10' Depth, 8" Walls, 10" Slab
111	Reinforcement Detail 6' Non-Circular M.H. 8' to 15' Depth, 8" Walls, 12" Slab
112	Reinforcement Detail 6' Non-Circular M.H. 15' to 20' Depth, 10" Walls, 12" Slab
113	Reinforcement Detail 7' Non-Circular M.H. Less Than 10' Depth, 8" Walls, 10" Slab
114	Reinforcement Detail 7' Non-Circular M.H. 8' to 10' Depth, 8" Walls, 12" Slab
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124-2	Curb Box Inlet Type "C" 4' x 3' Box Single Pipe 15" or Less
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126	Spring Box Inlet Type "A"
127	Spring Box Inlet Type "B"



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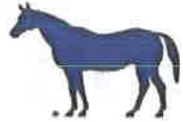
Drawing No.	Drawing Title
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<b>Roadway Drainage:</b>	
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151	ELL Headwalls
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153	Pipe Culvert Headwalls 0° Skew 15" - 27" Circular Pipe
154-1	Pipe Culvert Headwalls 0° Skew 30" - 108" Pipe
154-2	Dimensions and Quantities 30" - 108" Headwalls Circular Pipe 0° Skew
154-3	Bill of Reinforcement 30" - 90" Diameter Circular Pipe Headwalls 0° Skew
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159-3	Bill of Reinforcement 30" - 48" Double and Triple Headwalls - Circular Pipe 0° Skew
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	See Chapter 11 of <i>LFUCG Stormwater Manual</i> for Approved Design Details



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201-3	Utility Trench Restoration Beneath Existing Paved Roads (Section View)
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240	Sanitary Sewer Stream Crossing and Stream Bed Restoration Detail
250	Grease Interceptor Typical Configuration



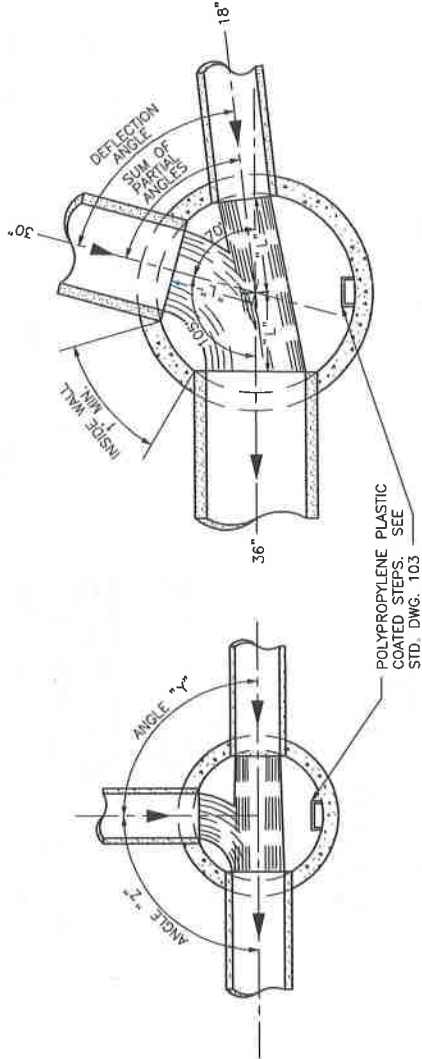
# LEXINGTON

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303	Sidewalk Construction Specifications
304	Sidewalk Ramp Type 1
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322	Perforated Pipe Underdrains
323	Public Improvement Sign
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TABLE I  
OF  
MINIMUM PARTIAL ANGLE

PIPE SIZE	4'-0"		5'-0"		6'-0"		7'-0"		8'-0"	
	P. ANGLE	L. DIST.	P. ANGLE	L. DIST.	P. ANGLE	L. DIST.	P. ANGLE	L. DIST.	P. ANGLE	L. DIST.
15"	38°	1'-10"	30°	2'-4"	25°	2'-11"	22°	3'-5"	19°	3'-11"
18"	43°	1'-9"	34°	2'-4"	28°	2'-10"	24°	3'-4"	21°	3'-11"
24"	53°	1'-7"	41°	2'-2"	34°	2'-9"	29°	3'-3"	25°	3'-10"
27"	—	—	45°	2'-1"	37°	2'-8"	32°	3'-3"	28°	3'-9"
30"	—	—	49°	2'-0"	40°	2'-7"	34°	3'-2"	30°	3'-8"
33"	—	—	54°	1'-10"	44°	2'-6"	37°	3'-1"	33°	3'-6"
36"	—	—	—	—	47°	2'-4"	40°	3'-0"	34°	3'-7"
42"	—	—	—	—	55°	2'-1"	45°	2'-9"	39°	3'-5"
48"	—	—	—	—	63°	1'-9"	52°	2'-6"	44°	3'-2"
54"	—	—	—	—	—	—	59°	2'-3"	50°	2'-11"
60"	—	—	—	—	—	—	67°	1'-10"	56°	2'-8"



TYPE "A" MANHOLE - CIRCULAR WALLS  
CAST-IN-PLACE OR PRECAST CONCRETE

NOTES:

1. PRECAST CONCRETE MANHOLE BARREL SHALL BE ASTM C-478, CLASS II PIPE TO 12' DEPTH AND C-76 CLASS III, GREATER THAN 12' DEPTH.
2. BASE SECTION OF CIRCULAR MANHOLES MAY BE CAST-IN-PLACE CONCRETE, OR CUSTOM PRECAST CONCRETE WITH OPENINGS FOR PIPE.
3. BASE SECTIONS MAY BE SIMILAR TO SANITARY SEWER MANHOLE.
4. PROVIDE STEPS WITHIN 18" OF BENCH.

CIRCULAR MANHOLE NOTES:

1. THE ANGLE BETWEEN ANY TWO PIPES (e.g. ANGLE "Y" OR "Z") MUST BE GREATER THAN THE SUM OF THE PARTIAL ANGLES FROM TABLE I FOR THE MANHOLE SIZE SELECTED. FOR SMALLER ANGLES BETWEEN PIPES, LARGE MANHOLES MUST BE SELECTED. (SEE EXAMPLE BELOW)
2. THE MAXIMUM DEFLECTION ANGLE BETWEEN ANY INCOMING PIPE AND THE DISCHARGE PIPE SHALL BE NO MORE THAN 90° FOR PIPES UP TO 24" IN DIAMETER. THE MAXIMUM DEFLECTION ANGLE FOR 27" TO 42" PIPES SHALL BE 75° AND FOR PIPES LARGER THAN 42" THE MAXIMUM DEFLECTION ANGLE SHALL BE 60°.

EXAMPLE FOR MANHOLE SIZE SELECTION:

FOR MANHOLE SHOWN ABOVE, THE ANGLE BETWEEN 18" AND 30" PIPE IS 70° AND THE ANGLE BETWEEN 30" AND 36" PIPE IS 110°. THE TABLE INDICATES THAT FOR A 6'-0" DIAMETER MANHOLE THE MINIMUM PARTIAL ANGLE FOR AN 18" PIPE IS 28° AND FOR A 30" PIPE IS 40°. THE SUM OF THE PARTIAL ANGLES IS 68° THIS SUM IS LESS THAN THE 70°. THEREFORE, A 6'-0" MANHOLE DIAMETER IS ACCEPTABLE.

GENERAL NOTES:

1. ALL DIMENSIONS ARE BASED ON SIZE OF LARGEST PIPE IN MANHOLE.
2. MANHOLES FOR PIPE LARGER THAN 60" SHALL BE SPECIALLY DESIGNED.
3. IN CASES WHERE DEFLECTION ANGLES EXCEED MAXIMUM SHOWN IN TABLES, MANHOLE SHALL BE INCREASED IN SIZE OR SPECIALLY DESIGNED.
4. BOTTOM SLAB OF MANHOLES SHALL BE SPECIALLY DESIGNED WITH REGARD TO AREA, THICKNESS, AND REINFORCING IN SITUATIONS WHERE HIGH WATER TABLE OR UNSTABLE SOIL CONDITIONS EXIST.
5. MANHOLE BENCH SHALL SLOPE AT LEAST 1" PER FT. FROM WALLS TO CHANNELS AND SHALL HAVE SMOOTH FLOAT AND BRUSH FINISH.
6. ELEVATIONS OF PIPES IN MANHOLES SHALL BE SUCH THAT THE TOP OF ALL INFLUENT PIPES WILL BE AT AN ELEVATION EQUAL TO OR GREATER THAN THE TOP OF THE EFFLUENT PIPE.
7. INFLUENT PIPES MAY ENTER MANHOLES AT AN ELEVATION ABOVE THE CHANNELS AS REQUIRED TO AVOID CONFLICT WITH LARGER PIPES IN THE MANHOLE.



LEXINGTON

DIVISION OF ENGINEERING

STORM SEWER  
MANHOLE TYPE "A" -  
CIRCULAR WALLS

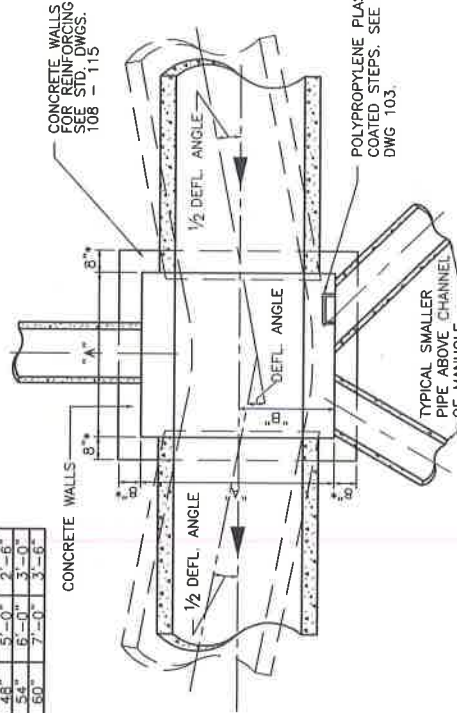
STANDARD DRAWING NO. 100

APPROVAL: [Signature]

DATE: 9/22/17

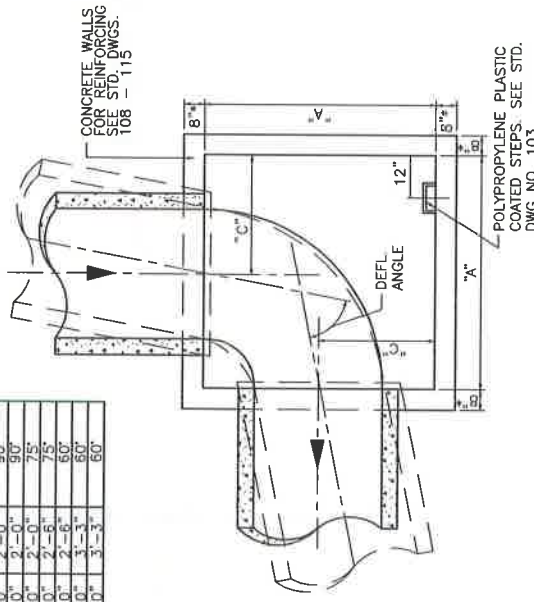
COMMISSIONER

PIPE SIZE	DIM. "A"	DIM. "B"
12"	5'-0"	2'-6"
15"-42"	5'-0"	2'-6"
48"	5'-0"	2'-6"
54"	5'-0"	3'-0"
60"	7'-0"	3'-6"



0°-22° DEFLECTION ANGLE

PIPE SIZE	DIM. "A"	DIM. "C"	MAXIMUM DEFL. ANGLE
12"	5'-0"	2'-0"	90°
15"-33"	5'-0"	2'-0"	90°
36"	5'-0"	2'-0"	75°
42"	5'-0"	2'-6"	75°
48"	5'-0"	2'-6"	60°
54"	5'-0"	2'-6"	60°
60"	7'-0"	3'-3"	60°



GREATER THAN 68° DEFLECTION ANGLE

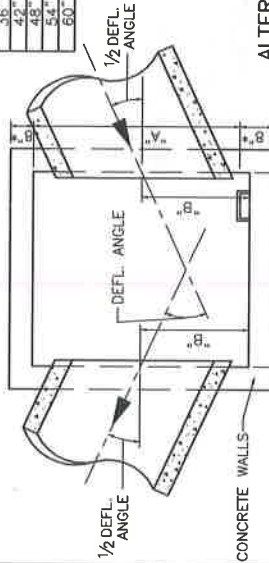
\* WALL THICKNESS FOR MANHOLES

DEPTH TO INV.	A=5'-0"	A=6'-0"	A=7'-0"
UP TO 10'	8"	8"	8"
10 TO 15'	8"	8"	10"
15 TO 20'	8"	10"	10"

TYPE "B" MANHOLE - NON-CIRCULAR WALLS, CAST-IN-PLACE CONCRETE

ALTERNATE-22°-50°

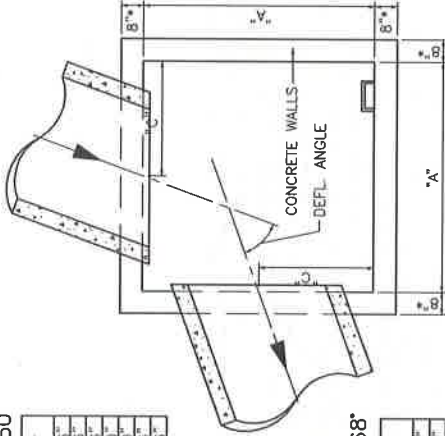
PIPE SIZE	DIM. "A"	DIM. "B"
12"	5'-0"	2'-6"
15"-33"	5'-0"	2'-6"
36"	5'-0"	2'-6"
42"	6'-0"	3'-0"
48"	6'-0"	3'-0"
54"	7'-0"	3'-6"
60"	7'-0"	3'-6"



22°-50° DEFLECTION ANGLE

ALTERNATE-50°-68°

PIPE SIZE	DIM. "A"	DIM. "C"
12"	5'-0"	2'-0"
15"-33"	5'-0"	2'-0"
36"	5'-0"	2'-0"
42"	6'-0"	2'-6"
48"	6'-0"	2'-6"
54"	7'-0"	3'-3"
60"	7'-0"	3'-3"



50°-90° DEFLECTION ANGLE

NOTES:

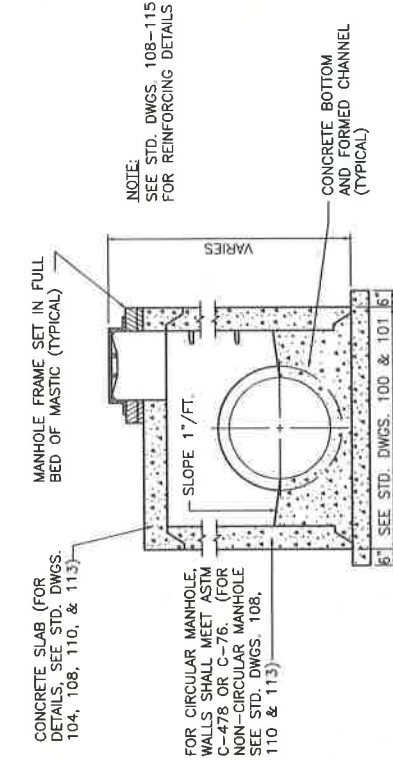
1. ALL DIMENSIONS ARE BASED ON SIZE OF LARGEST PIPE IN MANHOLE.
2. MANHOLES FOR PIPE LARGER THAN 60" SHALL BE SPECIALLY DESIGNED.
3. PIPES SHALL ENTER MANHOLE WALLS, NOT CORNERS. ALLOW 2" MINIMUM TO INSIDE CORNER FOR WALL CUT.
4. IN CASES WHERE DEFLECTION ANGLES EXCEED MAXIMUM SHOWN IN TABLES, MANHOLE SHALL BE SPECIALLY DESIGNED.
5. BOTTOM SLAB OF MANHOLES SHALL BE SPECIALLY DESIGNED WITH REGARD TO AREA, THICKNESS, AND REINFORCING IN SITUATIONS WHERE HIGH WATER TABLE OR UNSTABLE SOIL CONDITIONS EXIST.
6. MANHOLE BENCH SHALL SLOPE AT LEAST 1" PER FT. FROM WALLS TO CHANNELS AND SHALL HAVE SMOOTH FLOAT AND BRUSH FINISH.
7. THE TOP OF ALL INFLUENT PIPES WILL BE AT AN ELEVATION EQUAL TO THE TOP OF THE EFFLUENT PIPE.
8. INFLUENT PIPES MAY ENTER MANHOLES AT AN ELEVATION ABOVE THE CHANNELS, AS REQUIRED TO AVOID CONFLICT WITH LARGER PIPES IN THE MANHOLE.
9. THE MAXIMUM DEFLECTION ANGLE BETWEEN ANY INCOMING PIPE AND OUT GOING PIPE SHALL BE NO MORE THAN 90° FOR PIPES UP TO 24" IN DIAMETER. THE MAXIMUM DEFLECTION ANGLE FOR 27" TO 42" PIPES SHALL BE 75° AND FOR PIPES LARGER THAN 42" THE MAX. DEFLECTION ANGLE SHALL BE 60°.
10. FOR REINFORCING SEE STD. DWGS. 108 - 115.

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DIVISION OF ENGINEERING

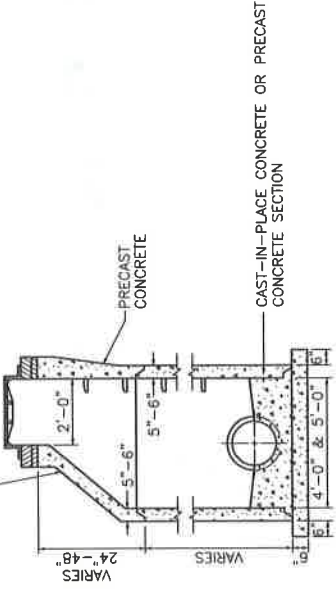
STORM SEWER  
MANHOLE TYPE "B" -  
NON-CIRCULAR WALLS

STANDARD DRAWING NO. 101  
APPROVAL: 9/22/17  
URBAN COUNTY ENGINEER DATE  
COMMISSIONER 9/22/17 DATE

TYPE "B" MANHOLE FOR DEFLECTION ANGLES BETWEEN 22° & 90°

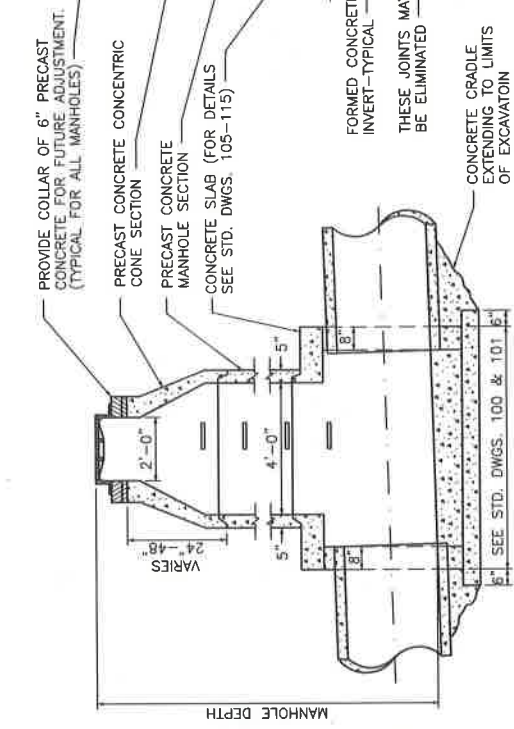


NOTE:  
VERTICAL WALLS AND FLAT SLAB  
MAY BE SUBSTITUTED FOR CONE  
SECTION OF MANHOLE.



CIRCULAR AND NON-CIRCULAR WALLS  
(TYPE "A" & TYPE "B")

STANDARD 4'-0" DIA. & 5'-0"  
CIRCULAR WALLS  
(TYPE "A")




TYPICAL LONGITUDINAL SECTION

TYPICAL TRANSVERSE SECTION


STANDARD CIRCULAR MANHOLE - 6'-0" DIAMETER & LARGER TYPE "A"  
AND NON-CIRCULAR WALL MANHOLE - ALL SIZES TYPE "B"

- NOTES:
1. BASE SECTION OF CIRCULAR MANHOLES MAY BE CAST-IN-PLACE CONCRETE OR CUSTOM PRECAST CONCRETE WITH OPENINGS FOR PIPE.
  2. 6" OVERHANG IN BOTTOM SLAB IS NOT REQUIRED IF PRECAST MANHOLES ARE USED.
  3. FLAT SLABS IN PAVED AREAS SHALL BE USED ONLY AS APPROVED BY ENGINEER.



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STANDARD DRAWING NO. 102

APPROVAL:  9/22/17

URBAN COUNTY ENGINEER

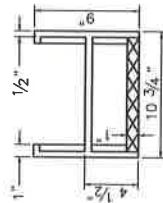
COMMISSIONER

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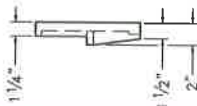
DIVISION OF ENGINEERING

STORM SEWER  
MANHOLE DETAILS

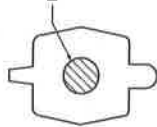




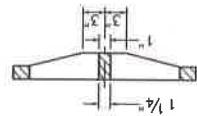
STEP TYPE NO. 1



STEP TYPE NO. 2



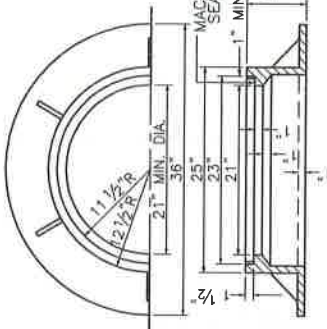
SECTION B-B



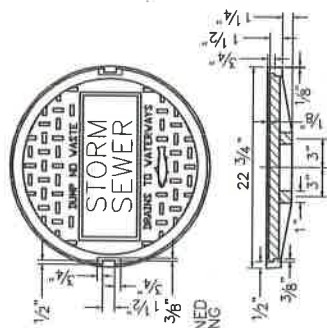
SECTION



GRATING COVER



FRAME



SOLID COVER

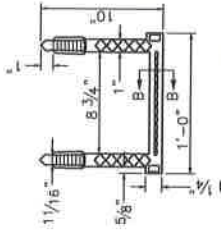
NOTES:

1. MINIMUM WEIGHT FOR THE 7" FRAME SHALL BE 185 LBS.
2. MINIMUM WEIGHT FOR THE SOLID COVER SHALL BE 120 LBS.
3. CASTINGS TO MEET ASTM A-48 CLASS 35.

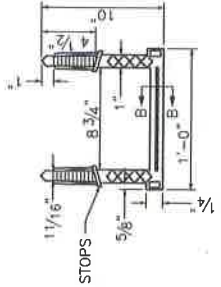
MANHOLE FRAME AND COVERS

NOTES:

1. STEPS SHALL BE POLYPROPYLENE PLASTIC COATED STEEL ROD OR OF A TYPE AND SIZE APPROVED BY THE ENGINEER.
2. STEPS SHALL BE SPACED 12" O.C. VERTICALLY SO AS TO FORM A CONTINUOUS LADDER.
3. STEPS SHALL BE REQUIRED IN MANHOLES WHEN THE STRUCTURE IS 4 FEET AND GREATER IN DEPTH. (MEASURE FROM FLOWLINE OF LOWEST PIPE TO TOP OF STRUCTURE.)
4. THE TREADS OF ALL STEPS SHALL HAVE ANTI-SKID PROPERTIES FOR HAND AND FOOT GRIPS.
5. MANHOLE STEPS SHALL BE INSTALLED IN A VERTICAL LINE AND SHALL COMPLY WITH OSHA STANDARDS IN ALL RESPECTS.
6. FOR CAST-IN-PLACE OR PRECAST CIRCULAR AND NON-CIRCULAR MANHOLES.
7. FIRST STEP SHALL BE 12" - 18" FROM TOP OF PRECAST CONE SECTION, AND SHALL BE VERTICALLY LOCATED TO MAXIMIZE THE DISTANCE OF ANY STEP FROM THE JOINT OF A MANHOLE SECTION.



STEP TYPE NO. 3



STEP TYPE NO. 4

MANHOLE STEPS

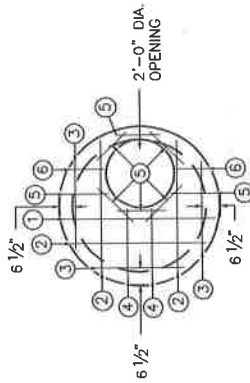
1. STEPS SHALL BE POLYPROPYLENE PLASTIC COATED STEEL ROD OR OF A TYPE AND SIZE APPROVED BY THE ENGINEER.
2. STEPS SHALL BE SPACED 12" O.C. VERTICALLY SO AS TO FORM A CONTINUOUS LADDER.
3. STEPS SHALL BE REQUIRED IN MANHOLES WHEN THE STRUCTURE IS 4 FEET AND GREATER IN DEPTH. (MEASURE FROM FLOWLINE OF LOWEST PIPE TO TOP OF STRUCTURE.)
4. THE TREADS OF ALL STEPS SHALL HAVE ANTI-SKID PROPERTIES FOR HAND AND FOOT GRIPS.
5. MANHOLE STEPS SHALL BE INSTALLED IN A VERTICAL LINE AND SHALL COMPLY WITH OSHA STANDARDS IN ALL RESPECTS.
6. FOR CAST-IN-PLACE OR PRECAST CIRCULAR AND NON-CIRCULAR MANHOLES.
7. FIRST STEP SHALL BE 12" - 18" FROM TOP OF PRECAST CONE SECTION, AND SHALL BE VERTICALLY LOCATED TO MAXIMIZE THE DISTANCE OF ANY STEP FROM THE JOINT OF A MANHOLE SECTION.



DIVISION OF ENGINEERING

MANHOLE FRAMES,  
COVERS, & STEPS

STANDARD DRAWING NO.	103
APPROVAL	9/22/17
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	DATE



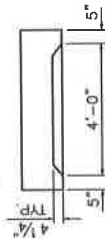
MARK NO.	SIZE	LENGTH	TYPE
1	4	4'-5"	STR.
2	3	4'-0"	"
3	3	2'-8"	"
4	2	2'-0"	"
5	8	1'-6"	"
6	2	1'-0"	"

4'-0" DIA.

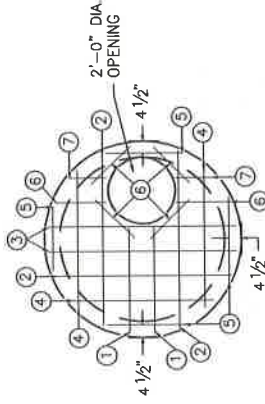
SHALLOW MANHOLES

NOTES:

- FOR PIPE SIZES 15" TO 24".
- 9" O.C. SPACING EACH WAY.
- 8" THICK SLAB.
- 4'-10" O.D.
- 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.
- CIRCULAR REBAR MAY BE USED, OR MARK 5 BARS AS SHOWN.



SIDE VIEW



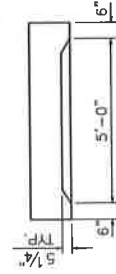
MARK NO.	SIZE	LENGTH	TYPE
1	2	3'-2"	STR.
2	3	5'-3"	"
3	2	5'-8"	"
4	3	4'-2"	"
5	4	2'-2"	"
6	6	1'-6"	"
7	2	1'-0"	"

5'-0" DIA.

SHALLOW MANHOLES

NOTES:

- FOR PIPE SIZES 21" TO 33".
- 9" O.C. SPACING EACH WAY.
- 8" THICK SLAB.
- 6'-0" O.D.
- 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.
- CIRCULAR REBAR MAY BE USED, OR MARK 6 BARS AS SHOWN.



SIDE VIEW

NOTE:  
SLAB OUTER DIAMETER TO VARY WITH MANHOLE WALL THICKNESS, TO COMPLETELY COVER MANHOLE WALLS.



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STORM SEWER  
MANHOLE CIRCULAR SLABS  
4'-0" & 5'-0" DIAMETER

STANDARD DRAWING NO. 104

APPROVAL

URBAN COUNTY ENGINEER

COMMISSIONER

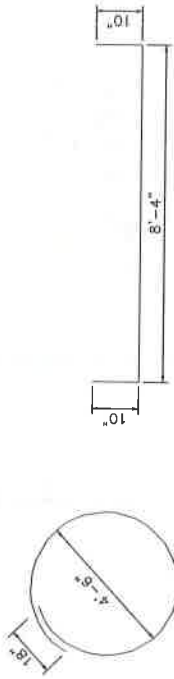
9/22/17

DATE

9/22/17

DATE

# SPECIAL BAR BENDS

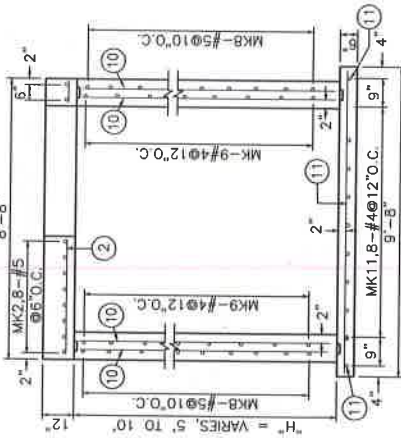
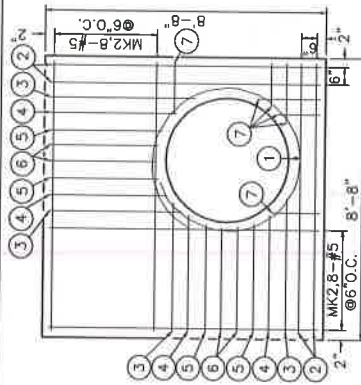


TYPE C

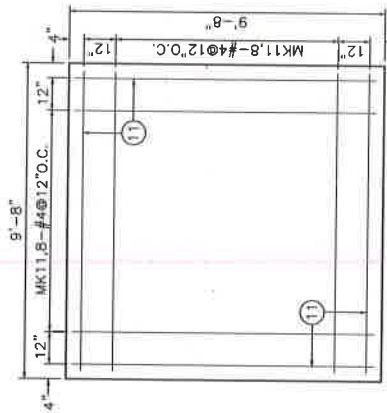
MARK NO.	SIZE	LENGTH	TYPE
1	6	15'-10"	A
2	20	5	8'-4" STR.
3	4	5	4'-3" "
4	4	5	3'-9" "
5	4	5	3'-7" "
6	4	5	3'-6" "
7	6	5	1'-2" "

TYPE A

## TOP SLAB 4'-0" OPENING



## VERT. SECTION



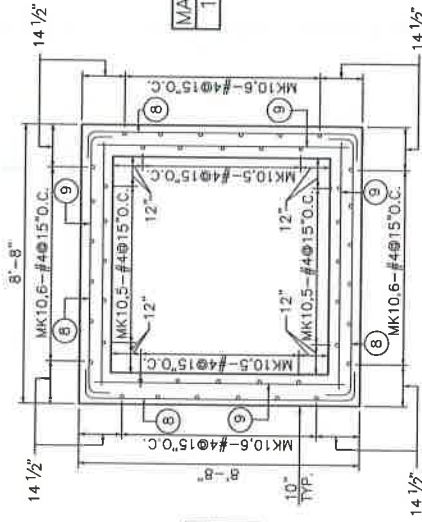
## BOTTOM SLAB

MARK NO.	SIZE	LENGTH	TYPE
10	44	4	4 DIM. "H"-2" STR.

MARK NO.	SIZE	LENGTH	TYPE
8	*1	5	10'-0" C
9	*2	4	8'-4" STR.

\*1: 4 X (WALL HEIGHT (INCH)/10)  
 \*2: 4 X (WALL HEIGHT (INCH)/12)  
 (ROUNDED UP TO THE NEXT WHOLE NUMBER)

## HORIZ. SECTION



### NOTES:

1. PROVIDE 2" x 4" KEY FOR ALL CONSTRUCTION JOINTS WHEN MANHOLE IS CAST IN PLACE.
2. 2" MIN. STEEL REINFORCEMENT COVER ALL FACES.
3. THIS MANHOLE IS INTENDED FOR PIPE AS INDICATED ON STD. DWG. 101, FOR MANHOLE STEPS AND OTHER DETAILS NOT SHOWN ON THIS SHEET, SEE STD. DWGS. 102 & 103.
4. DEPTHS INDICATED IN TITLE ARE MEASURED FROM SURFACE TO M.H. INVERT.

MARK NO.	SIZE	LENGTH	TYPE
11	20	4	9'-4" STR.

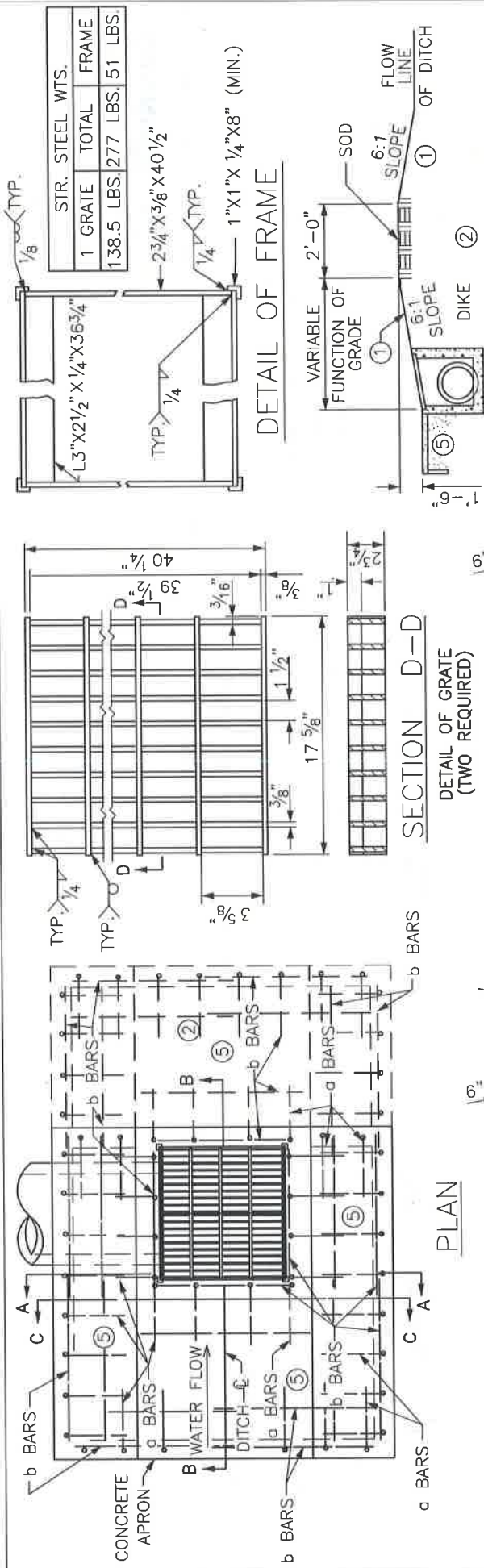


**LEXINGTON**

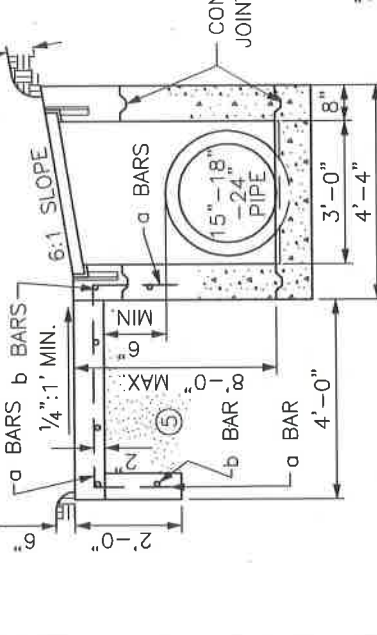
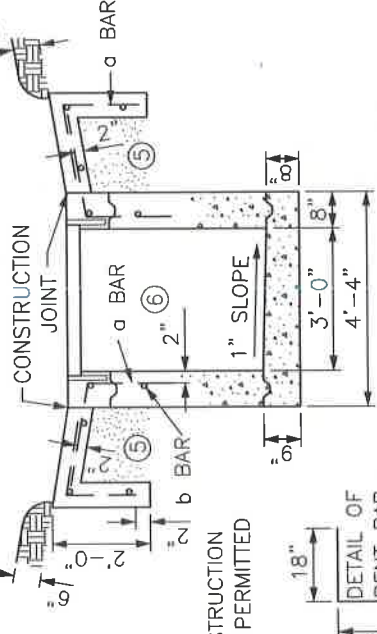
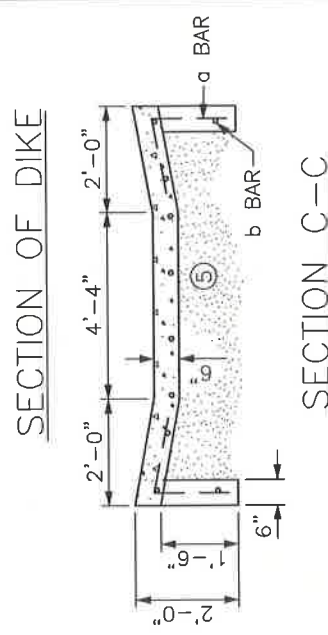
DIVISION OF ENGINEERING

REINFORCEMENT DETAIL  
 7' NON-CIRCULAR M.H.  
 10' TO 20' DEPTH,  
 10" WALLS, 12" SLAB

STANDARD DRAWING NO.	115
APPROVAL	9/13/17
URBAN COUNTY ENGINEER	9/13/17
COMMISSIONER	DATE



STR. STEEL WTS.	
1 GRATE	TOTAL FRAME
138.5 LBS.	277 LBS.
51 LBS.	



**LEXINGTON**

DIVISION OF ENGINEERING

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SURFACE INLET TYPE "A"

---

STANDARD DRAWING NO.	120
APPROVAL:	DATE: 9/23/17
URBAN COUNTY ENGINEER:	DATE: 9/23/17
COMMISSIONER:	DATE:

**APPROX. QUANTITIES**

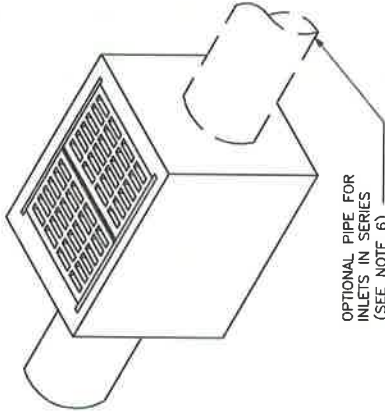
TYPE	CONCRETE	REINF. STEEL
SAG	3'-9" (3) BOX	282 LBS.
GRADE	4.4 CU. YD. (4)	192 LBS. (4)

**BILL OF REINFORCEMENT**

BAR	NO.	SIZE	LENGTH	APPROX. SPACING
a	40 OR 56	#5	3'-0"	12" C TO C
b	25 OR 40	#4	4'-0"	AS SHOWN

1. 6 : 1 Slopes are with reference to ditch grade.
2. When a box inlet is placed in a sag, omit the earth dike and longitudinal slope of the grate, and provide a concrete apron on each side of the inlet.
3. Rate of increase or decrease 0.36 cu. yd. per foot in height.
4. Deduct approximately 0.1 cu. yd. of concrete per pipe.
5. Compact this volume with D.G.A. base or equivalent.
6. Steps are required for depths greater than 4' refer to Std. Dwg. 103.

ISOMETRIC VIEW

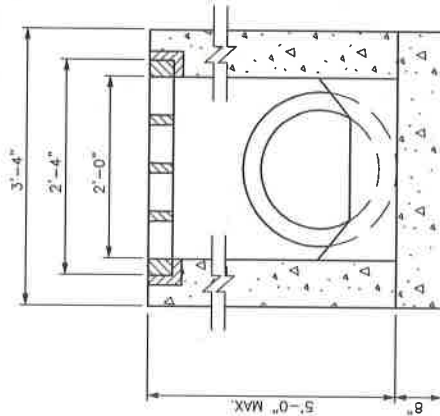
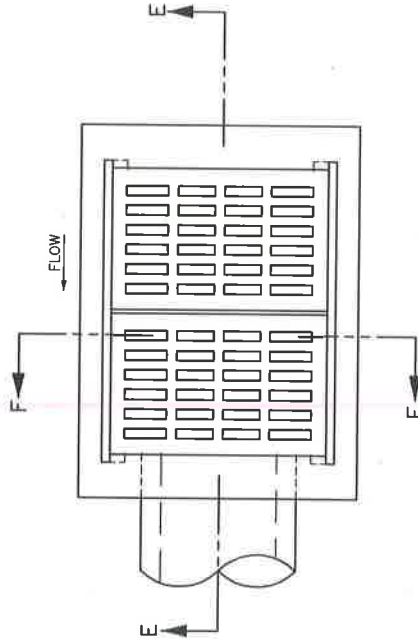


OPTIONAL PIPE FOR INLETS IN SERIES (SEE NOTE 6)

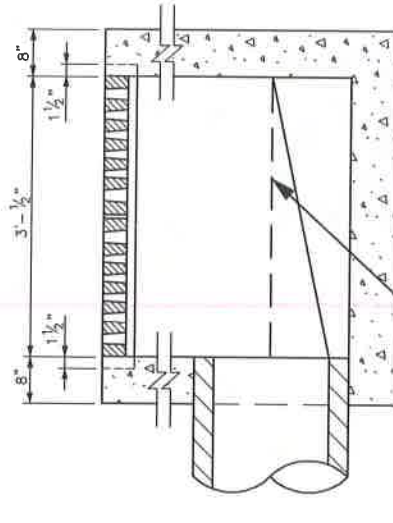
NOTES:

1. NO. 5 STEEL SHALL BE USED THROUGHOUT ON 12" CENTERS.
2. ALL STEEL SHALL HAVE A 2" MINIMUM CLEARANCE TO ANY CONCRETE FACE.
3. NO STEEL IS REQUIRED IN THE BOTTOM SLAB.
4. ALL VERTICAL STEEL SHALL EXTEND 4" INTO BOTTOM SLAB.
5. FOR USE IN PAVED AREAS ONLY.
6. PROVIDE MINIMUM 0.1% SLOPE THROUGH STRUCTURE FOR PIPES IN SERIES. CARRY THROUGH THROUGH. ONLY STRAIGHT THROUGH CONNECTIONS ARE ALLOWED.

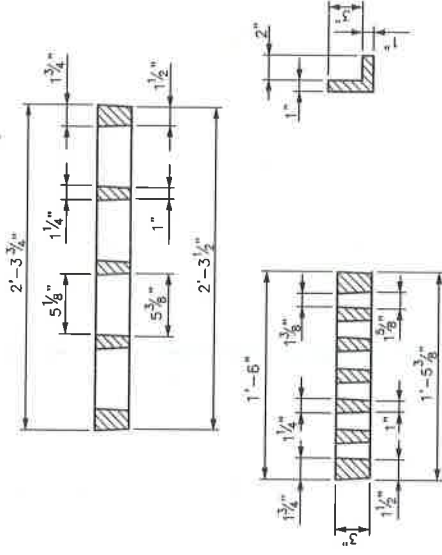
PLAN VIEW



SECTION F-F



SECTION E-E



GRATE DETAILS



DIVISION OF ENGINEERING

SURFACE INLET TYPE "B"

STANDARD DRAWING NO.	121
APPROVAL:	9/20/17
URBAN COUNTY ENGINEER:	9/20/17
COMMISSIONER:	DATE

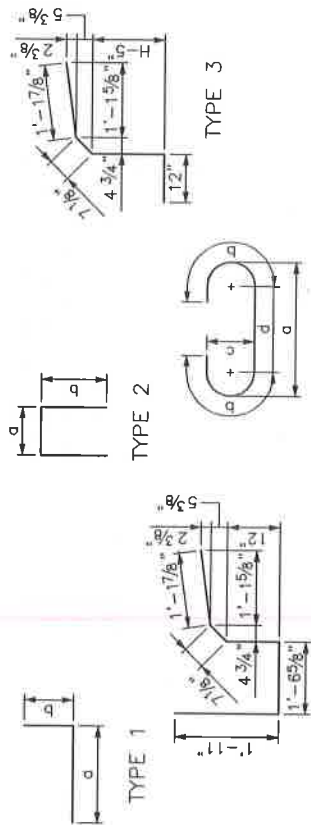


## BILL OF REINFORCEMENT

MARK	TYPE	SIZE	LENGTH		LOCATION	a		b		c		d	
			FT.	IN.		FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.
A1	STR	#5	10	4	FOOTING								
A2	1	#5	10	H+(1'-10")	CHAMBER WALLS	1	0	H+10"					
A3	1	#5	2	H-4"	CHAMBER WALLS	1	0	H-(1'-4")					
A4	3	#5	4	H+(2'-4")	CHAMBER FRONT WALL								
A5	STR	#5	15*	3	CHAMBER WALLS								
A6	STR	#5	2	2	CHAMBER ABOVE THROAT								
A7	1	#5	19*	2	CORNERS	1	4	1	4				
A8	1	#5	4	2	CHAMBER WALLS & TOP	1	4	0	9				
A9	STR	#5	8	10	TOP SLAB & APRON								
A10	STR	#5	4	7	THROAT								
A11	2	#5	2	4	THROAT	2	1 5/8	1	4				
A12	4	#5	14	6	THROAT & APRON								
A13	1	#5	14	3	THROAT	1	11	1	6				
A14	5	#3	14	1	TOP SLAB	0	11 1/2	0	7	0	3	0	8 1/2
A15	2	#5	1	4	END THROAT	1	6	1	4				

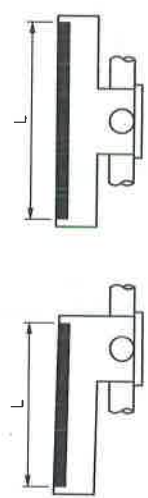
\* NO. OF BARS REQUIRED FOR H=4'-0"  
ADD OR DEDUCT 4-A5 & 4-A7 FOR EACH 1'-0" INCREASE OR DECREASE IN H.

## BAR TYPES



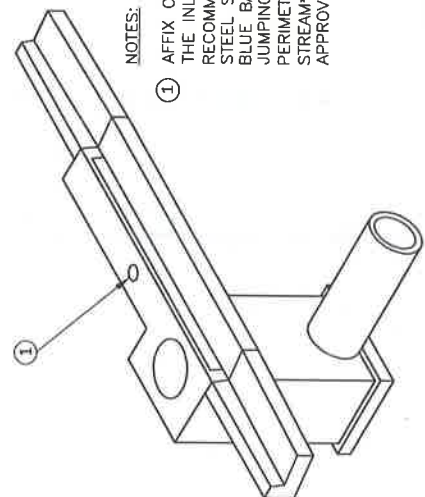
## NOTES:

- CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI. STEEL REINFORCEMENT SHALL BE ASTM A-615, GRADE 60. ALL EXPOSED EDGES SHALL BE BEVELED 3/4" UNLESS OTHERWISE SHOWN.
- THIS DRAWING DEPICTS A CURB BOX INLET IN A GRADE SITUATION. FOR CURB BOX INLET IN SAG SITUATION, DETAILS SHALL BE MODIFIED AS INDICATED IN DETAIL 'A'.
- THE STANDARD OPENING LENGTH IS 10'-0" AS DETAILED HERE. THIS LENGTH MAY BE INCREASED OR DECREASED BASED ON HYDRAULIC ANALYSIS AND APPROVAL BY THE LEXINGTON-FAYETTE COUNTY URBAN GOVERNMENT ENGINEER. MODIFICATION TO THE OPENING LENGTH WILL REQUIRE MODIFICATION OF LENGTH OF BARS A9 & A10 AND INCREASE OR DECREASE IN NUMBER OF BARS A12, A13 & A14 MAINTAINING THE SAME MAXIMUM SPACING SHOWN ON THIS DRAWING.
- MAXIMUM "H" FOR APPLICATION OF THIS DRAWING SHALL BE 10 FEET.
- FIELD BEND OR CUT BARS A2, A4, AND A5 AS NECESSARY WHERE PIPES PENETRATE CHAMBER WALLS.
- FOR CURB BOX INLET IN CURVE WITH CURB RADIUS OF LESS THAN 25', LONGITUDINAL BARS A9, A10 SHALL BE SHOP FABRICATED RADially.



## DETAIL 'A'

APPLICABLE SITUATIONS



## NOTES:

- AFFIX CIRCULAR MARKER TO THE TOP OF THE INLET BOX, PER MANUFACTURER'S RECOMMENDATIONS: 4" DIAMETER STAINLESS STEEL STAMPED DISK WITH BAKED ENAMEL BLUE BACKGROUND. LOGO OF FISH JUMPING OVER WAVES WITH TEXT ON PERIMETER "STORM DRAIN \* DRAINS TO STREAM\*" ALMATEK INDUSTRIES OR APPROVED EQUAL.

## ISOMETRIC VIEW

WORK THIS DWG. WITH STD. DWG. 122-1

# LEXINGTON

DIVISION OF ENGINEERING

CURB BOX INLET TYPE "A"

4'x4' BOX

15'-18" PIPES

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STANDARD DRAWING NO. 122-2

APPROVAL: 9/22/17

URBAN COUNTY ENGINEER: 9/22/17

COMMISSIONER: DATE



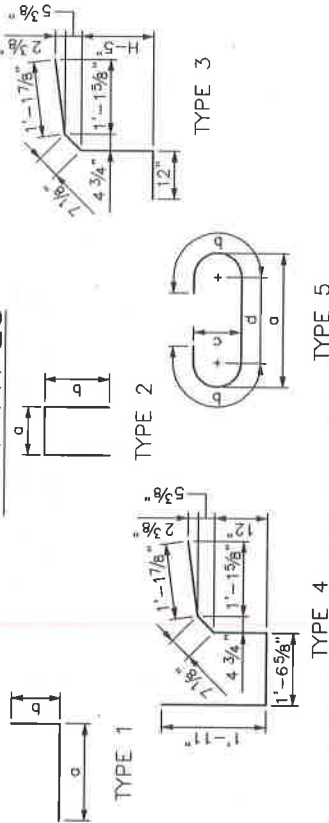


# BILL OF REINFORCEMENT

MARK	TYPE	SIZE	LENGTH		LOCATION	a	b	c	d
			FT.	IN.					
B1	STR	#5	13	5	FOOTING				
B2	1	#5	14	H+(1'-10")	CHAMBER WALLS	1	0	H+10"	
B3	1	#5	3	H-4"	CHAMBER WALLS	1	0	H-(1'-4")	
B4	3	#5	5	H+(2'-4")	CHAMBER FRONT WALL				
B5	STR	#5	15*	4	CHAMBER WALLS				
B6	STR	#5	2	3	CHAMBER ABOVE THROAT				
B7	1	#5	25*	2	CORNERS	1	4	1	4
B8	1	#5	2	2	CHAMBER WALLS & TOP	1	4	1	2
B9	STR	#5	11	10	TOP SLAB & APRON				
B10	STR	#5	5	6	THROAT				
B11	2	#5	3	4	THROAT	2	1 5/8	1	4
B12	4	#5	12	6	THROAT & APRON				
B13	1	#5	12	3	THROAT	1	11	1	6
B14	5	#5	15	2	TOP SLAB	1	5	0	7
B15	2	#5	1	4	END THROAT	1	6	1	4

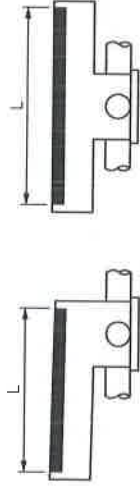
\* NO. OF BARS REQUIRED FOR H=4'-0"  
ADD OR DEDUCT 4-B5 & 4-B7 FOR EACH 1'-0" INCREASE OR DECREASE IN H.

## BAR TYPES



### NOTES:

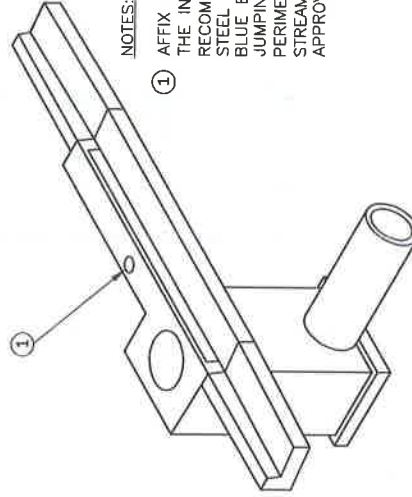
1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI. STEEL REINFORCEMENT SHALL BE ASTM A-615, GRADE 60. ALL EXPOSED EDGES SHALL BE BEVELED 3/4" UNLESS OTHERWISE SHOWN.
2. THIS DRAWING DEPICTS A CURB BOX INLET IN A GRADE SITUATION. FOR CURB BOX INLET IN SAG SITUATION, DETAILS SHALL BE MODIFIED AS INDICATED IN DETAIL 'A'.
3. THE STANDARD OPENING LENGTH IS 10'-0" AS DETAILED HERE. THIS LENGTH MAY BE INCREASED OR DECREASED BASED ON HYDRAULIC ANALYSIS AND APPROVAL BY THE LEXINGTON-FAYETTE COUNTY URBAN GOVERNMENT ENGINEER. MODIFICATION TO THE OPENING LENGTH WILL REQUIRE MODIFICATION OF LENGTH OF BARS B9 & B10 AND INCREASE OR DECREASE IN NUMBER OF BARS B12, B13 & B14 MAINTAINING THE SAME MAXIMUM SPACING SHOWN ON THIS DRAWING.
4. MAXIMUM "H" FOR APPLICATION OF THIS DRAWING SHALL BE 10 FEET.
5. FIELD BEND OR CUT BARS B2, B4, AND B5 AS NECESSARY WHERE PIPES PENETRATE CHAMBER WALLS.
6. FOR CURB BOX INLET IN CURVE WITH CURB RADIUS OF LESS THAN 25', LONGITUDINAL BARS B9, B10 SHALL BE SHOP FABRICATED RADIALLY.
7. 30" PIPE MAY BE APPROVED IF BOTH PIPES ARE INSTALLED ON THE SAME LINE.



GRADE

SAG

DETAIL 'A'  
APPLICABLE SITUATIONS



NOTES:

1. AFFIX CIRCULAR MARKER TO THE TOP OF THE INLET BOX, PER MANUFACTURER'S RECOMMENDATIONS: 4" DIAMETER STAINLESS STEEL STAMPED DISK WITH BAKED ENAMEL BLUE BACKGROUND, LOGO OF FISH JUMPING OVER WAVES WITH TEXT ON PERIMETER "STORM DRAIN \* DRAINS TO STREAM\*", ALMETEK INDUSTRIES OR APPROVED EQUAL.

WORK THIS DWG. WITH STD. DWG. 123-1

## ISOMETRIC VIEW

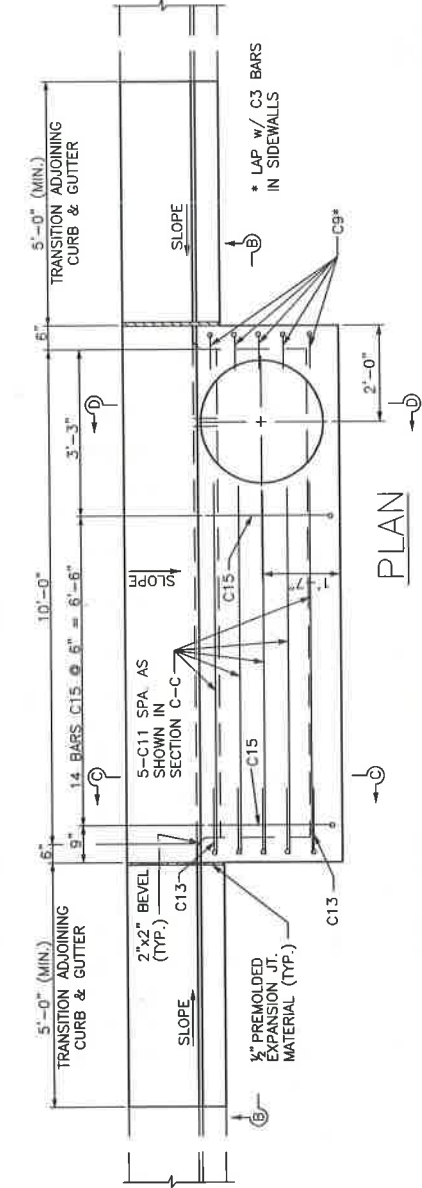


**LEXINGTON**

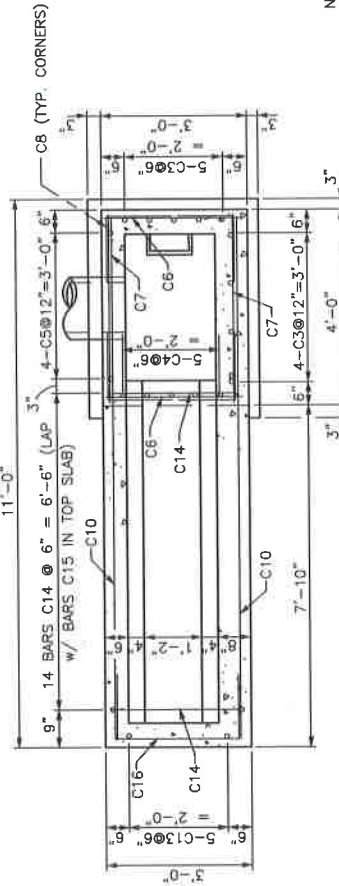
DIVISION OF ENGINEERING

CURB BOX INLET TYPE "B"  
5'X5' BOX  
15"-24" PIPES

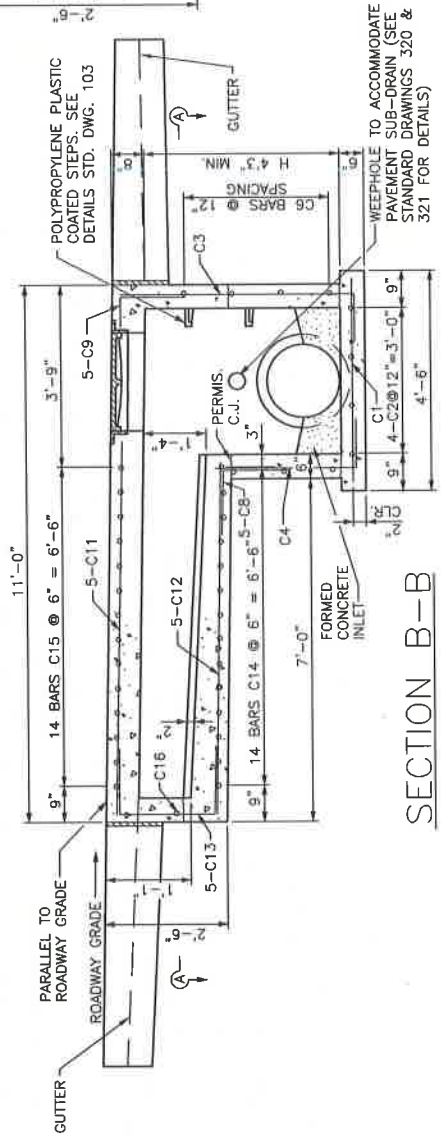
STANDARD DRAWING NO	123-2
APPROVAL	
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	9/27/17
	DATE



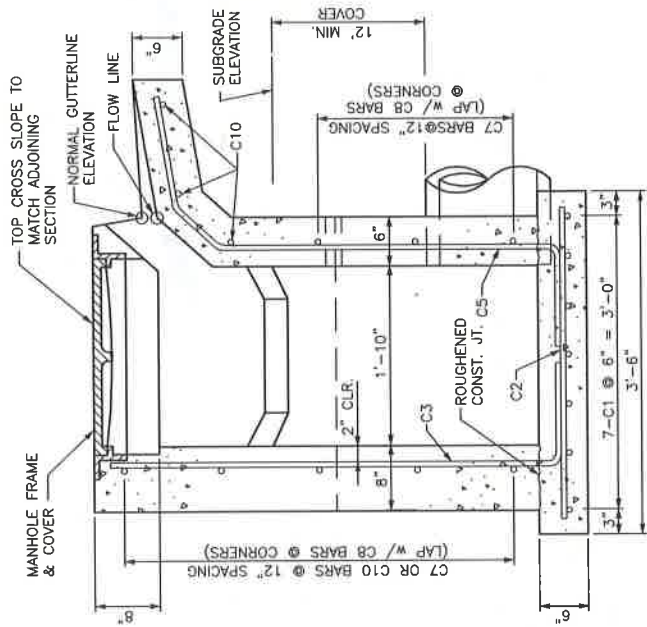
PLAN



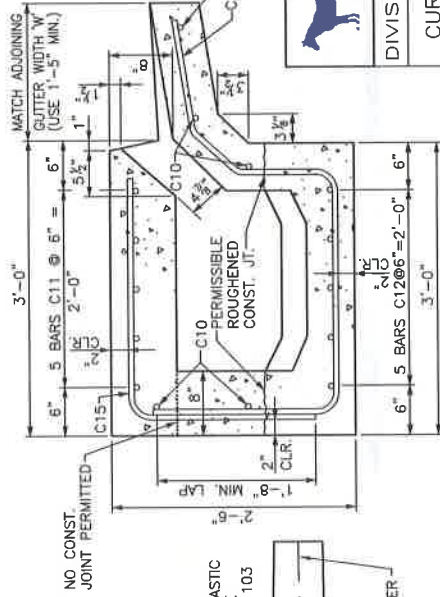
SECTION A-A



SECTION B-B



SECTION D-D



SECTION C-C



**LEXINGTON**

DIVISION OF ENGINEERING

CURB BOX INLET TYPE "C"  
4'X3' BOX  
SINGLE PIPE  
15" OR LESS

STANDARD DRAWING NO.	124-1
APPROVAL:	DATE: 9/22/17
URBAN COUNTY ENGINEER	COMMISSIONER

SEE STD. DWG. 124-2 FOR BILL OF REINFORCEMENT & ADDITIONAL DETAILS.

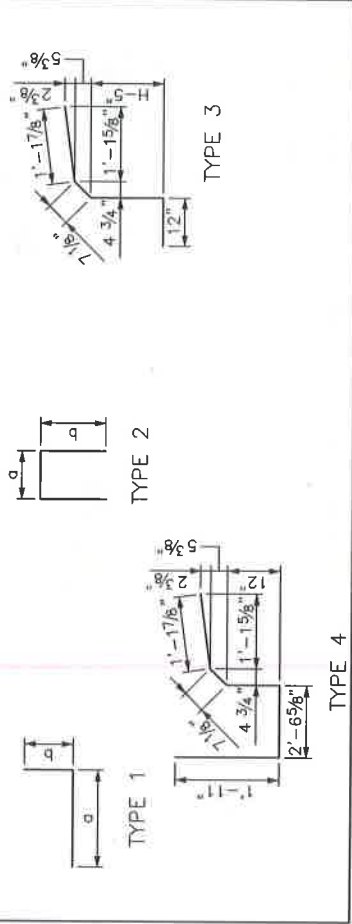
WEEPHOLE TO ACCOMMODATE PAVEMENT SUB-DRAIN (SEE STANDARD DRAWINGS 320 & 321 FOR DETAILS)

# BILL OF REINFORCEMENT

MARK	TYPE	SIZE	QTY	LENGTH		LOCATION			
				FT.	IN.	FT.	IN.	FT.	IN.
C1	STR	#5	7	4	2	FOOTING			
C2	STR	#5	4	3	2	FOOTING			
C3	1	#5	9	H+(1'-10")		CHAMBER WALLS			
C4	1	#5	5	H-4"		CHAMBER WALLS			
C5	3	#5	4	H+(2'-4")		CHAMBER WALLS			
C6	STR	#5	7*	2	8	CHAMBER WALLS			
C7	STR	#5	6*	3	8	CHAMBER WALLS			
C8	1	#5	19*	2	8	CORNERS			
C9	1	#5	5	2	1	CHAMBER WALLS & TOP			
C10	STR	#5	5	10	8	THROAT & APRON			
C11	STR	#5	5	7	7	TOP SLAB			
C12	STR	#5	5	7	2	THROAT			
C13	2	#5	5	4	8	END THROAT			
C14	4	#5	14	7	1	THROAT & APRON			
C15	1	#5	14	4	5	THROAT			
C16	2	#5	1	5	1	END THROAT			

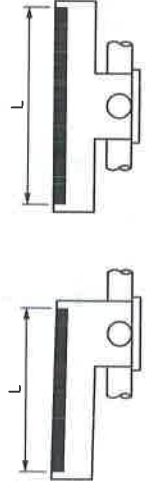
\* NO. OF BARS REQUIRED FOR H=4'-0"  
ADD OR DEDUCT 2-C6, 2-C7 & 4-C8 FOR EACH 1'-0" INCREASE OR DECREASE IN H.

## BAR TYPES



### NOTES:

1. CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI. STEEL REINFORCEMENT SHALL BE ASTM A-615, GRADE 60. ALL EXPOSED EDGES SHALL BE BEVELED 3/4" UNLESS OTHERWISE SHOWN.
2. THIS DRAWING DEPICTS A CURB BOX INLET IN A GRADE SITUATION. FOR CURB BOX INLET IN SAG SITUATION, DETAILS SHALL BE MODIFIED AS INDICATED IN DETAIL 'A'.
3. THE STANDARD OPENING LENGTH IS 10'-0" AS DETAILED HERE. THIS LENGTH MAY BE INCREASED OR DECREASED BASED ON HYDRAULIC ANALYSIS AND APPROVAL BY THE LEXINGTON FAYETTE URBAN COUNTY GOVERNMENT ENGINEER. MODIFICATION TO THE OPENING LENGTH WILL REQUIRE MODIFICATION OF LENGTH OF BARS C10, C11 & C12 AND INCREASE OR DECREASE IN NUMBER OF BARS C14 & C15 MAINTAINING THE SAME MAXIMUM SPACING SHOWN ON THIS DRAWING.
4. MAXIMUM "H" FOR APPLICATION OF THIS DRAWING SHALL BE 5 FEET.
5. FIELD BEND OR CUT BARS C3, C5, C6 & C7 AS NECESSARY WHERE PIPES PENETRATE CHAMBER WALLS.
6. FOR CURB BOX INLET IN CURVE WITH CURB RADIUS OF LESS THAN 25', LONGITUDINAL BARS C10, C11 & C12 SHALL BE SHOP FABRICATED RADIALLY.

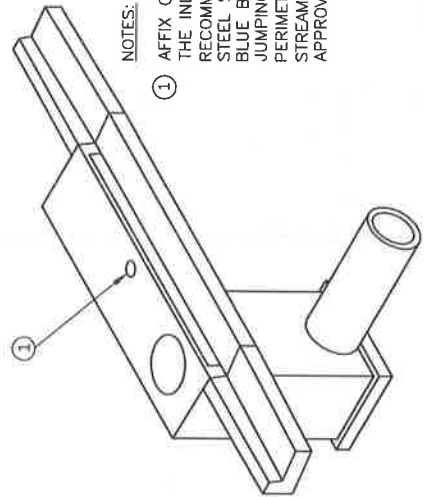


GRADE

SAG

## DETAIL 'A'

APPLICABLE SITUATIONS



### NOTES:

1. AFFIX CIRCULAR MARKER TO THE TOP OF THE INLET BOX, PER MANUFACTURER'S RECOMMENDATIONS: 4" DIAMETER STAINLESS STEEL STAMPED DISK WITH BAKED ENAMEL BLUE BACKGROUND. LOGO OF FISH JUMPING OVER WAVES WITH TEXT ON PERIMETER "STORM DRAIN \* DRAINS TO STREAM". ALMETEK INDUSTRIES OR APPROVED EQUAL.

## ISOMETRIC VIEW

WORK THIS DWG. WITH STD. DWG. 124-1

## LEXINGTON

DIVISION OF ENGINEERING

CURB BOX INLET TYPE "C"

4'X3' BOX

SINGLE PIPE

15" OR LESS

---

STANDARD DRAWING NO. 124-2

APPROVAL: 9/23/17

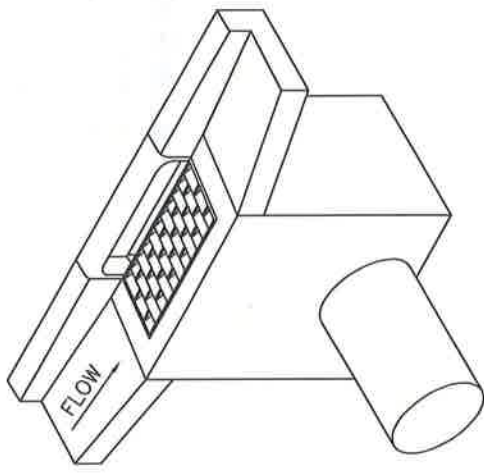
URBAN COUNTY ENGINEER DATE

COMMISSIONER 9/23/17

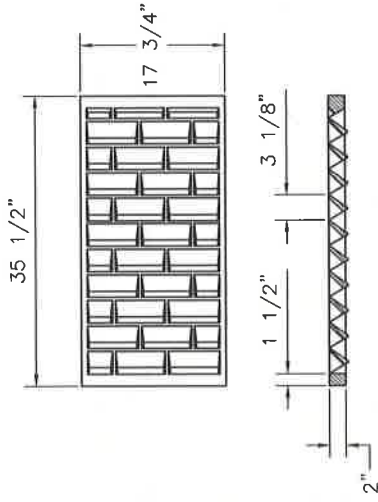
DATE

**NOTES:**

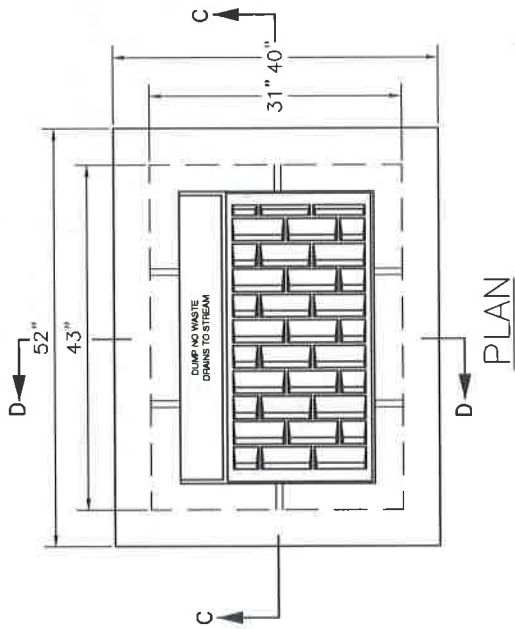
1. CURB BOX ADJUSTABLE 6" TO 9" TO MATCH TOP OF CURB.
2. NO. 5 STEEL SHALL BE USED THROUGHOUT ON 12" CENTERS. 2" CLEARANCE ON ALL EXTERIOR WALL BARS. EXTERIOR HORIZ. WALL BARS SHALL HAVE A 12" MIN. LAP AT CORNERS.
3. ALL EXPOSED FLATWORK SHALL HAVE A HAND FLOATED AND BROOMED FINISH.
4. NO STEEL IS REQUIRED IN BOTTOM SLAB.
5. ALL VERTICAL STEEL SHALL EXTEND 4" INTO BOTTOM SLAB. VERTICAL STEEL SHALL HAVE A 12" LAP INTO BOTTOM SLAB WITH 3" CLEARANCE FROM EXTERIOR BOTTOM.
6. SET BACK OF FRAME IN CONCRETE TO ANCHOR IN PLACE AFTER IT HAS BEEN ADJUSTED.
7. 18" MAX. PIPE DIAMETER.
8. EAST JORDAN IRON WORKS CATCH BASIN CURB INLET 7035 WITH TYPE M6 GRATE OR EQUIVALENT.
9. TOP OF CURB SECTION SHALL BE CAST WITH "DUMP NO WASTE DRAINS TO STREAM".



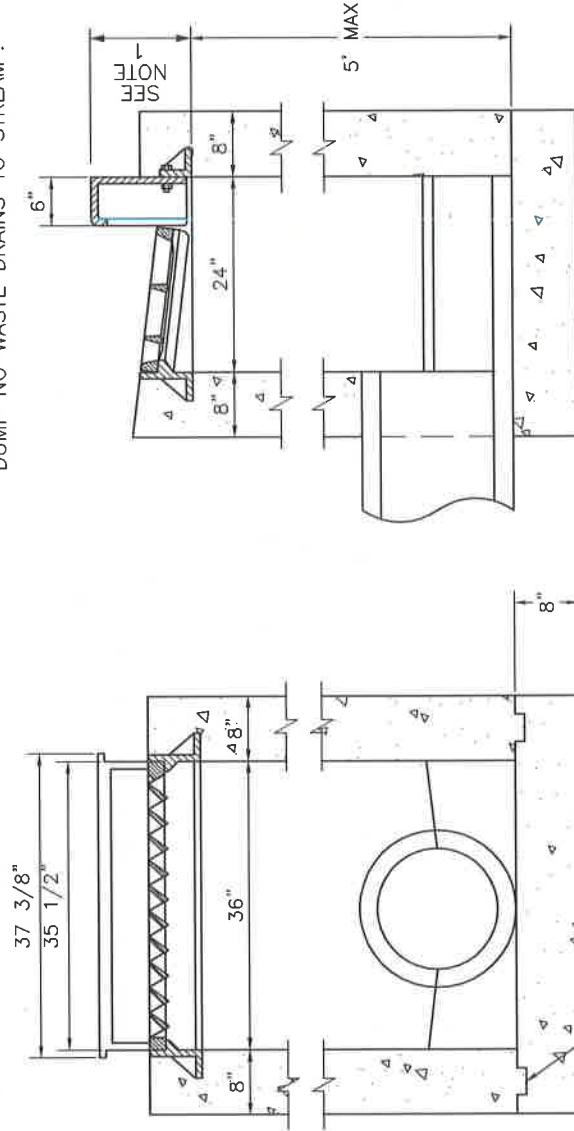
**ISOMETRIC VIEW**



**GRATE DETAIL**



**PLAN**



**SECTION C-C**

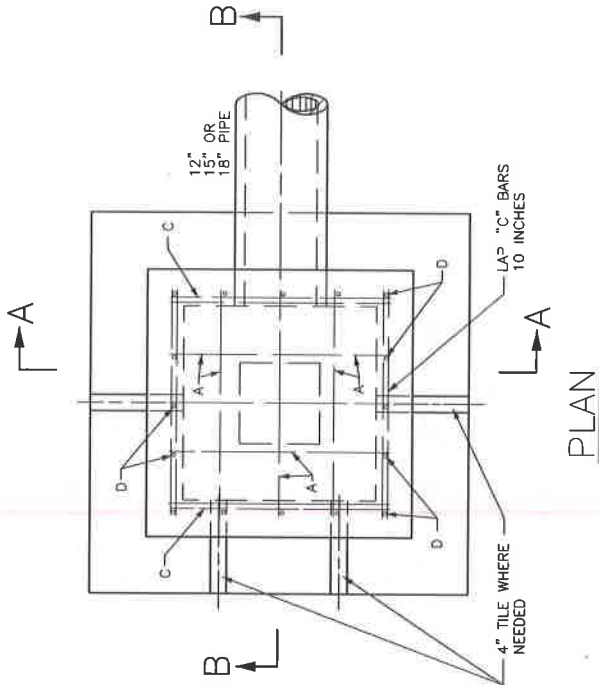
**SECTION D-D**



DIVISION OF ENGINEERING

CURB BOX INLET  
TYPE "D"

STANDARD DRAWING NO.	125
APPROVAL:	
URBAN COUNTY ENGINEER	9/25/17
DATE	9/25/17
COMMISSIONER	



### BILL OF REINFORCEMENT

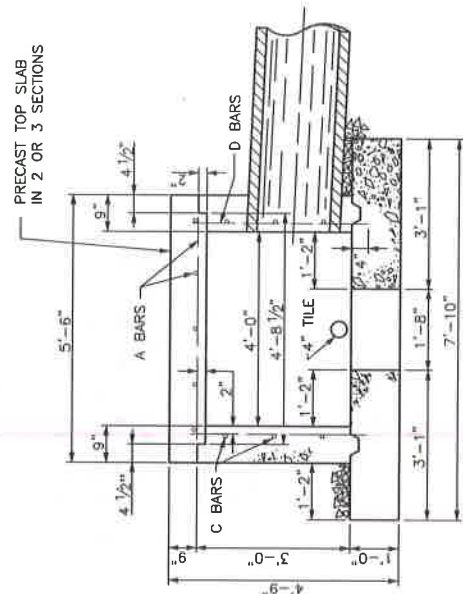
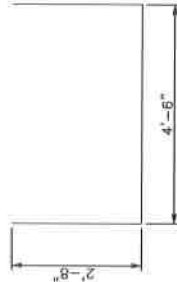
MARK	QUANTITY	SIZE	LENGTH	LOCATION	DESCRIPTION
A	10	1/2" Ø	4'-7"	TOP SLAB	STRAIGHT
C	6	"	9'-9"	WALL	BENT
D	16	"	3'-4"	"	STRAIGHT

STEEL REINFORCEMENT 105 LBS.  
 12" CLASS "A" CONCRETE 4.61 CU. YDS.  
 15" CLASS "A" CONCRETE 4.59 CU. YDS.  
 18" CLASS "A" CONCRETE 4.58 CU. YDS.

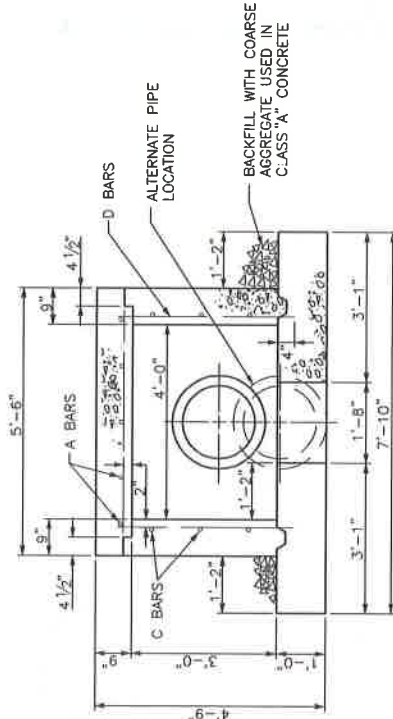
#### NOTES:

1. LOCATION OF OPENING MAY BE DETERMINED IN THE FIELD FOR A SIDE OR BOTTOM SPRING INLET.
2. TYPE "A" TO BE USED WHEN FILL OVER TOP IS 10' OR MORE.

#### DETAIL C-C-BAR



SECTION B-B



SECTION A-A



**LEXINGTON**

DIVISION OF ENGINEERING

SPRING BOX INLET  
 TYPE "A"

STANDARD DRAWING NO	126
APPROVAL	9/22/17
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	DATE

**NOTES:**

1. SPRING BOX INLET TYPE "B" MAY BE USED WHEN FILL OVER TOP IS LESS THAN 10'.  
 (1) 12", 15", OR 18" DIAMETER PIPE OUTLET (SEE PIPE SECTIONS FOR SIZE AND TYPE)
2. MORTAR AROUND PIPE TO PREVENT SEEPAGE.
3. STEEL REINFORCEMENT PLACED 6" ON CENTERS.

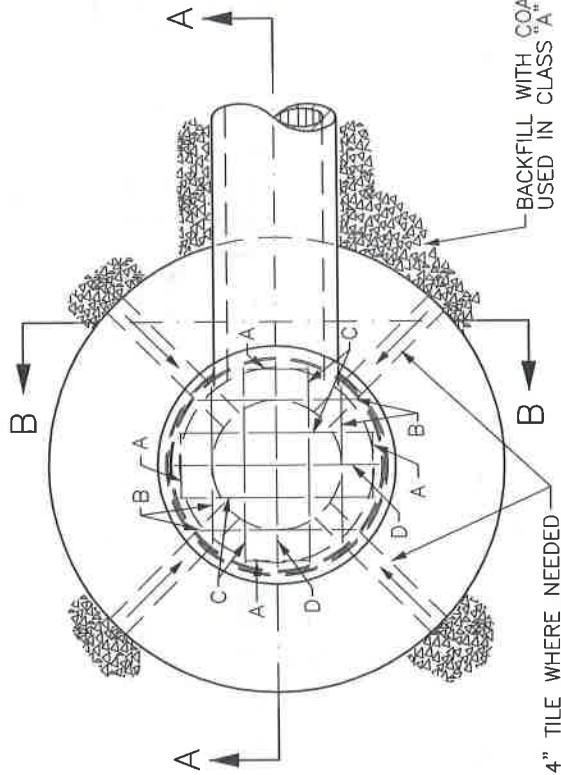
STEEL REINFORCEMENT 13 LBS.  
 CLASS "A" CONCRETE 1.54 CU. YDS.

**BILL OF REINFORCEMENT**

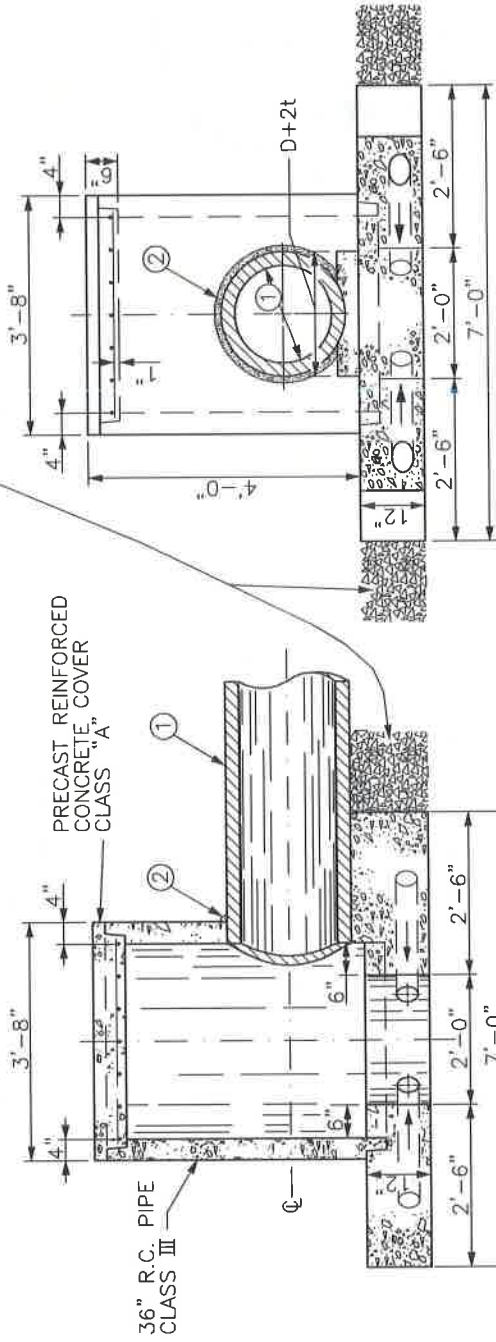
MARK	QUANTITY	SIZE	LENGTH
A	4	NO.3	1'-0"
B	4	"	2'-5"
C	4	"	3'-0"
D	2	"	3'-2"

MARK	LOCATION	DESCRIPTION
A	TOP	STRAIGHT
B	"	"
C	"	"
D	"	"



**PLAN**



**SECTION A-A**

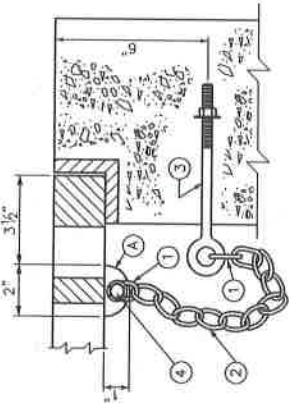
**SECTION B-B**



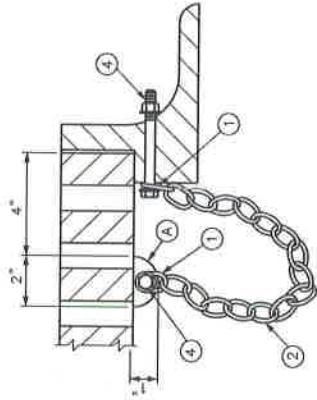
DIVISION OF ENGINEERING

SPRING BOX INLET  
 TYPE "B"

STANDARD DRAWING NO.	127
APPROVAL:	
URBAN COUNTY ENGINEER:	
COMMISSIONER:	
DATE:	9/25/17
DATE:	9/25/17



GRATE CONNECTED TO WALL

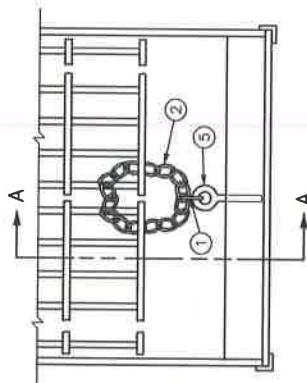


GRATE CONNECTED TO FRAME

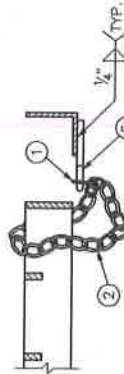
TYPICAL ILLUSTRATIONS FOR CASTINGS

NOTES:

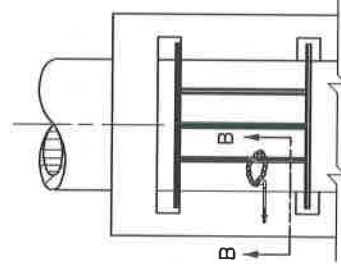
1. CHAIN SHACKLE, OR COLD SHUT OF AN APPROVED TYPE.
2. 3/8" PROOF COIL CHAIN OF SUFFICIENT LENGTH TO ALLOW REMOVAL AND DISPLACEMENT OF GRATE, 18" MIN.
3. 3/8" x 6" EYE BOLT, NUT, AND WASHER.
4. 3/8" HEX HEAD CAP SCREW (GRADE 2), NUT AND WASHERS. LENGTH DETERMINED BY THICKNESS OF FRAME OR GRATE.
5. 7/16" DIA. HOLE FOR CAP SCREW. BATTER THREADS ON CAP SCREW TO PREVENT REMOVAL OF NUT.
6. 3/8" EYE BOLT (LENGTH DETERMINED BY THE FRAME DIMENSION).
7. ALL EYE BOLTS SHALL HAVE A CONTINUOUS OR SOLID EYE.
8. ALL HARDWARE SHALL BE GALVANIZED AND OF COMMERCIAL QUALITY AND SHALL BE APPROVED BY THE ENGINEER.
9. THE COST OF THE COMPLETE SECURITY DEVICE, INSTALLED, SHALL BE INCIDENTAL TO THE COST OF THE STRUCTURE.
10. THE DESIGNS SHOWN ARE ACCEPTABLE; HOWEVER ARE SUBJECT TO CHANGE IF APPROVED IN WRITING BY THE ENGINEER.



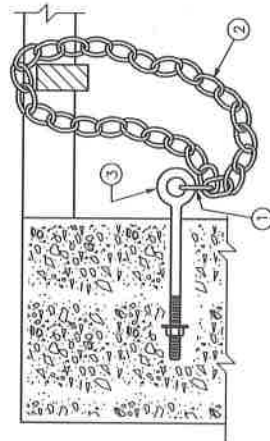
PLAN VIEW



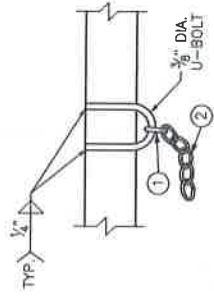
SECTION A-A  
GRATE CONNECTED TO FRAME



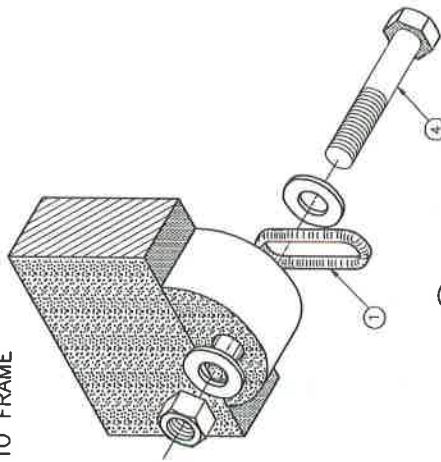
PLAN VIEW



SECTION B-B  
GRATE CONNECTED TO WALL



ALTERNATE FOR  
STRUCTURAL STEEL  
MEMBERS



(A)  
LUG ON CENTER CROSS MEMBER  
AND BOLT ASSEMBLY  
(AXONOMETRIC VIEW)

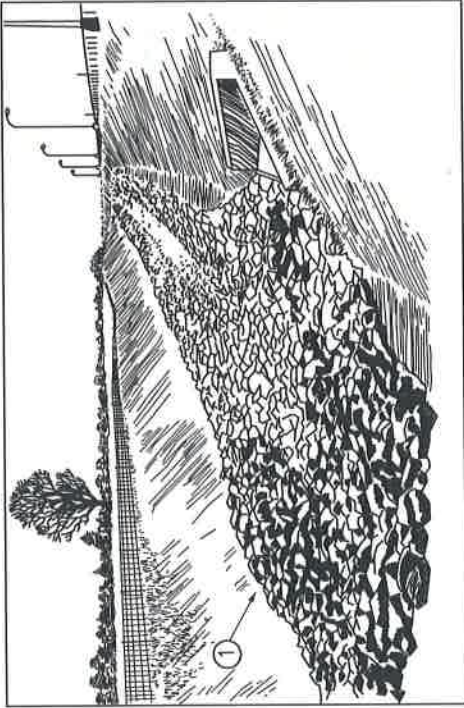
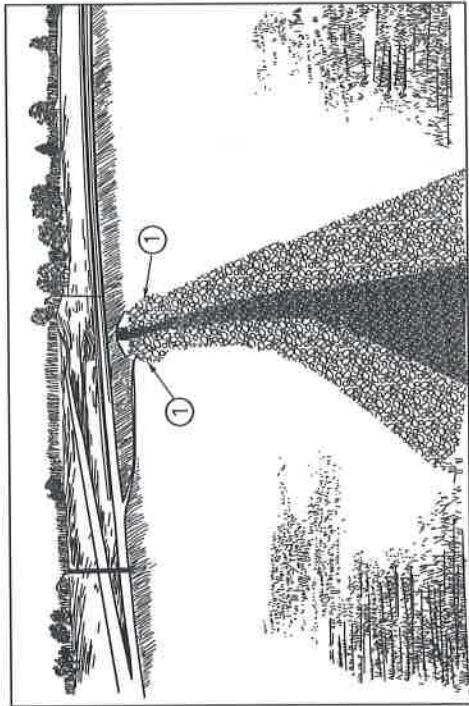


DIVISION OF ENGINEERING

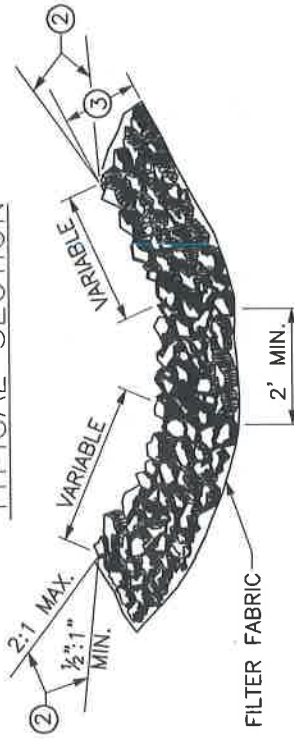
SECURITY DEVICES FOR  
FRAMES AND GRATES

STANDARD DRAWING NO.	128
APPROVAL	9/23/17
URBAN COUNTY ENGINEER	9/23/17
COMMISSIONER	DATE

TYPICAL ILLUSTRATIONS FOR STRUCTURAL STEEL UNITS



TYPICAL SECTION



SEE SHEET 130-2 FOR CHANNEL LINING MATERIAL NOTES

**LEXINGTON**  
  
 DIVISION OF ENGINEERING

AGGREGATE CHANNEL LINING

STANDARD DRAWING NO. 130-1  
 APPROVAL: 9/22/17  
 URBAN COUNTY ENGINEER: [Signature]  
 COMMISSIONER: [Signature] DATE: 9/22/17

- NOTES:
- AGGREGATE CHANNEL LINING WILL NOT BE REQUIRED IN THE BOTTOM OF THE DITCH WHERE SOLID ROCK IS ENCOUNTERED. SIDE SLOPES SHALL BE LINED.
  - AGGREGATE ESTIMATED ON THE BASIS OF 0.50 TON/SQ. YD. PER FOOT OF DEPTH.
- SHEET NOTES: ○
- WIDEN CHANNEL LINING AT STRUCTURES TO PREVENT EROSION.
  - ALTERNATE LOCATION OF GROUNDLINE.
  - MINIMUM DEPTH OF CHANNEL LINING SHALL BE 24". LESSER DEPTHS SHALL HAVE APPROVAL FROM THE ENGINEER. STONE SHALL BE WELL GRADED SO THAT OPENINGS BETWEEN LARGER STONES ARE FILLED WITH SMALLER STONES.



**NOTES:**

1. BEDDING MATERIAL SHOULD NOT BE SMALLER THAN KDOT NO. 2 COARSE AGGREGATE STONE. THE REQUIREMENTS FOR KDOT NO. 2 COARSE AGGREGATE STONE ARE AS FOLLOWS:

SIEVE SIZE (INCHES)	PERCENT PASSING
3 1/2	100
2 1/2	70-85
1 1/2	0-10

2. BEDDING SHOULD BE AT LEAST THREE INCHES AND SPREAD UNIFORMLY.

3. PLASTIC FILTER FABRIC MAY BE USED IN PLACE OF OR IN CONJUNCTION WITH GRAVEL FILTERS. THE FOLLOWING PARTICLE SIZE RELATIONSHIPS MUST EXIST:

A. FOR FILTER FABRIC ADJACENT TO GRANULAR MATERIALS CONTAINING 50 PERCENT OR LESS (BY WEIGHT) OF FINE PARTICLES (LESS THAN 0.074 mm):

1.)  $\frac{D \text{ (PARTICLE DIAMETER) } 85 \text{ BASE (mm)}}{\text{EOS* FILTER FABRIC (mm)}} > 1$

2.) TOTAL OPEN AREA OF FILTER IS LESS THAN 36 PERCENT.

B. FOR FILTER FABRIC ADJACENT TO ALL OTHER SOILS:

1.) EOS\* LESS THAN U.S. STANDARD SIEVE NO. 70

2.) TOTAL OPEN AREA OF FILTER IS LESS THAN 10 PERCENT.

4. NO FILTER FABRIC SHOULD BE USED WITH LESS THAN 4 PERCENT OPEN AREA OR AN EOS\* LESS THAN U.S. STANDARD SIEVE NO. 100.

5. \*EOS - EQUIVALENT OPENING SIZE TO A U.S. STANDARD SIEVE SIZE.

6. THE FOLLOWING CHART SHOWS HOW TO DETERMINE THE DIAMETER OF STONE IN RELATION TO DESIGN VELOCITY.

VELOCITY (FEET/SECOND)	STONE DIAMETER (INCHES)
4	2 1/2
6	5
8	9
10	14


SEE SHEET 130-1 FOR AGGREGATE CHANNEL LINING MATERIAL DRAWINGS

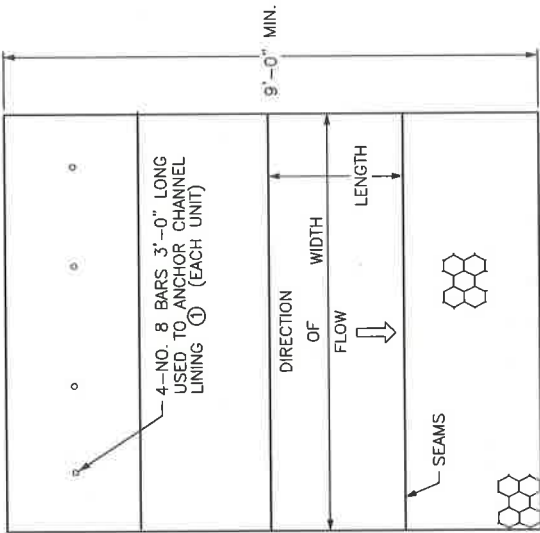


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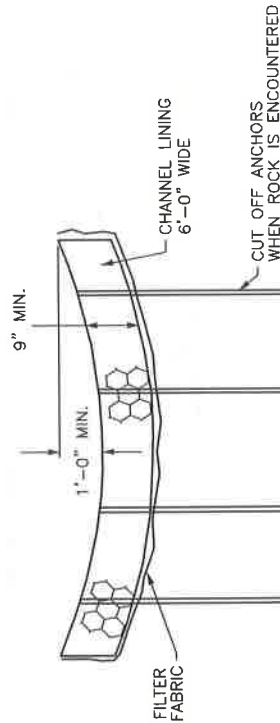
DIVISION OF ENGINEERING

AGGREGATE  
CHANNEL LINING

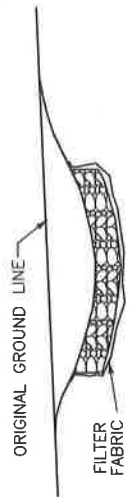
STANDARD DRAWING NO	130-2
APPROVAL	
URBAN COUNTY ENGINEER	9/28/17
COMMISSIONER	DATE



PLAN



ELEVATION

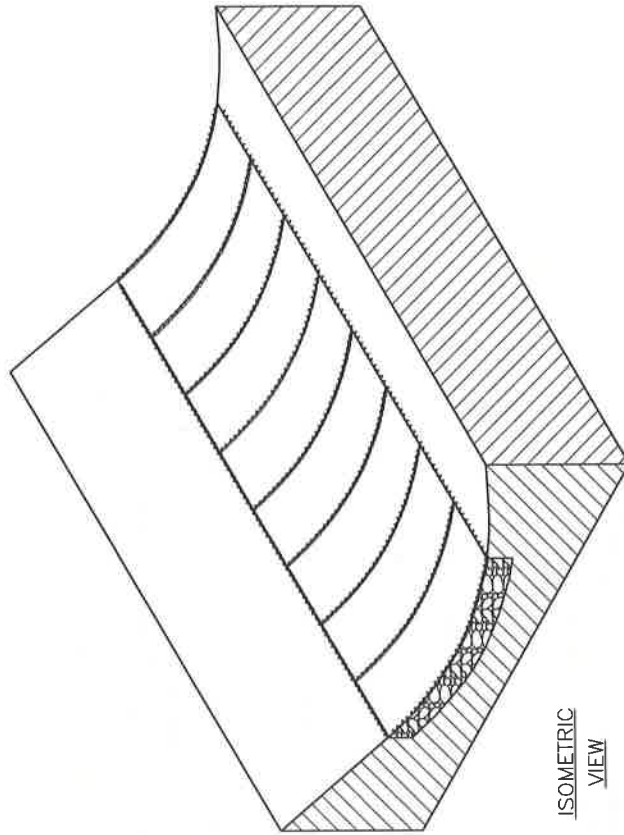


SHEET NOTES: ①

ANCHORS REQUIRED WHEN LINING IS PLACED ON 5% GRADE OR GREATER.

NOTES:

1. SECURE THE LACING WIRE AT THE CORNER OF THE BASKET BY LOOPING AND TWISTING. CONTINUE LACING THROUGHOUT WITH DOUBLE LOOPS AT APPROXIMATELY 5 INCH INTERVALS. EACH UNIT SHALL CONSIST OF LININGS SUPPLIED IN WIDTHS OF 6'-0" AS SHOWN AND LENGTHS IN MULTIPLES OF 3'-0".
2. AGGREGATE ESTIMATED ON THE BASIS OF 0.375 TONS PER SQ. YD.
3. MATTRESS SHALL BE MANUFACTURED FROM WIRE WITH A MINIMUM TENSILE STRENGTH OF 40,000 PSI.
4. STONE SIZE PER MANUFACTURER SPECIFICATIONS.



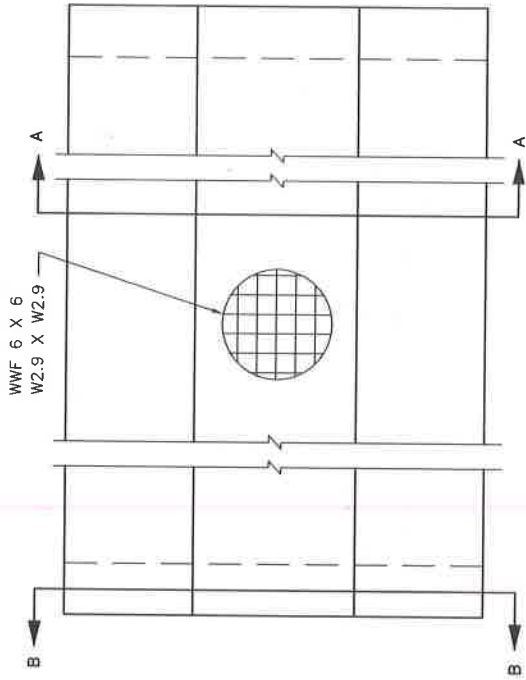
ISOMETRIC VIEW



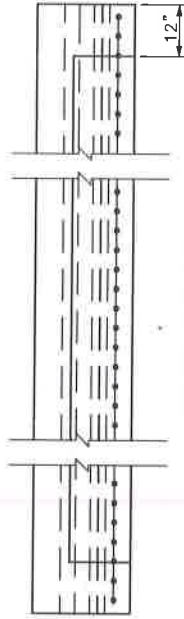
DIVISION OF ENGINEERING

MATTRESS  
CHANNEL LINING

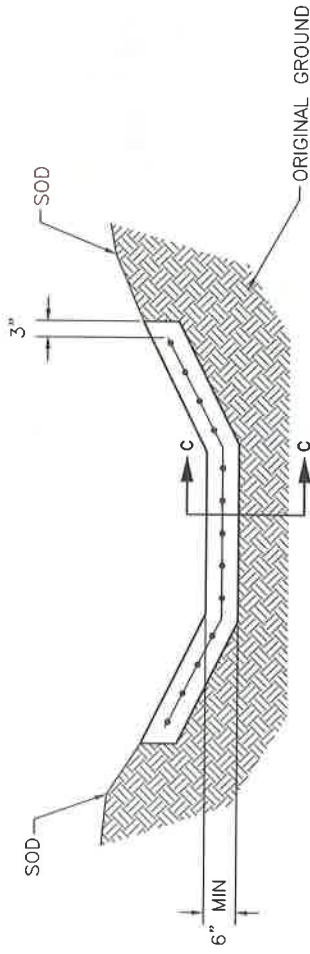
STANDARD DRAWING NO.	131
APPROVAL:	9/28/17
URBAN COUNTY ENGINEER:	9/28/17
COMMISSIONER:	DATE



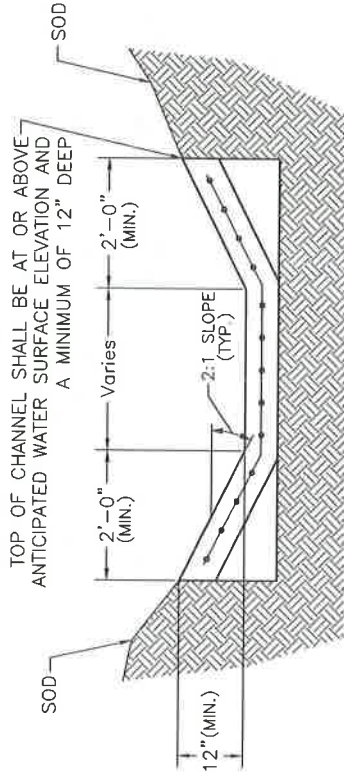
PLAN



ELEVATION

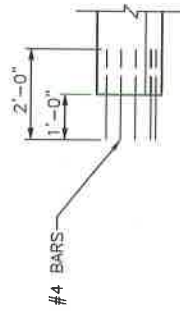


SECTION A-A



TOP OF CHANNEL SHALL BE AT OR ABOVE ANTICIPATED WATER SURFACE ELEVATION AND A MINIMUM OF 12" DEEP

SECTION B-B



SECTION C-C  
(@ CONSTRUCTION JOINT)

NOTES:

1. USE "CLASS A" CONCRETE THROUGHOUT.
2. COMPACTION, FINISHING AND CURING SHALL BE THE SAME AS REQUIRED FOR CONCRETE SIDEWALK (USE WHITE COMPOUND).
3. IF THE CONTRACTOR ELECTS TO USE A CONSTRUCTION JOINT IN THE POURING OF THE PAVED DITCH, NO. 4 TIE BARS SPACED 6" O.C. SHALL BE USED (SEE SECTION C-C).
4. INTERMEDIATE ANCHORS MAY BE REQUIRED BY THE ENGINEER FOR SPECIAL CASES. A SPECIAL DESIGN WILL BE REQUIRED IN THIS SITUATION.
5. SHOULD THE TERRAIN OF THE EXISTING GROUND BE SO THAT WATER WOULD DRAIN INTO THE DITCH FROM ONE SIDE ONLY, THEN SODDING WILL BE REQUIRED ON THAT ONE SIDE ONLY OF THE DITCH.
6. EXPANSION JOINTS & SEALER REQUIRED ON ENDS ABUTTING STRUCTURES AND ANCHORS ON ENDS NOT ABUTTING STRUCTURES.
7. IF FIBER REINFORCED CONCRETE IS USED THE WWF 6 x 6 MAY BE ELIMINATED.
8. DO NOT PLACE PAVED DITCH ON DISTURBED SOIL.



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DIVISION OF ENGINEERING

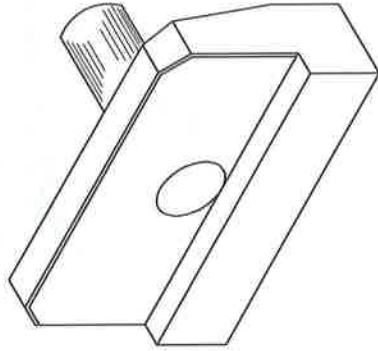
PAVED DITCH

STANDARD DRAWING NO.	132
APPROVAL:	
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	9/22/17
	DATE

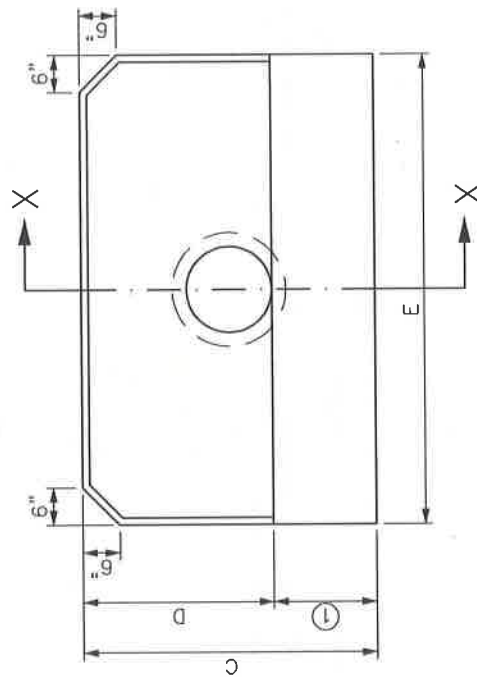
HEADWALL TYPE	DIA. OF PIPE	HEADWALL DIMENSIONS				
		A	B	C	D	E
④ STANDARD	15"	1'-8 1/2"	1'-2 1/2"	4'-3"	2'-9"	6'-9"
	18"	1'-9"	1'-3"	4'-6"	3'-0"	7'-6"
	21"	1'-9 1/2"	1'-3 1/2"	4'-9"	3'-3"	8'-3"
	24"	1'-10"	1'-4"	5'-0"	3'-6"	9'-0"
	27"	1'-10 1/2"	1'-4 1/2"	5'-3"	3'-9"	9'-9"
⑤ RAISED	15"	1'-8 1/2"	1'-2 1/2"	4'-9"	3'-3"	8'-3"
	18"	1'-9"	1'-3"	5'-0"	3'-6"	9'-0"
	21"	1'-9 1/2"	1'-3 1/2"	5'-3"	3'-9"	9'-9"
	24"	1'-10"	1'-4"	5'-6"	4'-0"	10'-6"
	27"	1'-10 1/2"	1'-4 1/2"	5'-9"	4'-3"	11'-3"

NOTES:

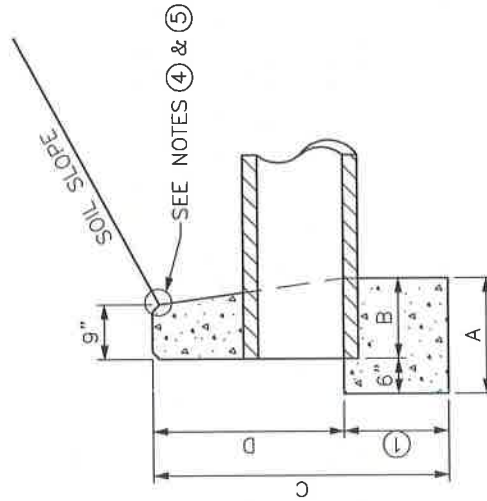
- ① HEIGHT OF FOOTER SHALL BE 18" FOR SOIL AND 12" IN ROCK.
2. ALL EXPOSED EDGES TO BE CHAMFERED 3/4".
3. ALL EXPOSED SURFACES TO HAVE A RUBBED FINISH.
- ④ STANDARD HEADWALLS ARE FLUSH WITH SOIL FILL.
- ⑤ RAISED HEADWALLS PROTRUDE 6" ABOVE SOIL FILL.
6. CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN VERTICAL FACE "D" IS GREATER THAN 30".



ISOMETRIC VIEW



PLAN ELEVATION



SECTION X-X

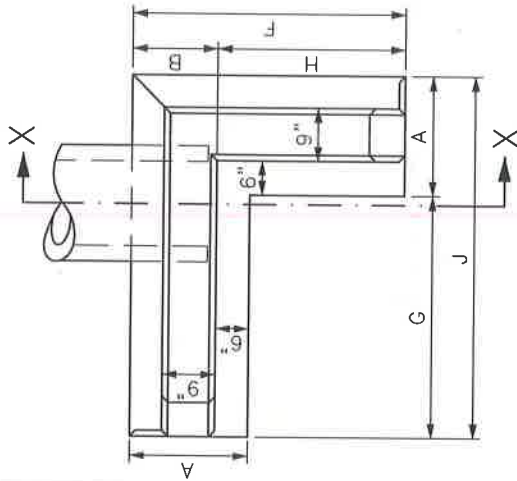


**LEXINGTON**

DIVISION OF ENGINEERING

STRAIGHT HEADWALLS

STANDARD DRAWING NO.	150
APPROVAL:	
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	DATE

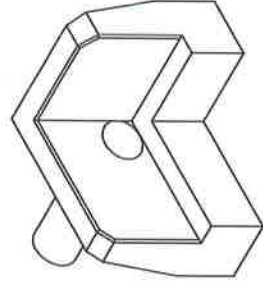
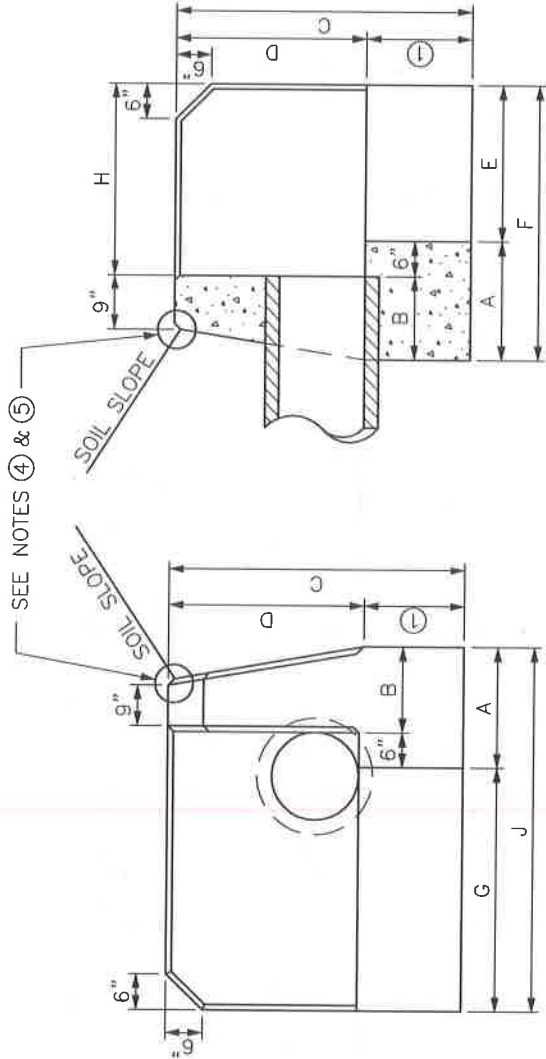


PLAN ELEVATION

HEADWALL TYPE	DIA. OF PIPE	HEADWALL DIMENSIONS									
		A	B	C	D	E	F	G	H	J	
④ STANDARD ELL	15"	1'-8 1/2"	1'-2 1/2"	4'-3"	2'-9"	2'-3"	3'-11 1/2"	3'-6"	2'-9"	2'-9"	5'-2 1/2"
	18"	1'-9"	1'-3"	4'-6"	3'-0"	2'-6"	4'-3"	4'-0"	3'-0"	3'-0"	5'-9"
	21"	1'-9 1/2"	1'-3 1/2"	4'-9"	3'-3"	2'-9"	4'-6 1/2"	4'-6"	3'-3"	3'-3"	6'-3 1/2"
	24"	1'-10"	1'-4"	5'-0"	3'-6"	3'-0"	4'-10"	5'-0"	3'-6"	3'-6"	6'-10"
⑤ RAISED ELL	15"	1'-10 1/2"	1'-4 1/2"	5'-3"	3'-9"	3'-3"	5'-1 1/2"	5'-6"	3'-9"	3'-9"	7'-4 1/2"
	18"	1'-8 1/2"	1'-2 1/2"	4'-9"	3'-3"	3'-0"	4'-8 1/2"	4'-3"	3'-6"	3'-6"	5'-11 1/2"
	21"	1'-9 1/2"	1'-3 1/2"	5'-0"	3'-6"	3'-3"	5'-0"	4'-9"	3'-9"	3'-9"	6'-6"
	24"	1'-9 1/2"	1'-3 1/2"	5'-3"	3'-9"	3'-6"	5'-3 1/2"	5'-3"	4'-0"	4'-0"	7'-0 1/2"
	27"	1'-10 1/2"	1'-4 1/2"	5'-9"	4'-3"	4'-0"	5'-10 1/2"	6'-3"	4'-6"	4'-6"	8'-1 1/2"

NOTES:

- ① HEIGHT OF FOOTER SHALL BE 18" FOR SOIL AND 12" IN ROCK.
2. ALL EXPOSED EDGES TO BE CHAMFERED 3/4".
3. ALL EXPOSED SURFACES TO HAVE A RUBBED FINISH.
- ④ STANDARD HEADWALLS ARE FLUSH WITH SOIL FILL.
- ⑤ RAISED HEADWALLS PROTRUDE 6" ABOVE SOIL FILL.
6. CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN VERTICAL FACE "D" IS GREATER THAN 30".



FRONT ELEVATION

SECTION X-X

ISOMETRIC VIEW



**LEXINGTON**

DIVISION OF ENGINEERING

ELL HEADWALLS

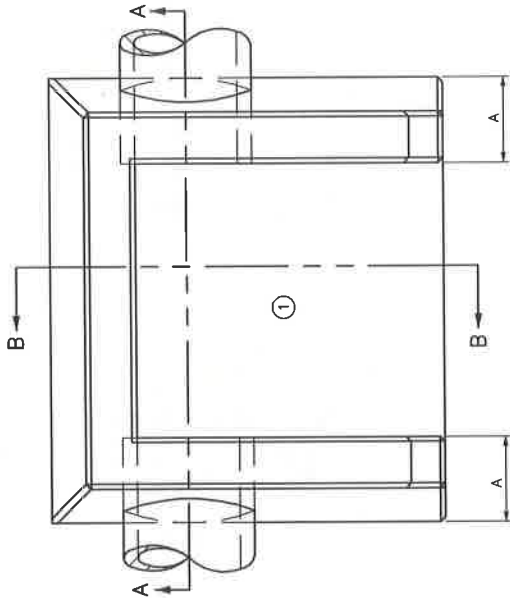
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STANDARD DRAWING NO. 151

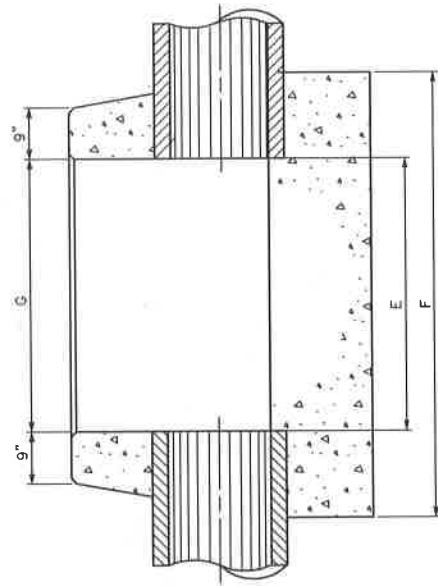
APPROVAL:  9/22/17

URBAN COUNTY ENGINEER:  9/22/17

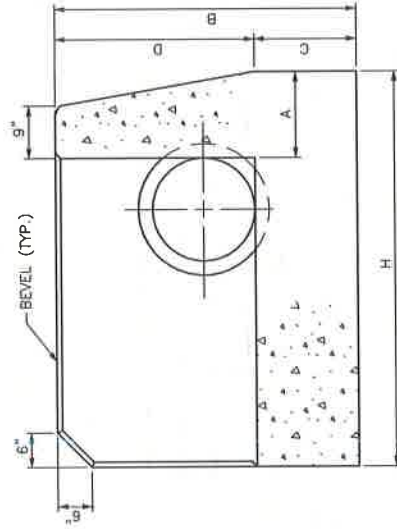
COMMISSIONER: \_\_\_\_\_ DATE



PLAN



SECTION A-A



SECTION B-B

DIMENSIONS	DIAMETER OF PIPE				
	15"	18"	24"	30"	36"
A	1'-2"	1'-3"	1'-4"	1'-5"	1'-6"
B	4'-3"	4'-6"	5'-0"	5'-6"	6'-6"
C	1'-6"	1'-6"	1'-6"	1'-6"	2'-0"
D	2'-9"	3'-0"	3'-6"	4'-0"	4'-6"
E	3'-9"	4'-0"	4'-6"	4'-9"	5'-0"
F	6'-2"	6'-6"	7'-2"	7'-7"	8'-0"
G	3'-9"	4'-0"	4'-6"	4'-9"	5'-0"
H	5'-2"	5'-9"	6'-10"	7'-11"	9'-0"
C.Y. CONC. ONE HEADWALL	2.96	3.53	4.72	6.03	8.79

DIMENSIONS AND QUANTITIES

SHEET NOTE: ①

① SOLID CONCRETE BOTTOM REQUIRED.

NOTES:

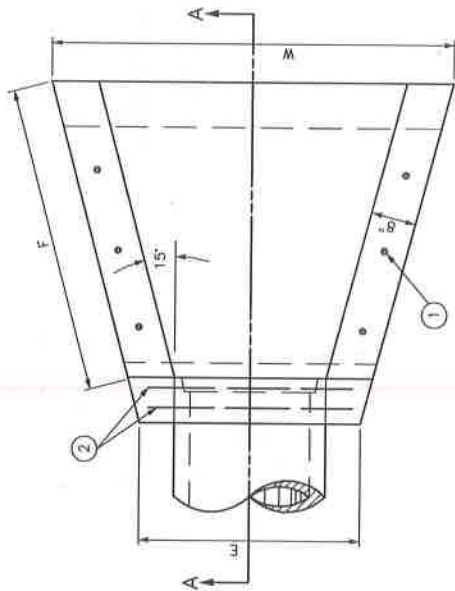
- VOLUME DISPLACED BY BARREL OF PIPE HAS BEEN COMPUTED USING INSIDE DIAMETER OF PIPE.
- CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN VERTICAL FACE "D" IS GREATER THAN 30".



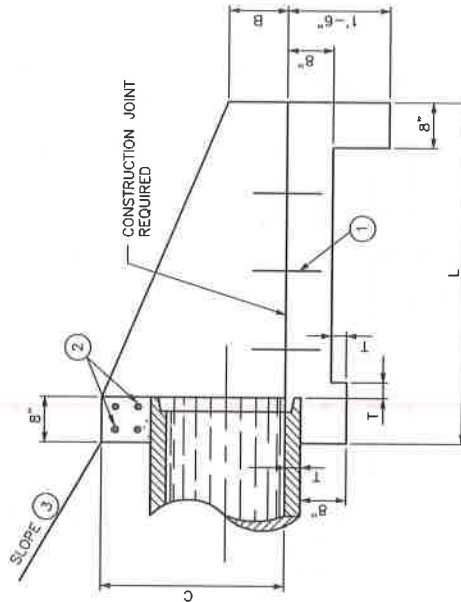
DIVISION OF ENGINEERING

U-TYPE HEADWALLS

STANDARD DRAWING NO.	152
APPROVAL:	
URBAN COUNTY ENGINEER	9/23/17
COMMISSIONER	9/23/17



PLAN VIEW



SECTION A-A

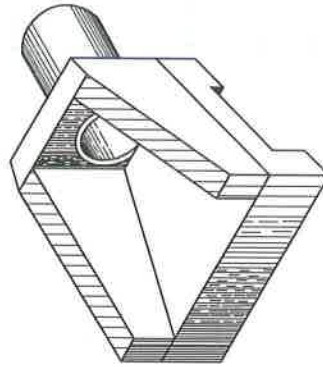
PIPE DIA.	DIMENSIONS							CLASS A CONC.	REINF. STEEL LBS.
	B	C	E	F	L	W	T		
15"	0'-7 1/2"	2'-0"	2'-9"	3'-5 3/8"	4'-0"	4'-10 3/4"	2 1/4"	0.90	10
18"	0'-9"	2'-3"	3'-0"	3'-11 9/16"	4'-6"	5'-4 15/16"	2 1/2"	0.97	11
21"	0'-10 1/2"	2'-6"	3'-3"	4'-5 13/16"	5'-0"	5'-11 1/8"	2 3/4"	1.17	12
24"	1'-0"	2'-9"	3'-6"	5'-0"	5'-6"	6'-5 3/8"	3"	1.38	12
27"	1'-1 1/2"	3'-0"	3'-9"	5'-6 3/16"	6'-0"	6'-11 9/16"	3 1/4"	1.62	13

SHEET NOTES:

- 1 6 #4 x 1'-0" DOWELS
- 2 4 #4 x ("E" DIMENSION MINUS 4")
- 3 SLOPE SHALL BE WARPED TO FIT HEADWALL WHEN PIPE IS SKEWED AND / OR NORMAL SLOPE VARIES FROM 2:1.

NOTES:

1. REINFORCING STEEL MINIMUM GRADE 40, EVENLY SPACED (MIN. SPACING 12" O.C.)
2. VOLUME DISPLACED BY PIPE COMPUTED USING INSIDE DIAMETER OF PIPE.
3. WING ANGLES AND / OR DIMENSIONS MAY BE ALTERED DURING CONSTRUCTION TO ACCOMMODATE FLOW OF WATER.
4. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE, BUT NOT TO EXCEED 5%. FRONT FACE OF HEADWALL SHALL REMAIN VERTICAL.
5. CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN VERTICAL FACE "C" IS GREATER THAN 30".
6. ALL EXPOSED EDGES ARE TO HAVE 3/4" CHAMFER.
7. SKEWED PIPE REQUIRES SPECIAL DESIGN.



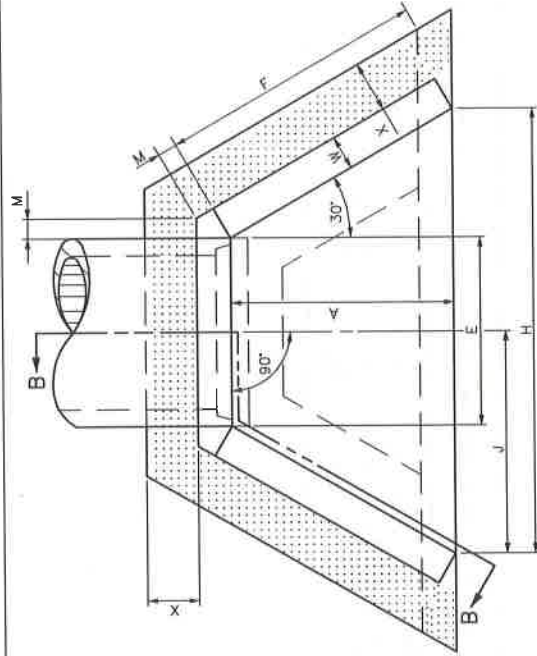
ISOMETRIC VIEW



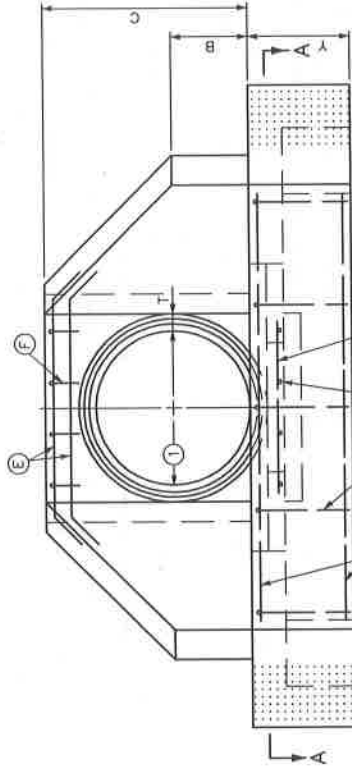
DIVISION OF ENGINEERING

PIPE CULVERT HEADWALLS  
0° SKEW  
15"-27" CIRCULAR PIPE

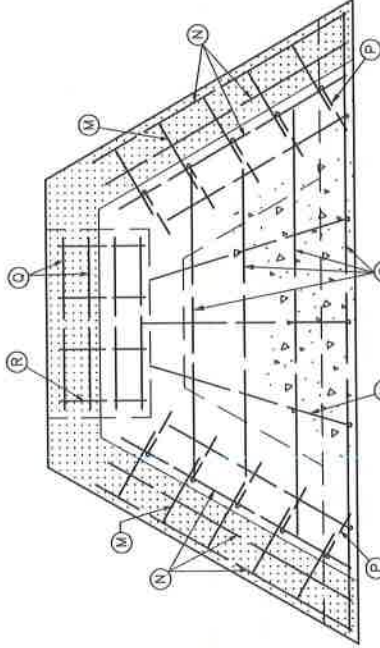
STANDARD DRAWING NO.	153
APPROVAL:	4/25/17
URBAN COUNTY ENGINEER	9/25/17
COMMISSIONER	DATE



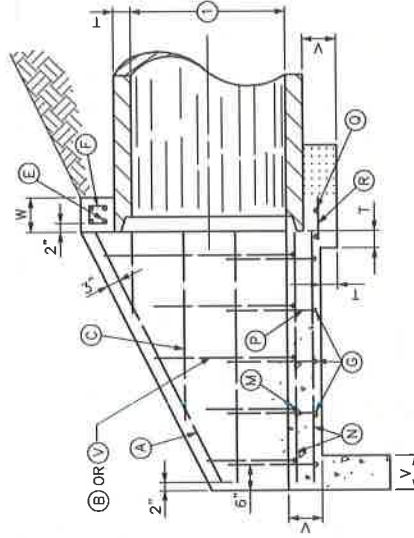
PLAN VIEW



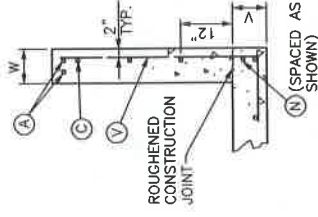
FRONT ELEVATION



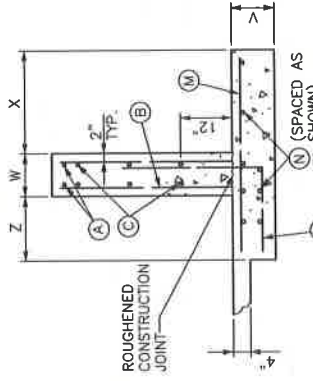
SECTION A-A



SECTION B-B



WING SECTION  
30"-60" CIRCULAR PIPE



WING SECTION  
66"-108" CIRCULAR PIPE

SHEET 1 OF 4

SHEET NOTE:  $\odot$   
① DIAMETER OF PIPE

- NOTES:
1. [Pattern] APPLIES TO 66" DIAMETER AND GREATER. (CIRCULAR PIPE)
  2. SEE SHEETS 2, 3, AND 4 OF CURRENT STD. DWG. 154 FOR DIMENSIONS, QUANTITIES, AND BILL OF REINFORCEMENT.
  3. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 2" CLEAR DISTANCE UNLESS OTHERWISE NOTED.
  4. ENCIRCLED LETTERS,  $\odot$ , INDICATE STEEL BAR LOCATIONS.
  5. BARS  $\odot$ ,  $\odot$ ,  $\odot$ ,  $\odot$ ,  $\odot$ ,  $\odot$ ,  $\odot$  ARE SPACED 1'-0" O.C. ALL OTHER BARS SHALL BE EVENLY SPACED.
  6. BARS  $\odot$  AND  $\odot$  ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE END OF EACH WING.
  7. BARS  $\odot$  ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT TOP OF EACH WING.
  8. HEADWALLS LOCATED AT EDGE OF SHOULDER SHALL BE PARALLEL TO CENTERLINE OF THE ROAD.
  9. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE, NOT TO EXCEED 5%.
  10. FRONT OF HEADWALL AND ENDS OF WINGS SHALL REMAIN VERTICAL.
  11. FENCE AND / OR HANDRAIL IS REQUIRED FOR ALL HEADWALLS. SEE STD. DWG. 308.
  12. ALL EXPOSED EDGES ARE TO HAVE  $\frac{3}{4}$ " CHAMFER.

**LEXINGTON**  
DIVISION OF ENGINEERING

PIPE CULVERT HEADWALLS  
0° SKEW  
30"-108" PIPE

STANDARD DRAWING NO. 154-1  
APPROVAL: [Signature] DATE: 9/22/17  
URBAN COUNTY ENGINEER [Signature]  
COMMISSIONER [Signature]





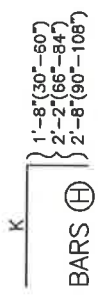
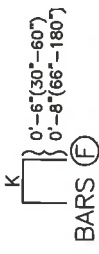
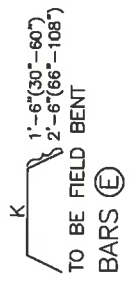


MARK	S NO	L GTH	K	96"			102"			108"				
				S NO	L GTH	K	S NO	L GTH	K	S NO	L GTH	K		
A	5	4	13	9	A	5	4	13	9	A	5	4	14	6
B1	5	8	4	1	B1	5	8	4	4	B1	5	8	4	7
B2	5	8	5	0	B2	5	8	5	3	B2	5	8	5	6
B3	5	8	5	11	B3	5	8	6	2	B3	5	8	6	5
B4	5	8	6	10	B4	5	8	7	2	B4	5	8	7	4
B5	5	8	7	10	B5	5	8	8	1	B5	5	8	8	3
B6	5	8	8	9	B6	5	8	9	0	B6	5	8	9	3
C1	4	4	3	0	C1	4	4	9	11	C1	4	4	10	2
C2	4	4	5	2	C2	4	4	2	0	C2	4	4	3	3
C3	4	4	7	3	C3	4	4	4	2	C3	4	4	5	5
C4	4	4	9	5	C4	4	4	6	4	C4	4	4	7	7
C5	4	4	11	7	C5	4	4	8	6	C5	4	4	9	8
C6	4	12	11	9	C6	4	10	7		C6	4	4	11	10
E1	5	2	14	9	E1	5	2	15	4	E1	5	2	16	13
E2	5	2	15	3	E2	5	2	15	4	E2	5	2	15	10
F	4	10	1	9	F	4	10	1	9	F	4	10	1	10
G1	4	3	10	9	G1	4	3	12	1	G1	4	3	11	5
G2	4	3	14	3	G2	4	3	15	8	G2	4	3	16	5
G3	4	3	17	9	G3	4	3	19	2	G3	4	3	20	6
G4	4	3	20	0	G4	4	3	21	7	G4	4	3	23	4
H	4	10	12	8	H	4	11	13	3	H	4	11	13	10
M	4	24	4	9	M	4	26	4	9	M	4	28	4	3
N	4	16	11	9	N	4	16	12	5	N	4	17	10	11
P	6	24	6	9	P	7	26	7	0	P	7	28	7	2
Q	5	4	9	2	Q	5	4	9	9	Q	5	4	10	11
R	5	10	3	3	R	5	10	3	4	R	5	11	3	5

NOTES:

- NUMBER OF BARS IN ONE HEADWALL.
- DIMENSIONS ARE OUT TO OUT OF BARS.
- ALL BARS ARE STRAIGHT EXCEPT THOSE SHOWN BELOW.

BENT BAR SHAPES



SHEET 4 OF 4

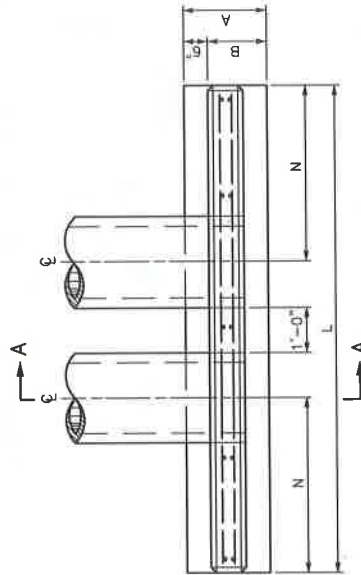
**LEXINGTON**  
DIVISION OF ENGINEERING  
BILL OF REINFORCEMENT  
96"-108" DIAMETER  
CIRCULAR PIPE HEADWALLS  
0' SKEW  
STANDARD DRAWING NO. 154-4  
APPROVAL: [Signature] DATE: 9/23/17  
URBAN COUNTY ENGINEER: [Signature] DATE: 9/23/17  
COMMISSIONER: [Signature]

**DIMENSIONS AND QUANTITIES**

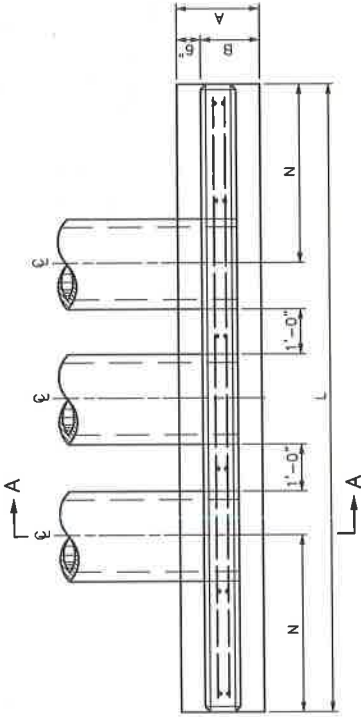
HEADWALL TYPE	PIPE DIA.	A	B	C	E	L	M	N	CU. YD. CONC. 2 HDWLS
STANDARD DOUBLE LINE	18"	1'-9"	1'-3"	4'-6"	3'-0"	10'-5"		3'-9"	4.18
STANDARD TRIPLE LINE	24"	1'-10"	1'-4"	5'-0"	3'-6"	12'-6"		4'-6"	5.65
RAISED DOUBLE LINE	18"	1'-9"	1'-3"	4'-6"	3'-0"	13'-4"	10 3/4"	3'-9"	4.87
RAISED TRIPLE LINE	24"	1'-10"	1'-4"	5'-0"	3'-6"	16'-0"		4'-6"	6.68
								4'-6"	5.28
								5'-3"	7.43
								4'-6"	6.76
								5'-3"	8.83

**NOTES:**

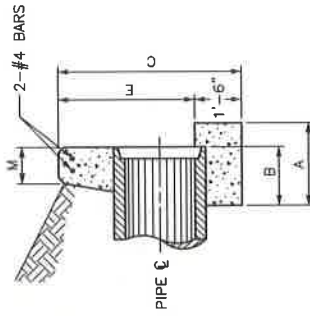
- ALL VOLUMES ARE IN CUBIC YARDS FOR TWO HEADWALLS; VOLUME DISPLACED BY BARREL OF PIPE HAS BEEN COMPUTED USING INSIDE DIAMETER OF PIPE. NO DEDUCTION HAS BEEN MADE FOR BEVELED EDGES.
- WHERE HEADWALLS ARE LOCATED AT THE EDGE OF THE SHOULDER, THE TOP OF THE HEADWALLS SHALL BE PARALLEL TO THE EDGE OF SHOULDER.
- WHERE A RAISED HEADWALL IS USED ON THE OUTLET END OF THE PIPE, THE TOPS OF BOTH WALLS SHALL BE AT THE SAME ELEVATION.
- CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN VERTICAL FACE 'E' IS GREATER THAN 30".



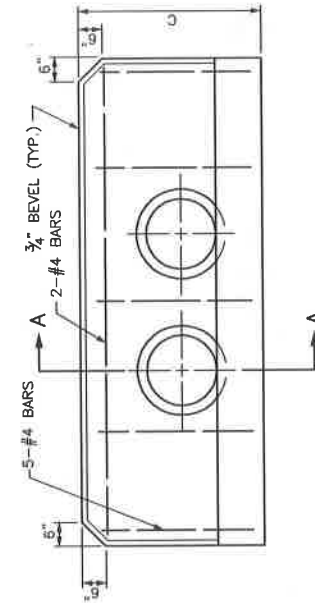
**PLAN**



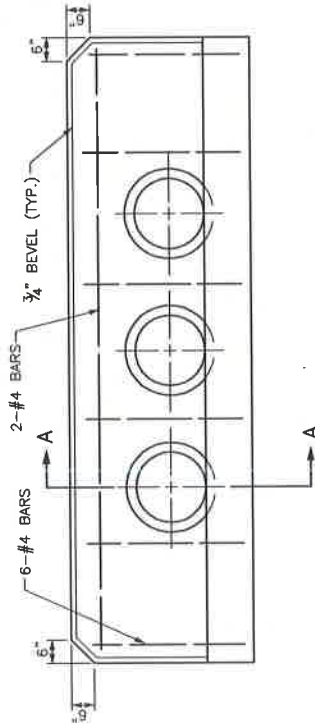
**PLAN**



**SECTION A-A**



**ELEVATION**



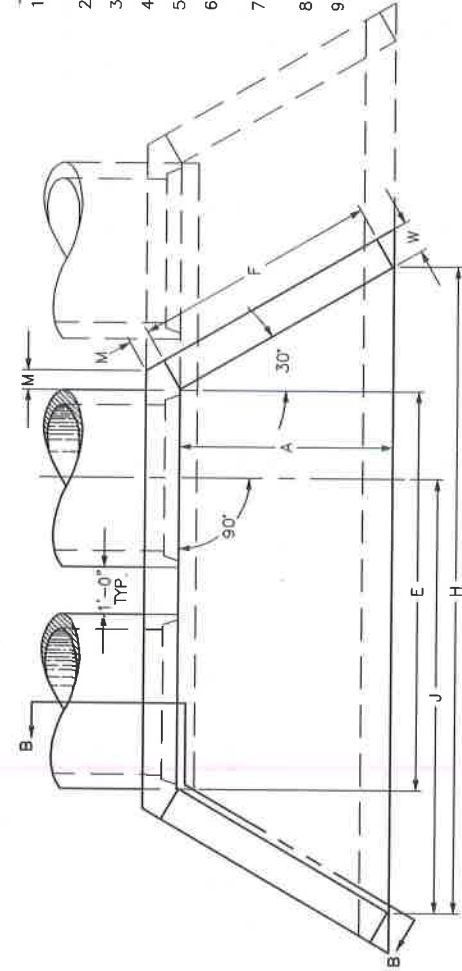
**ELEVATION**



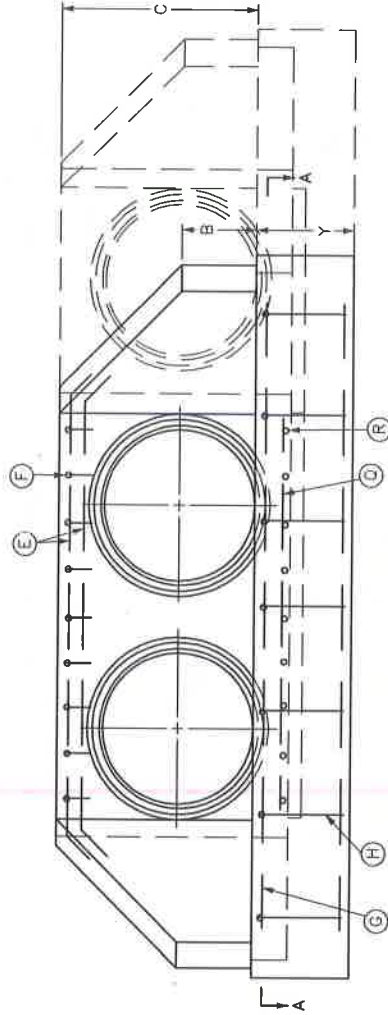
DIVISION OF ENGINEERING

18"-24" DOUBLE & TRIPLE PIPE CULVERT HEADWALLS AT 0° SKEW

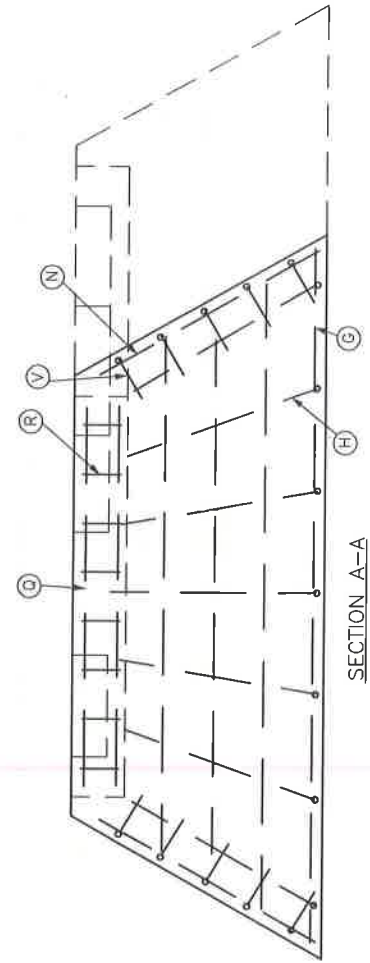
STANDARD DRAWING NO.	158
APPROVAL:	9/22/17
DESIGN COUNTY ENGINEER:	9/22/17
COMMISSIONER:	DATE



PLAN VIEW



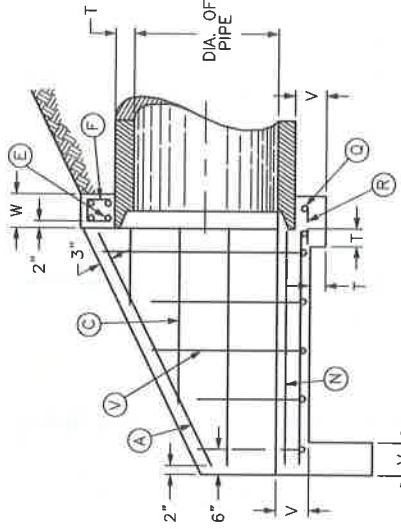
FRONT ELEVATION



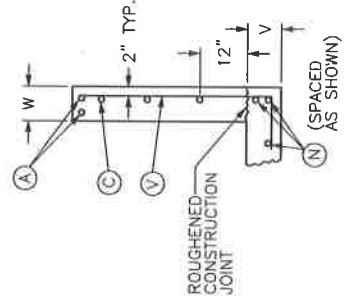
SECTION A-A

NOTES:

1. SEE SHEETS 2, AND 3 OF CURRENT STD. DWG. 159 FOR DIMENSIONS, QUANTITIES, AND BILL OF REINFORCEMENT.
2. ENCIRCLED LETTERS, ○, INDICATE STEEL BAR LOCATIONS.
3. BARS ○, ○, ARE SPACED 1'-0" O.C. ALL OTHER BARS SHALL BE EVENLY SPACED.
4. BARS ○, ○, ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE END OF EACH WING.
5. BARS ○, ○, ARE PLACED IN ORDER OF INCREASING LENGTHS, BEGINNING AT THE TOP OF EACH WING.
6. HEADWALLS LOCATED AT THE EDGE OF SHOULDER SHALL BE PARALLEL TO CENTERLINE OF THE ROAD.
7. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE. FRONT FACE AND ENDS OF WINGS SHALL REMAIN VERTICAL.
8. DIMENSIONS FROM FACE OF CONCRETE TO STEEL SHALL BE 2" CLEAR DISTANCE.
9. CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN VERTICAL FACE "C" IS GREATER THAN 30". SEE STD. DWG. 306.



SECTION B-B



WING SECTION



**LEXINGTON**

DIVISION OF ENGINEERING

DOUBLE & TRIPLE PIPE  
CULVERT HEADWALLS  
0' SKEW

STANDARD DRAWING NO.	159-1
APPROVAL	9/22/17
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	DATE

DIMENSIONS FOR MULTIPLE PIPE HEADWALLS - 0° SKEW

DIMENSION	DOUBLE				TRIPLE				DIMENSION
	30"	36"	42"	48"	30"	36"	42"	48"	
A	3'-9"	4'-4"	4'-11"	5'-6"	3'-9"	4'-4"	4'-11"	5'-6"	A
B	1'-3"	1'-6"	1'-9"	2'-0"	1'-3"	1'-6"	1'-9"	2'-0"	B
C	3'-6"	4'-0"	4'-7"	5'-1"	3'-6"	4'-0"	4'-7"	5'-1"	C
E	7'-2"	8'-4"	9'-6"	10'-8"	11'-3"	13'-0"	14'-9"	16'-6"	E
F	4'-4"	5'-0"	5'-8"	6'-4"	4'-4"	5'-0"	5'-8"	6'-4"	F
H	11'-6"	13'-4"	15'-2"	17'-0"	15'-6"	18'-0"	20'-6"	22'-10"	H
J	-	-	-	-	7'-9"	9'-0"	10'-3"	11'-5"	J
M	0'-5"				0'-5"				M
T	0'-3.5"	0'-4"	0'-4.5"	0'-5"	0'-3.5"	0'-4"	0'-4.5"	0'-5"	T
V	0'-8"				0'-8"				V
W	0'-8"				0'-8"				W
Y	2'-0"				2'-0"				Y
CLASS "A" CONC. CU. YDS. 2 HEADWALLS									
4.91	6.22	7.75	9.38	10.19	12.30	12.30	12.30	12.30	CLASS "A" CONC. CU. YDS. 2 HEADWALLS
LBS. STEEL 2 HEADWALLS									
379	480	561	660	702	797	797	797	797	LBS. STEEL 2 HEADWALLS



**LEXINGTON**

DIVISION OF ENGINEERING

DIMENSIONS AND QUANTITIES  
30"-48"

DOUBLE & TRIPLE  
HEADWALLS-CIRCULAR PIPE  
0° SKEW

STANDARD DRAWING NO. 159-2

APPROVAL: [Signature] 9/22/17

URBAN COUNTY ENGINEER [Signature]

DATE: 9/22/17

COMMISSIONER [Signature]

M A R K	S I Z E	DOUBLE		TRIPLE		K	M A R K	S I Z E	NO	LGTH	K	M A R K	S I Z E	NO	LGTH	K	M A R K	S I Z E	NO	LGTH	K						
		FT	IN	FT	IN																	FT	IN	FT	IN	FT	IN
A	5	4	4	8			A	5	4	4	8			A	5	4	4	8			A	5	4	4	8		
C1	4	2	2	4			C1	4	2	2	4			C1	4	2	2	4			C1	4	2	2	4		
C2	4	2	2	4			C2	4	2	2	4			C2	4	2	2	4			C2	4	2	2	4		
C3	4	2	2	4			C3	4	2	2	4			C3	4	2	2	4			C3	4	2	2	4		
E1	5	2	10	6	7	6	E1	5	2	12	10	9	10	E1	5	2	18	1	15	1	E1	5	2	18	1	15	1
E2	5	2	10	8	7	8	E2	5	2	13	10	10	0	E2	5	2	14	7	11	7	E2	5	2	14	7	11	7
F	4	8	1	3	0	4	F	4	10	1	3	0	4	F	4	12	1	3	0	4	F	4	15	1	3	0	4
G1	4	2	7	8			G1	4	2	7	8			G1	4	2	7	8			G1	4	2	7	8		
G2	4	3	10	0			G2	4	3	13	9			G2	4	3	14	1			G2	4	3	19	1		
H	4	6	5	1	3	5	H	4	7	6	3	4	7	H	4	8	5	1	3	5	H	4	10	6	3	4	7
N	4	6	4	2			N	4	6	4	2			N	4	6	4	2			N	4	6	4	2		
Q	4	2	7	1			Q	4	2	9	2			Q	4	2	11	1			Q	4	2	14	5		
R	4	8	0	8			R	4	10	0	9			R	4	2	11	1			R	4	15	0	9		
V1	5	4	3	1	1	10	V1	5	4	3	6	2	3	R	4	12	0	8			V1	5	4	3	6	2	3
V2	5	4	4	1	2	10	V2	5	4	4	6	3	3	V1	5	4	3	1	1	10	V2	5	4	4	6	3	3
V3	5	4	4	1	2	10	V3	5	4	5	6	4	3	V2	5	4	4	1	2	10	V3	5	4	5	6	4	3

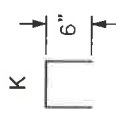
- NOTES:
- NUMBER OF BARS IN ONE HEADWALL.
  - DIMENSIONS ARE OUT TO OUT OF BARS.
  - ALL BARS ARE STRAIGHT EXCEPT THOSE SHOWN BELOW.

**BENT BAR SHAPES**

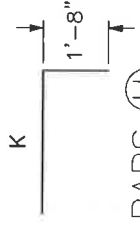
TO BE FIELD BENT



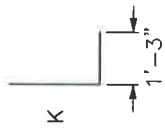
BARS (E)



BARS (F)



BARS (H)



BARS (V)

**LEXINGTON**

DIVISION OF ENGINEERING

BILL OF REINFORCEMENT  
30"-48" DOUBLE & TRIPLE  
HEADWALLS-CIRCULAR PIPE  
0° SKEW

---

STANDARD DRAWING NO: 159-3

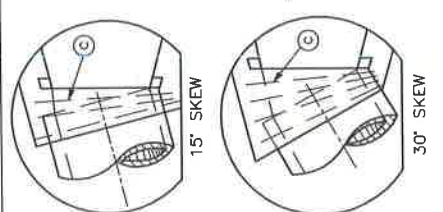
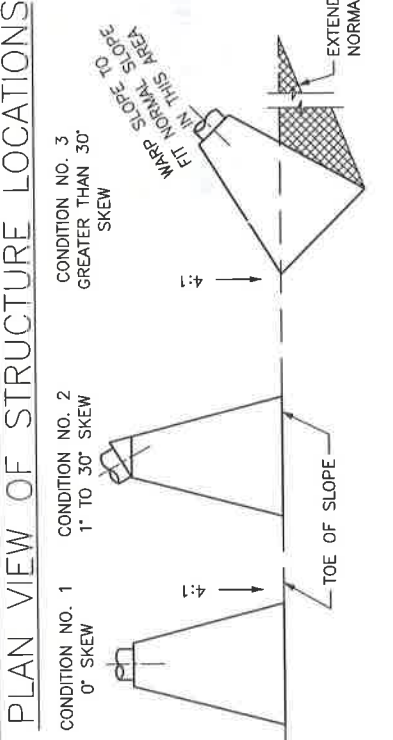
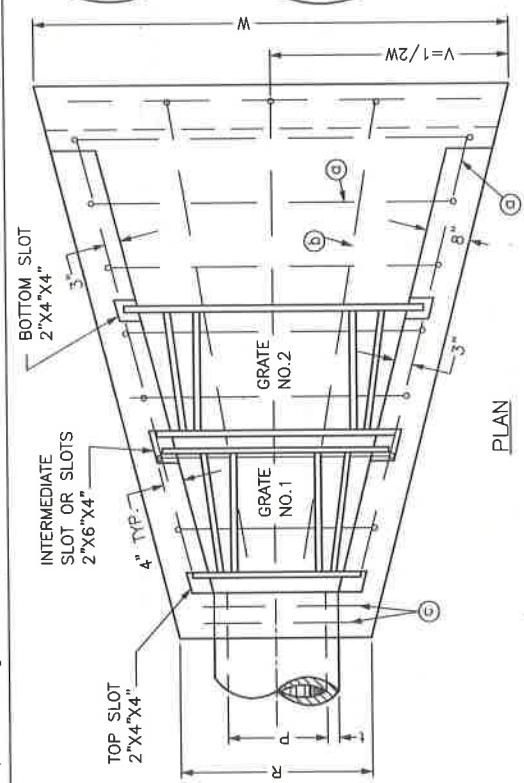
APPROVAL: 9/22/17

URBAN COUNTY ENGINEER DATE

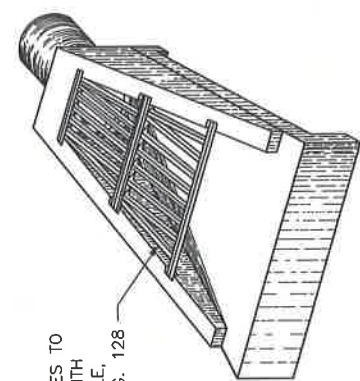
COMMISSIONER 9/22/17

COMMISSIONER DATE

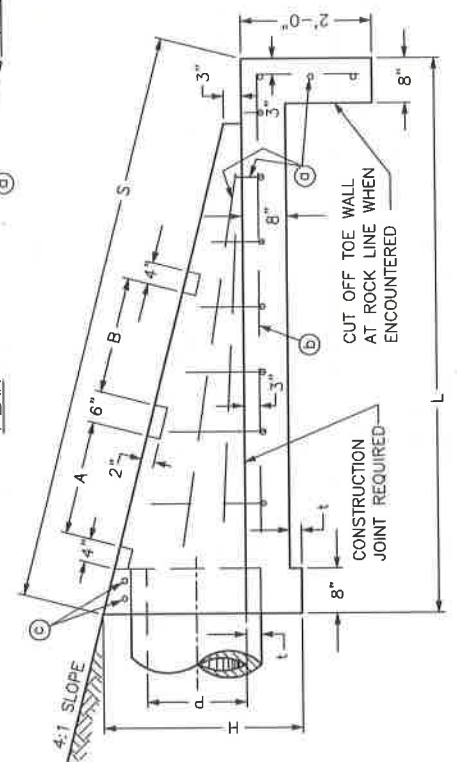
# PLAN VIEW OF STRUCTURE LOCATIONS



SECURE GRATES TO STRUCTURE WITH CHAIN SHACKLE. SEE STD. DWG. 128

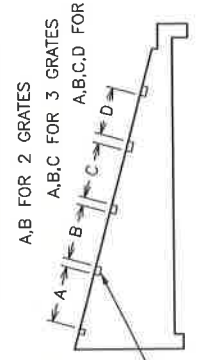


- NOTES:
1. THE MINIMUM REQUIREMENT FOR REINFORCING STEEL SHALL BE GRADE 40. FIELD BENDING WILL BE PERMITTED.
  2. ONE ADDITIONAL C BAR WILL BE REQUIRED FOR EACH 15° SKEW.
  3. t IS CONCRETE PIPE WALL THICKNESS.



ELEVATION

DETAIL SHOWING LOCATION OF SLOTS FOR GRATES



SECURE GRATES TO STRUCTURE WITH CHAIN SHACKLE. SEE STD. DWG. 128

A,B,C FOR 3 GRATES A,B,C,D FOR 4 GRATES

DIMENSIONS							
P	H	L	S	R	V	W	A B C D
18"	3'-0"	8'-6"	8'-9 1/8"	2'-11 1/2"	3'-7 1/2"	7'-3"	1'-9" 1'-9"
24"	3'-7"	10'-8"	11'-0"	3'-6 1/2"	4'-5 1/2"	8'-11"	2'-9" 2'-9"
30"	4'-2"	12'-10"	13'-2 3/4"	4'-1 1/2"	5'-3 1/2"	10'-7"	2'-9" 2'-9" 1'-9"
36"	4'-9"	15'-0"	15'-5 1/2"	4'-8 1/2"	6'-1 1/2"	12'-3"	2'-9" 2'-9" 1'-9"

NO. OF GRATES REQ'D	2'	3'
	2	-
	-	2
	1	2
	2	2

NO. 4 REINFORCEMENT BARS			NUMBER-LENGTH AND WEIGHT		CLASS	
ⓐ	ⓑ	ⓒ	LBS.	CU.YD.	CLASS	NO.
14 AT 6'-5"	3 AT 8'-6"	2 AT 2'-8"	81	1.8		
16 AT 8'-0"	3 AT 10'-6"	2 AT 3'-3"	111	2.7		
18 AT 9'-7"	3 AT 12'-9"	2 AT 3'-10"	146	3.8		
20 AT 11'-4"	3 AT 15'-0"	2 AT 4'-5"	187	5.1		

**LEXINGTON**

DIVISION OF ENGINEERING

SLOPED AND FLARED BOX INLET-OUTLET  
18"-24"-30"-36"  
ALL SKEWS

STANDARD DRAWING NO. 162

APPROVAL: 9/22/17 DATE

URBAN COUNTY ENGINEER 9/22/17 DATE

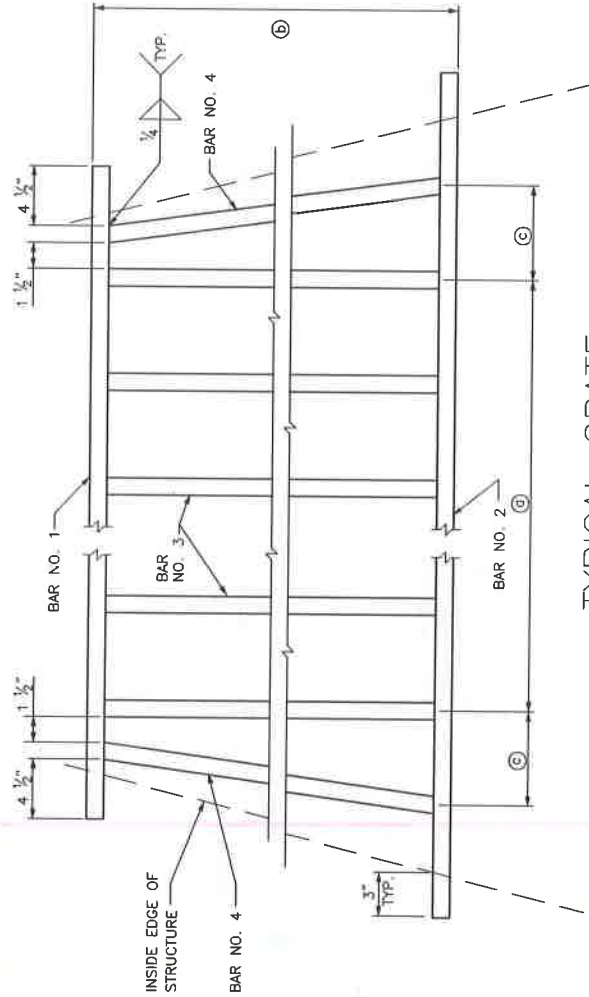
COMMISSIONER



BOX INLET-OUTLET SIZE	GRATE		BAR NO. 1	BAR NO. 2	BAR NO. 3	BAR NO. 4	LBS. STRUCTURAL STEEL		
	NO.	SIZE	LENGTH	LENGTH	NO. BARS	LENGTH	EACH GRATE	TOTAL	
18"	1	2'-0"	2'-6 1/2"	3'-5 3/4"	4	1'-10"	1'-10 1/4"	116	272
	2	2'-0"	3'-7 3/8"	4'-6 7/8"	6	1'-10"	1'-10 1/4"	156	
24"	1	3'-0"	3'-1 1/2"	4'-6 5/8"	5	2'-10"	2'-10 3/8"	187	454
	2	3'-0"	4'-8 1/2"	6'-1 5/8"	8	2'-10"	2'-10 3/8"	267	
30"	1	3'-0"	3'-8 1/2"	5'-1 1/2"	6	2'-10"	2'-10 3/8"	215	796
	2	3'-0"	5'-3 1/2"	6'-8 5/8"	9	2'-10"	2'-10 3/8"	294	
	3	2'-0"	6'-10 1/2"	7'-9 3/4"	13	1'-10"	1'-10 1/4"	287	
36"	1	3'-0"	4'-3 1/2"	5'-6 1/2"	7	2'-10"	2'-10 3/8"	242	1218
	2	3'-0"	5'-10 1/2"	7'-3 3/8"	10	2'-10"	2'-10 3/8"	321	
	3	2'-0"	7'-5 1/2"	8'-4 3/4"	14	1'-10"	1'-10 1/4"	308	
	4	2'-0"	8'-6 3/4"	9'-5 7/8"	16	1'-10"	1'-10 1/4"	347	

NOTES:

- Ⓐ EQUALLY SPACE BARS NO. 3.
- Ⓑ SIZE OF GRATE EITHER 2'-0" OR 3'-0".
- Ⓒ 5 1/2" FOR 2'-0" GRATE, 7" FOR 3'-0" GRATE.
- 1. ALL COMPONENTS ARE 1" x 2" STRUCTURAL STEEL BARS.
- 2. SEE STD. DWG. 162.
- 3. SECURE GRATE TO STRUCTURE WITH CHAIN SHACKLE, SEE STD. DWG. 128.



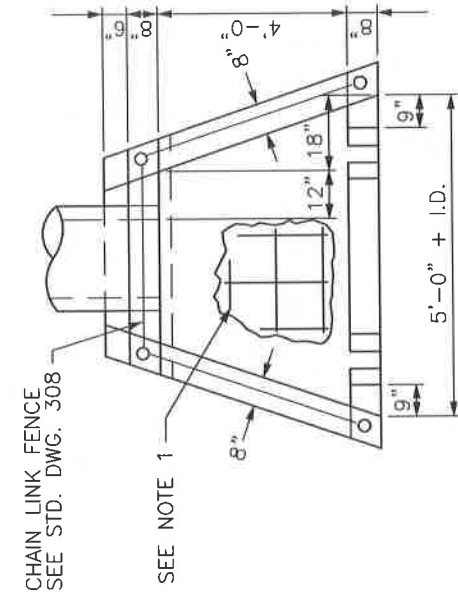
TYPICAL GRATE

**LEXINGTON**

DIVISION OF ENGINEERING

GRATES FOR  
SLOPED AND FLARED  
BOX INLET-OUTLET

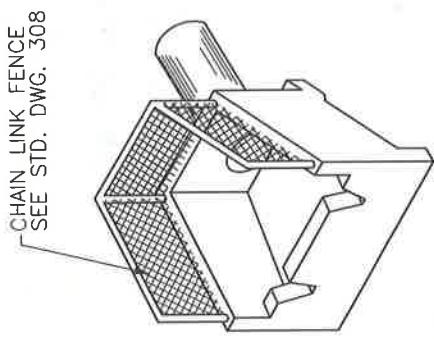
STANDARD DRAWING NO.	163
APPROVAL	9/22/17
URBAN COUNTY ENGINEER	9/23/17
COMMISSIONER	DATE



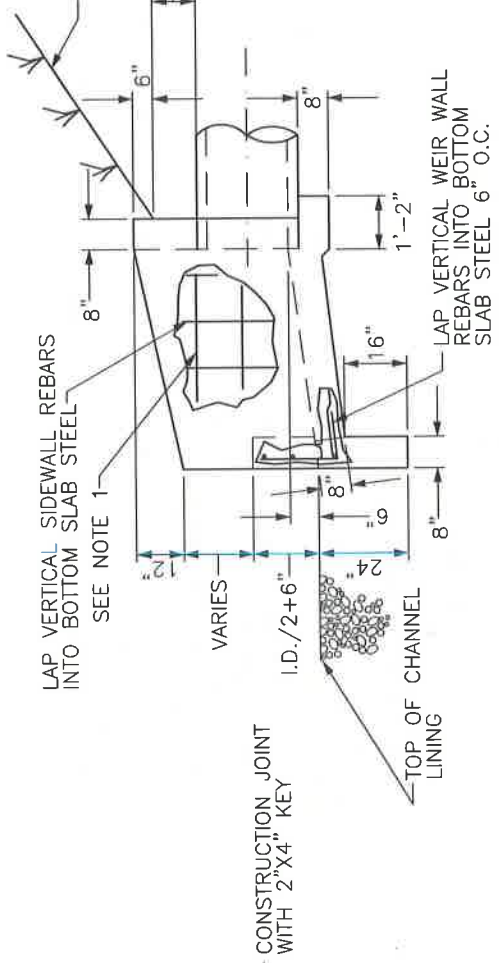
PLAN ELEVATION

NOTES:

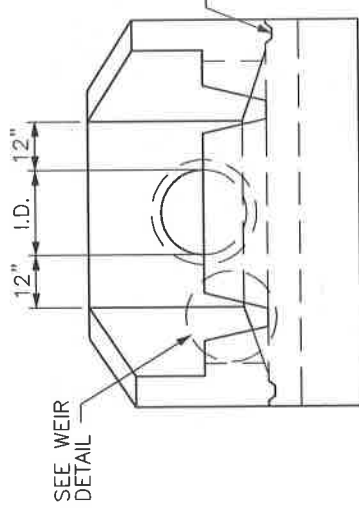
1. NO. 5 STEEL BARS TO BE USED THROUGHOUT ON 12" CENTERS.
2. HEIGHT OF WALL SHALL BE DETERMINED BY THE AMOUNT OF FILL BEHIND PIPE. TOP OF WALL SHALL BE 18" ABOVE TOP O.D. OF PIPE.
3. TOP OF END SILL SHALL BE LEVEL WITH CENTERLINE OF PIPE.
4. CHANNEL LINING TO BE WIDTH OF END SILL, 18" MINIMUM THICKNESS, AND COMPOSED OF CLASS III CHANNEL LINING.
5. ALL VERTICAL OR SLOPED EXPOSED SURFACES SHALL HAVE A RUBBED FINISH.
6. ALL EXPOSED FLAT WORK TO HAVE A HAND FLOATED AND BROOMED FINISH.
7. ALL EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
8. ALL STEEL SHALL HAVE 2" MINIMUM CLEARANCE TO THE CONCRETE FACE ON THE BACKFILL SIDE OF THE WALLS.
9. FENCES REQUIRED ON HEADWALLS.



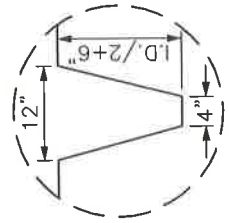
ISOMETRIC VIEW



SIDE ELEVATION

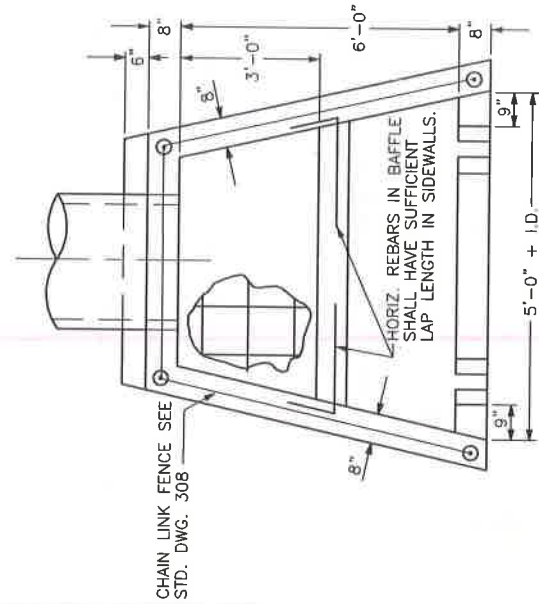


FRONT ELEVATION

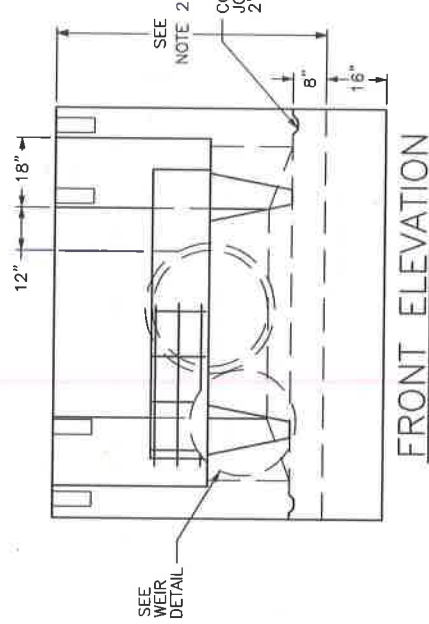


WEIR DETAIL

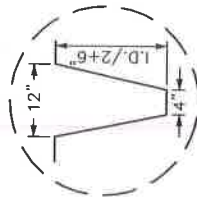
<p><b>LEXINGTON</b></p>	DIVISION OF ENGINEERING
	IMPACT STILLING BASIN 15" - 24" PIPES
STANDARD DRAWING NO. 164	APPROVAL
URBAN COUNTY ENGINEER	DATE 9/22/17
COMMISSIONER	DATE



PLAN ELEVATION



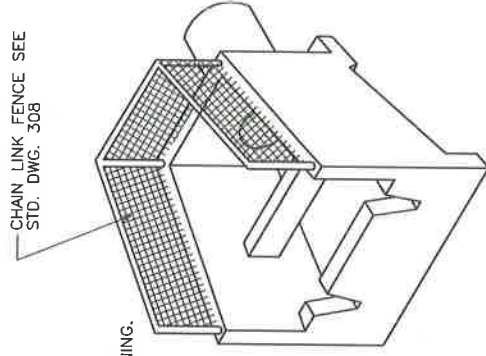
FRONT ELEVATION



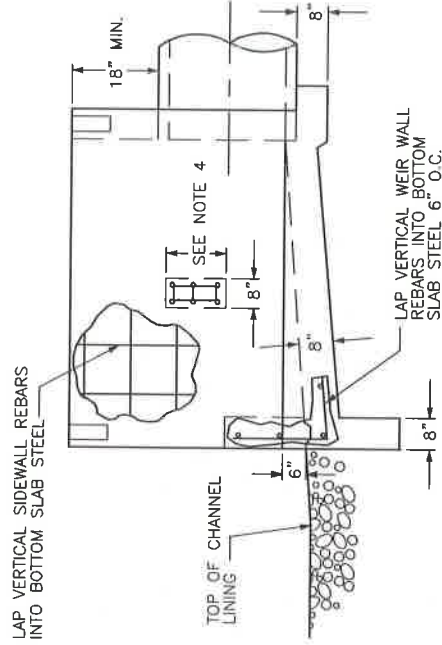
WEIR DETAIL

NOTES:

1. NO. 5 STEEL BARS SHALL BE USED THROUGHOUT ON 12" CENTERS EXCEPT ON BAFFLE WHERE HORIZONTAL AND VERTICAL STEEL WILL BE ON 6" CENTERS.
2. HEIGHT OF WALL SHALL BE DETERMINED BY THE AMOUNT OF FILL BEHIND PIPE.
3. TOP OF WALL SHALL BE 18" ABOVE TOP O.D. OF PIPE.
4. TOP OF END SILL SHALL BE LEVEL WITH CENTERLINE OF PIPE.
5. TOP OF BAFFLE SHALL BE LEVEL WITH CROWN OF PIPE, AND THE BOTTOM SHALL BE LEVEL WITH CENTERLINE OF PIPE.
6. CHANNEL LINING TO BE 2 TIMES THE WIDTH OF THE END SILL AND EXTEND A MINIMUM OF 4' BEYOND THE STILLING BASIN WITH AN 18" MINIMUM THICKNESS AND COMPOSED OF CLASS III CHANNEL LINING.
7. CHANNEL LINE SPILL SLOPES BEYOND SIDES OF HEADWALL WITH CLASS II CHANNEL LINING. CHANNEL LINING SHALL EXTEND 4' IN WIDTH ON SLOPES AT WINGWALL AND TO DOWNSTREAM END OF CHANNEL.
8. ALL VERTICAL OR SLOPED EXPOSED SURFACES SHALL HAVE A RUBBED FINISH.
9. ALL EXPOSED FLATWORK SHALL HAVE A HANDFLOATED AND BROOMED FINISH.
10. ALL EXPOSED EDGES SHALL HAVE A 3/4" CHAMFER.
11. ALL STEEL SHALL HAVE A 2" MINIMUM CLEARANCE TO THE CONCRETE FACE ON THE BACKFILL SIDE OF THE STRUCTURE.
12. CHAIN LINK FENCE IS REQUIRED ON ALL HEADWALLS WHEN THE VERTICAL FACE IS GREATER THAN 30".
13. ALL LARGER PIPES SHALL HAVE A SPECIAL DESIGN STILLING BASIN.
14. ALL LONGITUDINAL REINFORCING BARS IN BAFFLE SHALL HAVE SUFFICIENT ANCHORAGE LENGTH IN SIDEWALLS.



ISOMETRIC VIEW



SIDE ELEVATION



**LEXINGTON**

DIVISION OF ENGINEERING

STANDARD DRAWING NO **165**

APPROVAL:  9/22/17

URBAN COUNTY ENGINEER:  9/22/17

COMMISSIONER: \_\_\_\_\_

IMPACT STILLING BASIN

27" - 48" PIPES

**NOTES:**

1. THE RETAINING WALL DEPICTED ON THIS DRAWING SHALL BE USED WHEN THE HEIGHT ("H" DIMENSION) OF THE WALL IS 2'-6" TO 12'-0" PROVIDED THE FILL COMPLIES WITH THE FOLLOWING CONDITIONS:  
 CASE 1 -- TOP OF FILL IS LEVEL WITH TOP OF WALL.  
 CASE 2 -- WALL IS SURCHARGED WITH DEAD LOAD FILL SLOPES OF 2:1 OR LESS.

2. AREAS AND VOLUMES HAVE BEEN COMPUTED WITHOUT DEDUCTING FOR BEVELED EDGES OR PIPE DRAINS. WHEN A RETAINING WALL VARIES IN HEIGHT, THE PRISMOIDAL FORMULA SHALL BE USED IN COMPUTING VOLUMES.

3. GRAVITY TYPE RETAINING WALLS SHALL BE CONSTRUCTED OF CLASS "A" CONCRETE.

4. TRANSVERSE EXPANSION JOINTS 1/2 INCH IN WIDTH SHALL BE PLACED AT INTERVALS OF NOT OVER 30 FEET THROUGHOUT THE LENGTH OF RETAINING WALLS AND EXPANSION JOINT MATERIAL SHALL BE PLACED THEREIN. ALL EXPOSED EDGES SHALL BE BEVELED 3/4 INCH. THE WALLS SHALL NOT BE SURCHARGED EXCEPT IN SPECIAL CASES WHEREIN SPECIAL DRAWINGS WILL BE FURNISHED.

**SHEET NOTES:**

SPECIAL DESIGNS SHALL BE REQUIRED WHEN ANY ONE OF THE FOLLOWING CONDITIONS EXIST:

(A) WALL HEIGHT IS GREATER THAN 12'-0" (CASE 1 OR CASE 2 FILL).

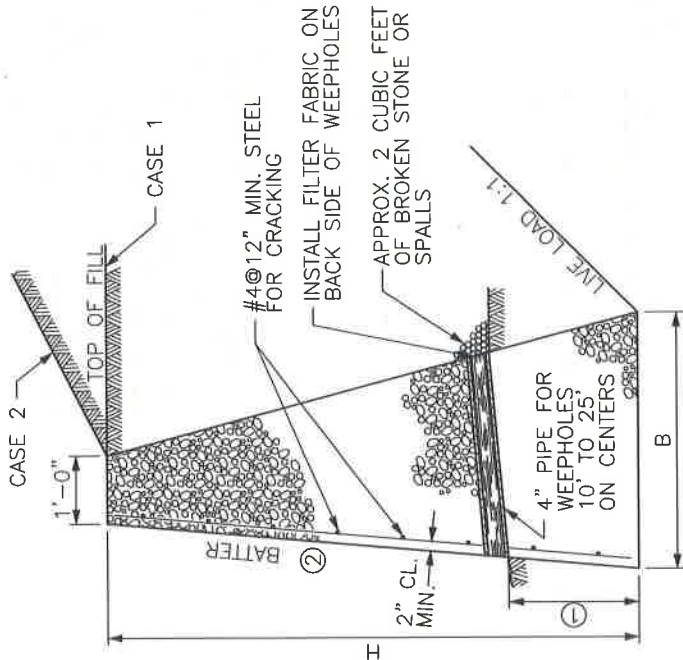
(B) WALL IS SURCHARGED WITH DEAD LOAD FILL SLOPES GREATER THAN 2:1.

(C) WALL IS SURCHARGED WITH A LIVE LOAD WITHIN THE LIMITS OF A 1:1 SLOPE EXTENDING FROM THE BASE OF THE WALL.

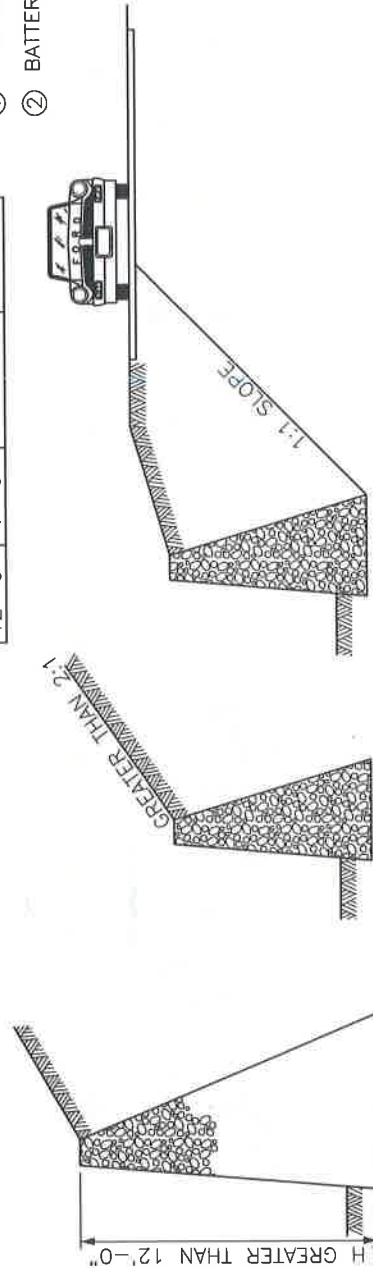
① MINIMUM VALUE FOR FIRM SOIL IS 2'-0".

② BATTER: H=3'-0" TO LESS THAN 5'-0" (VERTICAL)  
 H=5'-0" TO LESS THAN 10'-0" (1":1")  
 H=10'-0" TO 12'-0" (2":1")

H	B	END AREA		VOLUME
		1	2	
CASE 1				
2'-6"	1'-3"	2.8125	0.1042	
3'-0"	1'-6"	3.7500	0.1389	
3'-6"	1'-9"	4.8125	0.1782	
4'-0"	2'-0"	6.0000	0.2222	
4'-6"	2'-3"	7.3125	0.2708	
5'-0"	2'-6"	8.7500	0.3241	
5'-6"	2'-9"	10.3125	0.3819	
6'-0"	3'-0"	12.0000	0.4444	
6'-6"	3'-3"	13.8125	0.5116	
7'-0"	3'-6"	15.7500	0.5833	
7'-6"	3'-9"	17.8125	0.6597	
8'-0"	4'-0"	20.0000	0.7407	
8'-6"	4'-3"	22.3125	0.8264	
9'-0"	4'-6"	24.7500	0.9167	
9'-6"	4'-9"	27.3125	1.0116	
CASE 2				
10'-0"	5'-0"	30.0000	1.1111	
10'-6"	5'-3"	32.8125	1.2153	
11'-0"	5'-6"	35.7500	1.3241	
11'-6"	5'-9"	38.8125	1.4375	
12'-0"	6'-0"	42.0000	1.5556	
10'-0"	6'-0"	35.0000	1.2963	
10'-6"	6'-3"	38.0625	1.4097	
11'-0"	6'-6"	41.2500	1.5278	
11'-6"	6'-9"	44.5625	1.6505	
12'-0"	7'-0"	48.0000	1.7778	



**RETAINING WALL**



(A)

(B)

(C)

**SPECIAL DESIGNS REQUIRED**

**LEXINGTON**

DIVISION OF ENGINEERING

RETAINING WALL  
GRAVITY TYPE

---

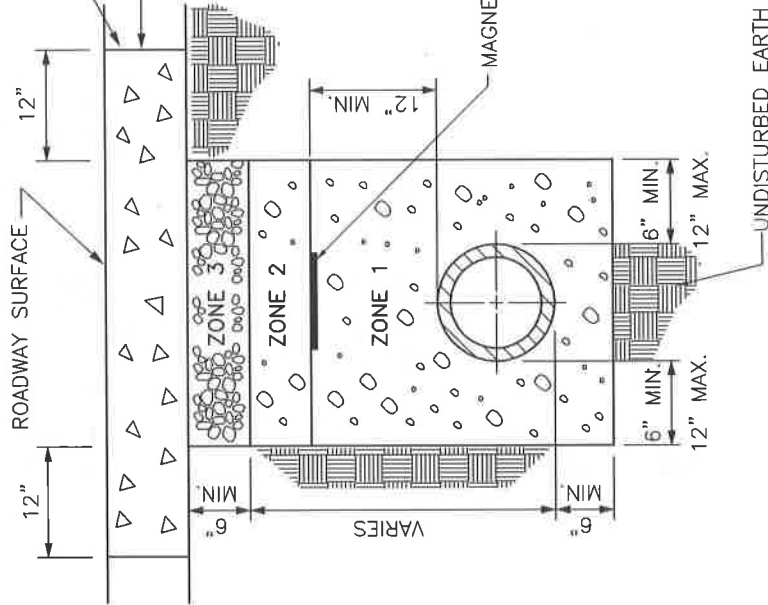
STANDARD DRAWING NO. **180**

APPROVAL: 9/22/17  
 URBAN COUNTY ENGINEER  
 COMMISSIONER

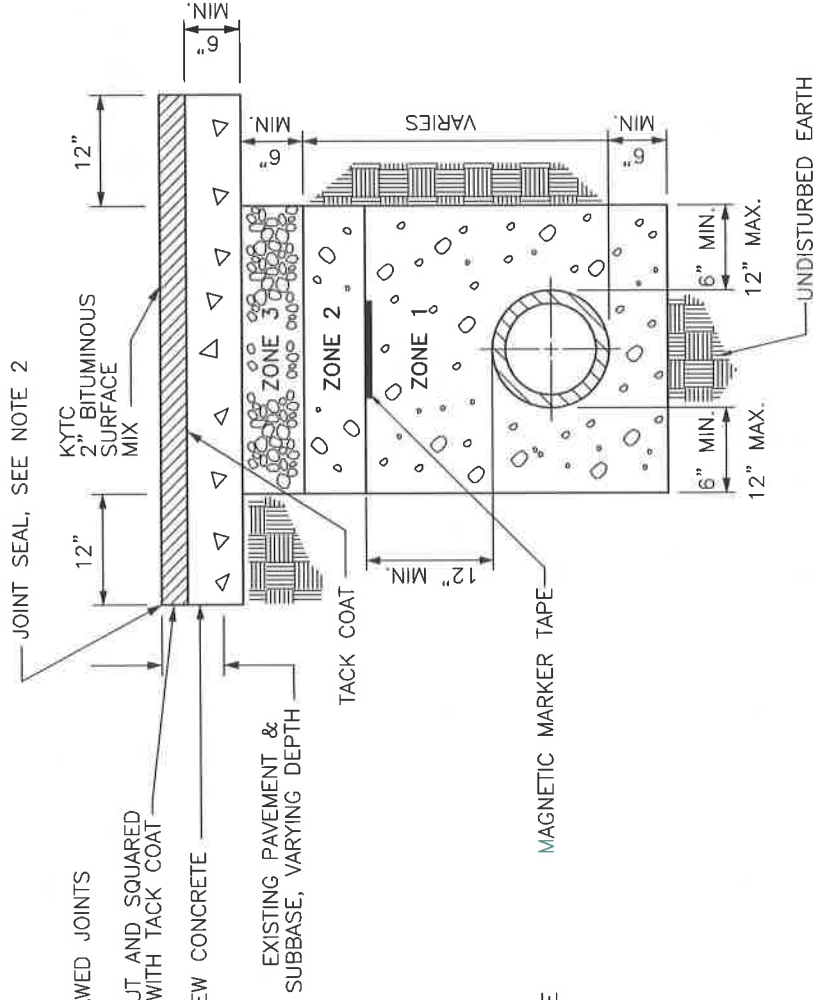
DATE



# CONCRETE PAVEMENT



# BITUMINOUS PAVEMENT



**NOTES:**

1. REPLACE CONCRETE PAVEMENT WITH NEW CONCRETE PAVEMENT, 6" MINIMUM OR EXISTING THICKNESS, WHICHEVER IS GREATER.
2. SEAL PERIMETER OF CUT PAVEMENT WITH CRACK SEALANT THAT MEETS ASTM D6690, TYPE 2.
3. MAGNETIC MARKER TAPE FOR SANITARY SEWER ONLY.

PIPE BACKFILL DESCRIPTIONS	
ZONE 1	NO. 9 STONE
ZONE 2	NO. 9 OR NO. 57 STONE
ZONE 3	COMPACTED DGA
ZONE 4	CONSOLIDATED SOIL (NO ROCK GREATER THAN 6" DIAMETER), NO. 9, OR NO. 57 STONE
ZONE 5	12" MAX. TOPSOIL NO ROCK ALLOWED



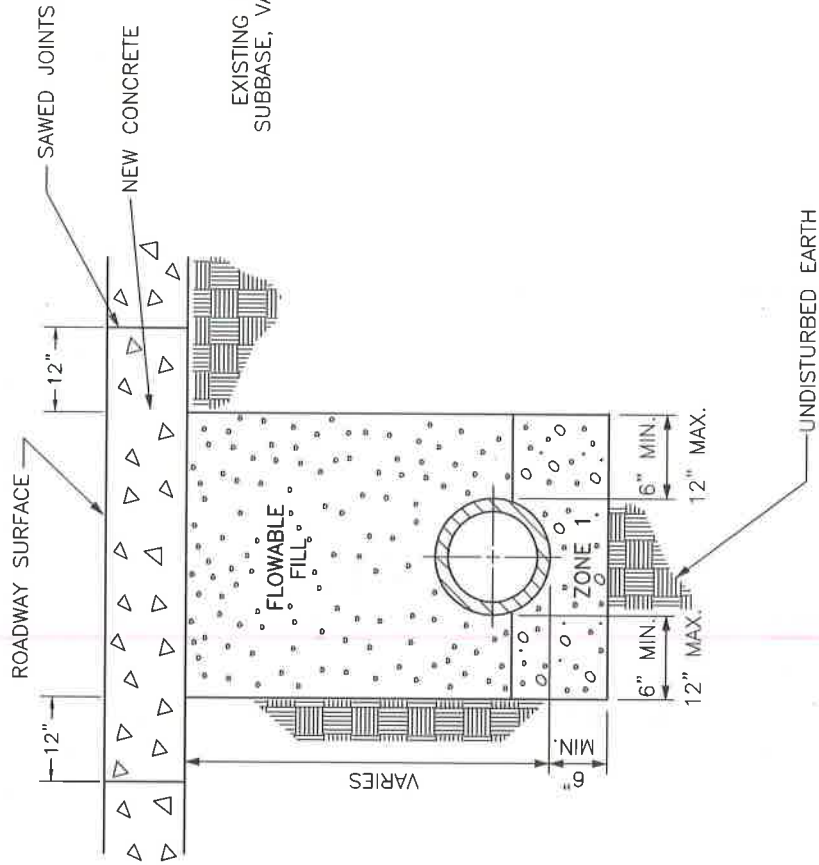
**LEXINGTON**

DIVISION OF ENGINEERING

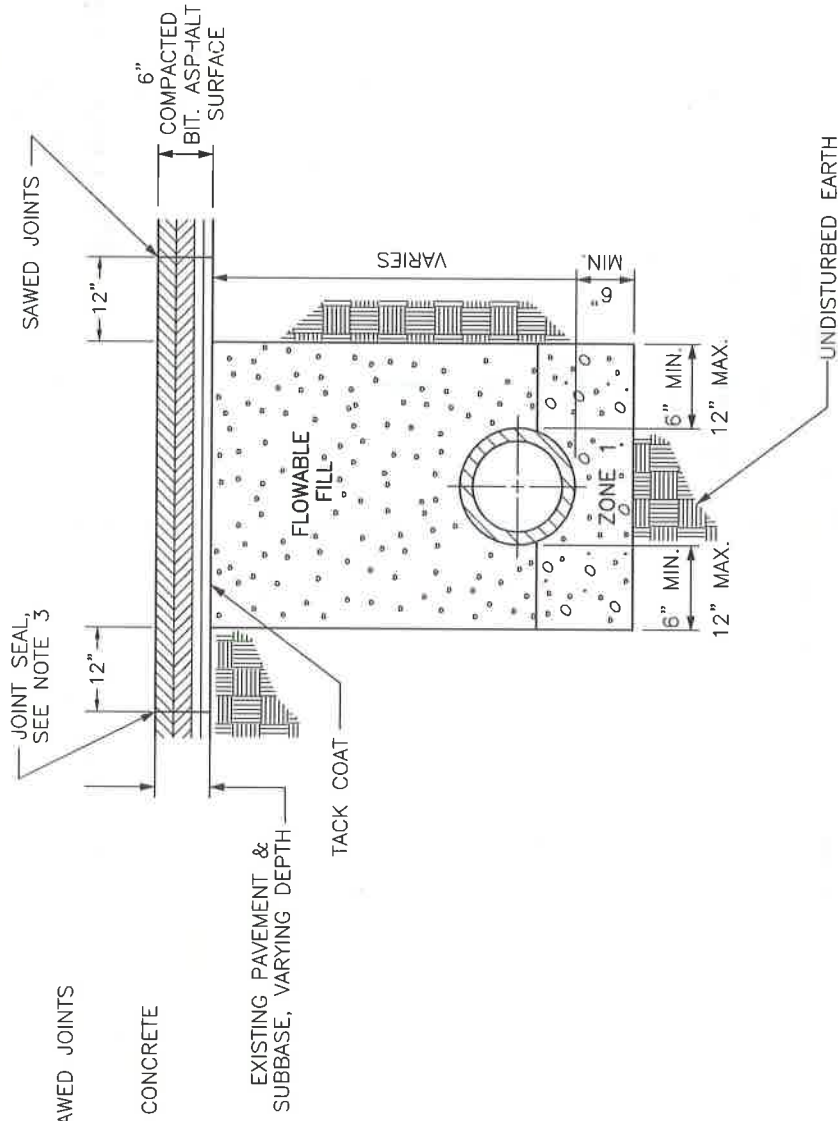
TRENCHING, LAYING, BACKFILLING AND BEDDING UNDER STREET PAVEMENT

STANDARD DRAWING NO.	201-1
APPROVAL	9/22/17
TURBAN COUNTY ENGINEER	DATE
COMMISSIONER	9/22/17
	DATE

### CONCRETE PAVEMENT



### BITUMINOUS PAVEMENT



PIPE BACKFILL DESCRIPTIONS	
ZONE 1	NO. 9 STONE
ZONE 2	NO. 9 OR NO. 57 STONE
ZONE 3	COMPACTED DGA
ZONE 4	CONSOLIDATED SOIL, (NO ROCK GREATER THAN 6" DIAMETER), NO. 9, OR NO. 57 STONE
ZONE 5	12" MAX. TOPSOIL, NO ROCK ALLOWED

- NOTES:
1. FLOWABLE FILL PER KYTC SPECIFICATION 601.03.03 FROM STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION CURRENT EDITION.
  2. REPLACE CONCRETE PAVEMENT WITH NEW CONCRETE PAVEMENT, 6" MINIMUM OR EXISTING THICKNESS, WHICHEVER IS GREATER.
  3. SEAL PERIMETER OF CUT PAVEMENT WITH CRACK SEALANT THAT MEETS ASTM D6690, TYPE 2.

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DIVISION OF ENGINEERING

TRENCHING, LAYING,  
BACKFILLING, AND BEDDING  
UNDER STREET PAVEMENT  
USING FLOWABLE FILL

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STANDARD DRAWING NO. 201-2

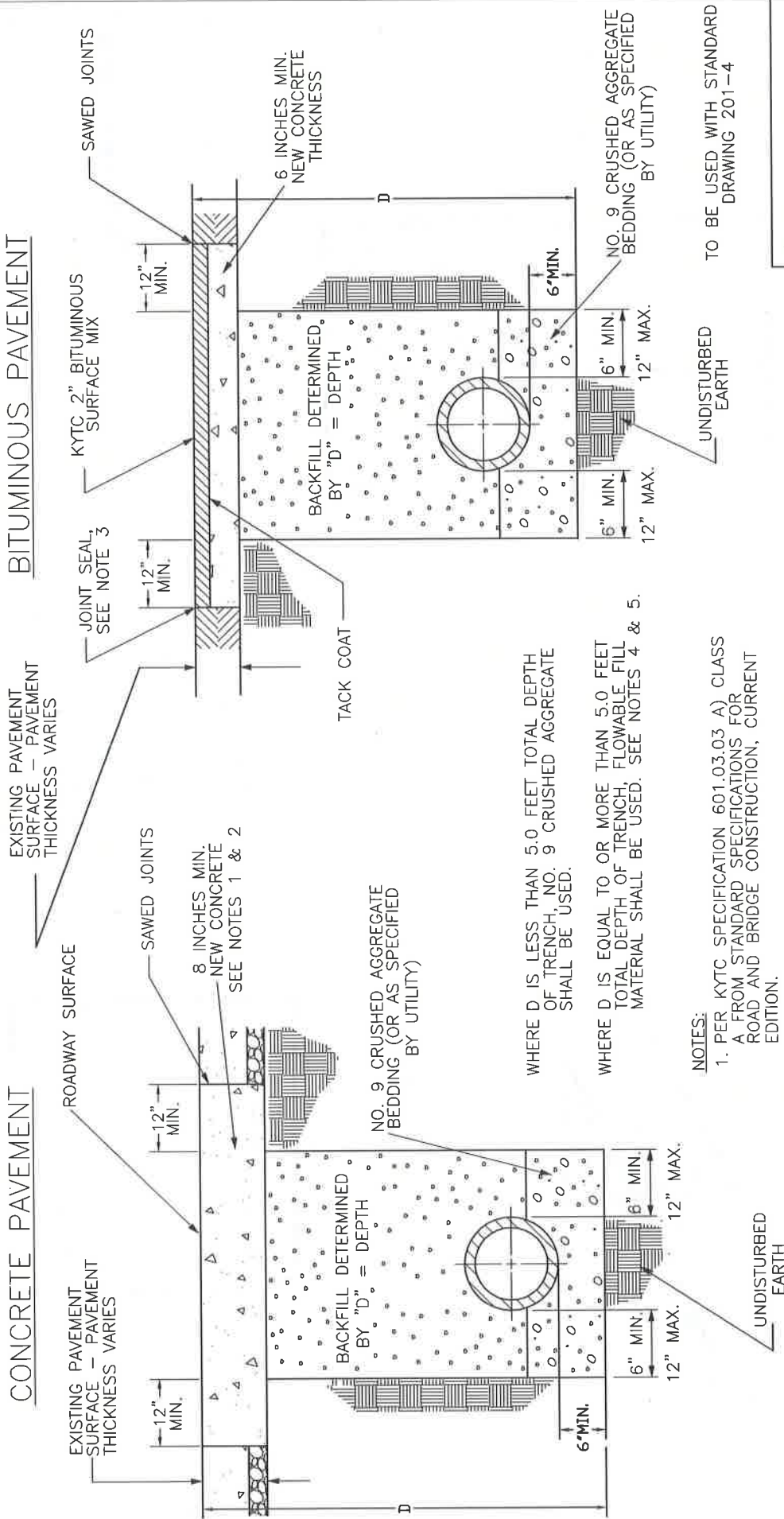
APPROVAL: 9/22/17 DATE

URBAN COUNTY ENGINEER: 9/22/17 DATE

COMMISSIONER

### CONCRETE PAVEMENT

### BITUMINOUS PAVEMENT



WHERE D IS LESS THAN 5.0 FEET TOTAL DEPTH OF TRENCH, NO. 9 CRUSHED AGGREGATE SHALL BE USED.

WHERE D IS EQUAL TO OR MORE THAN 5.0 FEET TOTAL DEPTH OF TRENCH, FLOWABLE FILL MATERIAL SHALL BE USED. SEE NOTES 4 & 5.

**NOTES:**

1. PER KYTC SPECIFICATION 601.03.03 A) CLASS A FROM STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.
2. REPLACE CONCRETE PAVEMENT WITH NEW CONCRETE PAVEMENT.
3. SEAL PERIMETER OF CUT PAVEMENT WITH CRACK SEALANT THAT MEETS ASTM D6690, TYPE 2.
4. FLOWABLE FILL TO BE PROPORTIONED PER KYTC SPECIFICATION 601.03.03 B) 5) FROM STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, CURRENT EDITION.
5. UTILITY DESIGNERS AND CONTRACTORS SHALL ACCOUNT FOR AND PROVIDE ANY SUITABLE MEANS TO PREVENT PIPE/CONDUIT FLOATATION.

TO BE USED WITH STANDARD DRAWING 201-4



**LEXINGTON**

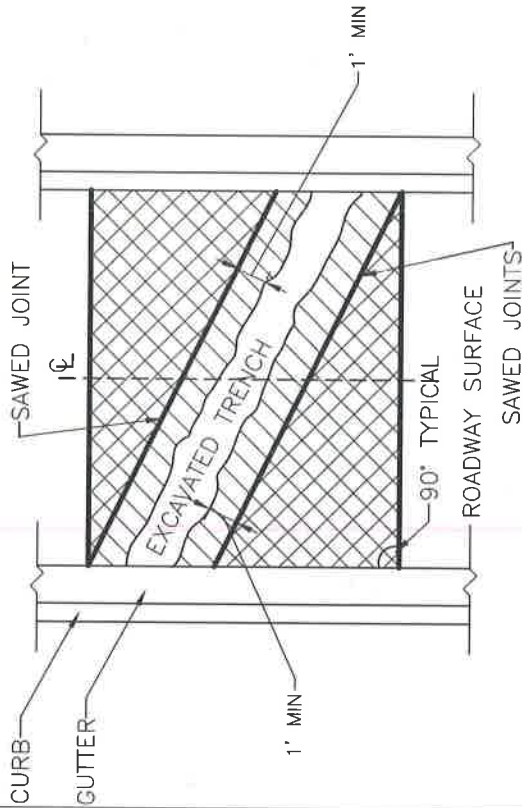
DIVISION OF ENGINEERING

UTILITY TRENCH RESTORATION BENEATH EXISTING PAVED ROADS (SECTION VIEW)

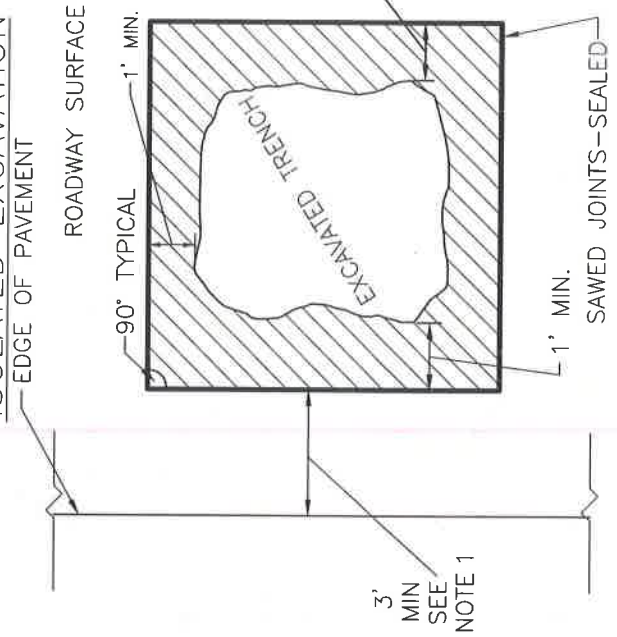
STANDARD DRAWING NO.	201-3
APPROVAL:	9/22/17
URBAN COUNTY ENGINEER	9/22/17
DATE	
COMMISSIONER	



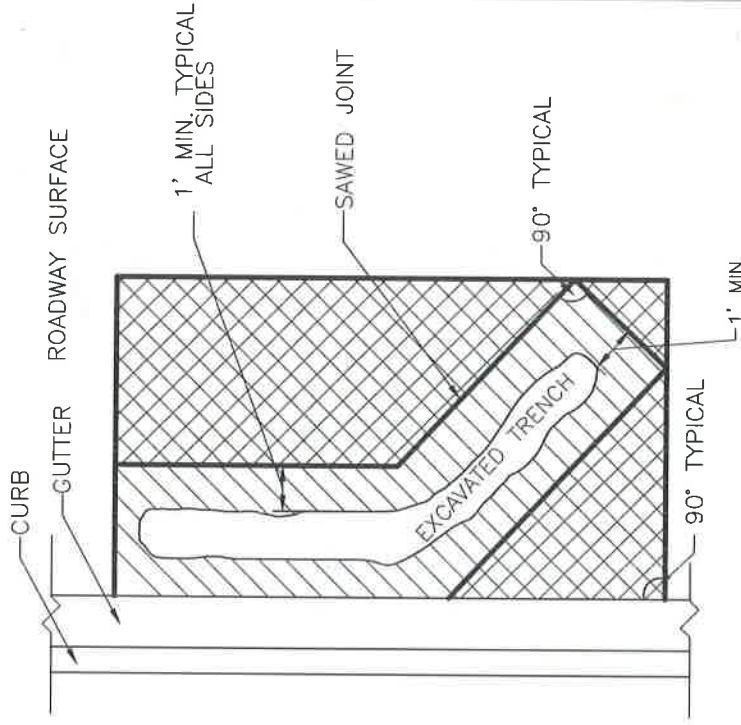
### TRANSVERSE EXCAVATION



### ISOLATED EXCAVATION



### LONGITUDINAL EXCAVATION - ADJACENT TO CURB OR GUTTER



#### NOTES:

1. WHEN LESS THAN 3', THEN THE PAVEMENT SHALL BE REMOVED TO THE EDGE OF PAVEMENT AND REPLACED PER STANDARD DRAWING 201-3.
2. STREET CUT SHALL BE ORIENTED EITHER PARALLEL OR PERPENDICULAR TO CURB OR GUTTER.
3. ALL SAWS JOINTS SHALL PRODUCE NEAT CUTS WITH SQUARED EDGES.



AREA SHALL BE EXCAVATED TO 8" BELOW ROADWAY SURFACE, THEN REPLACED PER STANDARD DRAWING 201-3.



AREA SHALL BE MILLED 2" AND REPLACED WITH 2" BITUMINOUS SURFACE MIX.

TO BE USED WITH STANDARD DRAWING, 201-3



**LEXINGTON**

DIVISION OF ENGINEERING

UTILITY TRENCH RESTORATION BENEATH EXISTING PAVED ROADS (PLAN VIEW)

STANDARD DRAWING NO.	201-4
APPROVAL	
URBAN COUNTY ENGINEER	9/28/17
COMMISSIONER	9/28/17
DATE	

TABLE OF:  
**MAXIMUM ALLOWABLE FILL HEIGHTS**  
 (LIVE LOAD NOT INCLUDED)

DIAMETER (INCHES)	DUCTILE IRON PIPE		POLYVINYL CHLORIDE (PVC) PIPE	
	CLASS 50 * MAXIMUM DEPTH OF COVER (FEET)	SDR-35 MAXIMUM DEPTH OF COVER (FEET)	SDR-26 MAXIMUM DEPTH OF COVER (FEET)	HEAVY WALL MAXIMUM DEPTH OF COVER (FEET)
4	-	-	-	-
6	20	15	-	-
8	20	15	-	-
10	20	15	-	-
12	20	15	-	-
14	20	-	-	-
15	-	15	-	-
16	20	-	-	-
18	20	-	-	20
20	18	-	-	-
21	-	-	-	20
24	17	-	-	20
27	-	-	-	20
30	14	-	-	-
36	14	-	-	-
42	13	-	-	-
48	13	-	-	-

\* LIGHTEST CLASS OF DUCTILE IRON PIPE

NOTES:

- DEPTH IS BASED ON LAYING CONDITION UTILIZING NO. 9 STONE ENCASED PIPE FROM 6" MINIMUM BELOW PIPE TO A PLANE LEVEL WITH THE TOP OF THE PIPE AND 6" TO 12" NO. 9 STONE TO EDGE OF TRENCH.
- WEIGHT OF SOIL AND ROCK COVER MIX IS ASSUMED TO BE APPROXIMATELY 120 LB./CU. FT.
- DUCTILE IRON PIPE HAS FLEXIBLE LINING.
- DESIGN ENGINEERS SHOULD USE THIS STANDARD DRAWING FOR GENERAL GUIDELINES AND SHOULD CHECK THEIR DESIGN FOR SAFE, NON-DESTRUCTIVE FILL HEIGHTS FOR ACTUAL BRAND OF PIPE PROPOSED.
- SPECIAL TRENCHING DETAILS AND PROCEDURES SHOULD BE USED WHERE FILL DEPTHS ARE HIGHER THAN THOSE SHOWN IN TABLE.
- INSTALLATIONS REQUIRING A DEPTH GREATER THAN 20', MUST BE APPROVED BY THE ENGINEER.



**LEXINGTON**

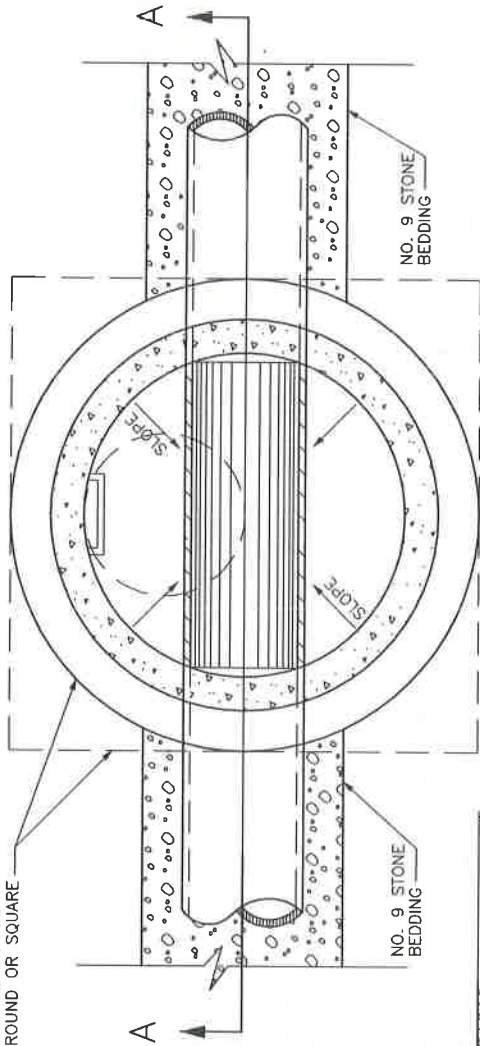
DIVISION OF ENGINEERING

SANITARY SEWER PIPE:  
 TYPES & MAXIMUM  
 ALLOWABLE FILL HEIGHTS

STANDARD DRAWING NO. 204

APPROVAL:  9/22/17  
 URBAN COUNTY ENGINEER  
 DATE  
 COMMISSIONER  9/22/17  
 DATE

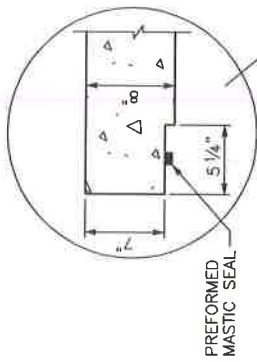
MANHOLE BASE MAY BE EITHER ROUND OR SQUARE



**SECTION B-B**

**NOTES:**

1. ALL BARREL JOINTS BETWEEN BASE AND BARREL, BETWEEN BARREL AND TOP, BETWEEN TOP AND ADJUSTING RINGS, BETWEEN ADJUSTING RINGS AND FRAME SHALL HAVE ONE OUTER MASTIC SEAL AND AN INNER SEAL OF NONSHRINK GROUT.
2. COAT OUTSIDE OF ADJUSTING RINGS WITH SEMI-FIBRATED ASPHALT DAMPROOFING COMPOUND APPLIED BY BRUSH OR SPRAY.
3. WATER STOPS SHOULD BE PROVIDED FOR INLETS AND OUTLETS OF EVERY MANHOLE, DESIGNED FOR TYPE OF PIPE USED AND WITH EXPANSIVE GROUT. SEE STD. DWG. 213 FOR WATER STOP DETAIL.
4. MANHOLES MUST PASS VACUUM TEST PER ASTM C-1244 PRIOR TO ACCEPTANCE.



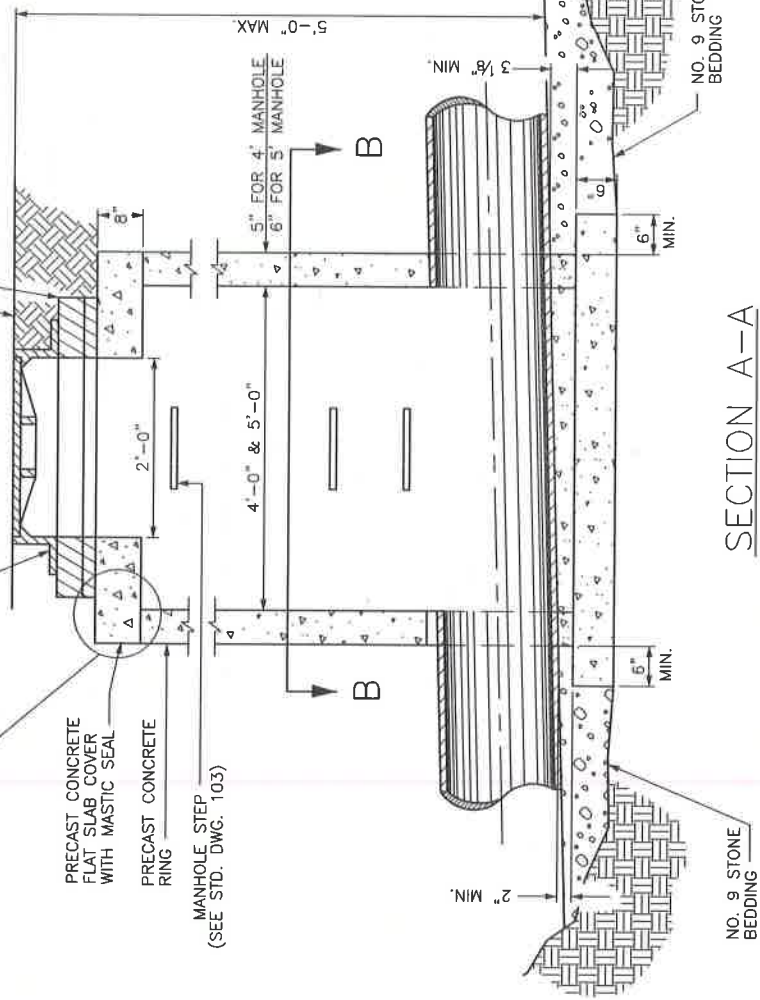
PROVIDE COLLAR OF 6" FOR FUTURE ADJUSTMENT PRECAST CONCRETE RINGS

SET FRAME CASTING IN FULL MASTIC BED FOR WATERTIGHT FRAME & LID. SEE APPLICABLE STANDARD DRAWING

PRECAST CONCRETE FLAT SLAB COVER WITH MASTIC SEAL

PRECAST CONCRETE RING

MANHOLE STEP (SEE STD. DWG. 103)

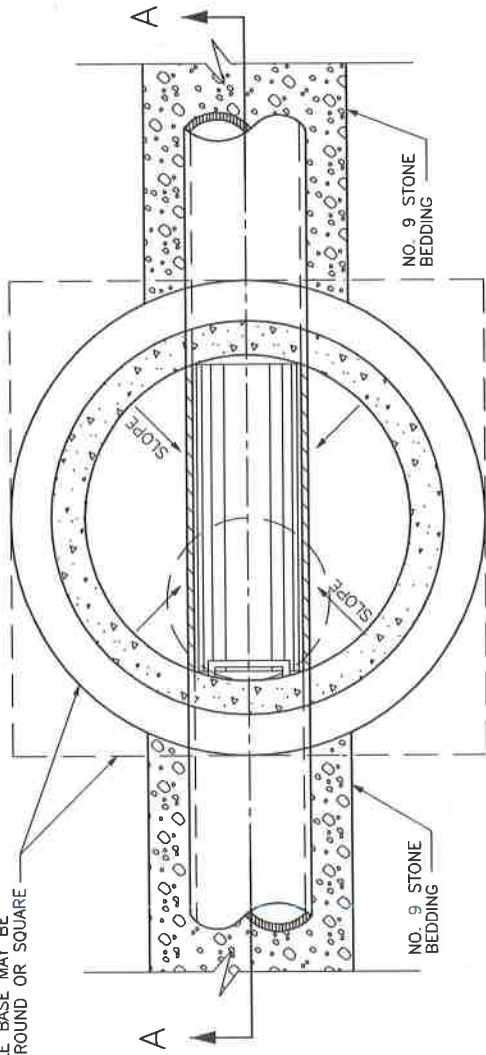


**SECTION A-A**

(PIPE WITH TOP HALF REMOVED OR PAVED INVERT)

<p><b>LEXINGTON</b></p>	DIVISION OF ENGINEERING	
	TYPICAL PRECAST CONCRETE SHALLOW MANHOLE FOR PIPES 24" AND LARGER	
STANDARD DRAWING NO.	210	
APPROVAL:		DATE: 9/28/17
URBAN COUNTY ENGINEER		DATE: 9/27/17
COMMISSIONER		

MANHOLE BASE MAY BE EITHER ROUND OR SQUARE



SECTION B-B

PROVIDE COLLAR OF 6" IN FULL MASTIC BED FOR FUTURE ADJUSTMENT PRECAST CONCRETE RINGS

SET FRAME CASTING IN FULL MASTIC BED FOR WATERTIGHT FRAME & LID. SEE APPLICABLE STANDARD DRAWING

GRADE

2'-0"

4'-0" & 5'-0"

VARIES

5" FOR 4'-0" MANHOLE  
6" FOR 5'-0" MANHOLE

2" MIN

6" MIN

NO. 9 STONE BEDDING

NO. 9 STONE BEDDING

MANHOLE STEPS (SEE STD. DWG. 103)

CONCENTRIC CONICAL BARREL SECTION

PRECAST CONCRETE BARREL

SECTION A-A

NO. 9 STONE BEDDING

NO. 9 STONE BEDDING

NOTES:

1. ALL BARREL JOINTS BETWEEN BASE AND BARREL, BETWEEN BARREL AND TOP, BETWEEN TOP AND ADJUSTING RINGS, BETWEEN ADJUSTING RINGS AND FRAME SHALL HAVE ONE OUTER MASTIC SEAL AND AN INNER SEAL OF NONSHRINK GROUT.
2. COAT OUTSIDE OF ADJUSTING RINGS WITH SEMI-FIBRATED ASPHALT DAMPROOFING COMPOUND APPLIED BY BRUSH OR SPRAY.
3. WATER STOPS SHOULD BE PROVIDED FOR INLETS AND OUTLETS OF EVERY MANHOLE, DESIGNED FOR TYPE OF PIPE USED AND WITH EXPANSIVE GROUT. SEE STD. DWG. 213 FOR WATER STOP DETAIL.
4. NO REINFORCEMENT NEEDED IN BOTTOM SLAB AT DEPTHS UP TO 12". AT DEPTHS GREATER THAN 12" REINFORCE WITH NO. 4 BARS - 12" C-C.
5. A DIFFERENCE OF FLOW ELEVATION MORE THAN 24" REQUIRES AN OUTSIDE DROP. (SEE STD. DWG. 212)
6. MANHOLE STEPS SHALL BE ALIGNED WITH STRAIGHT SIDE OF CONCENTRIC CONE SECTION, AND ALIGNED OVER THE OUTLET PIPE.
7. PIPES SHALL NOT ENTER THE CONE SECTION.
8. MANHOLES MUST PASS VACUUM TEST PER ASTM C-1244 PRIOR TO ACCEPTANCE.

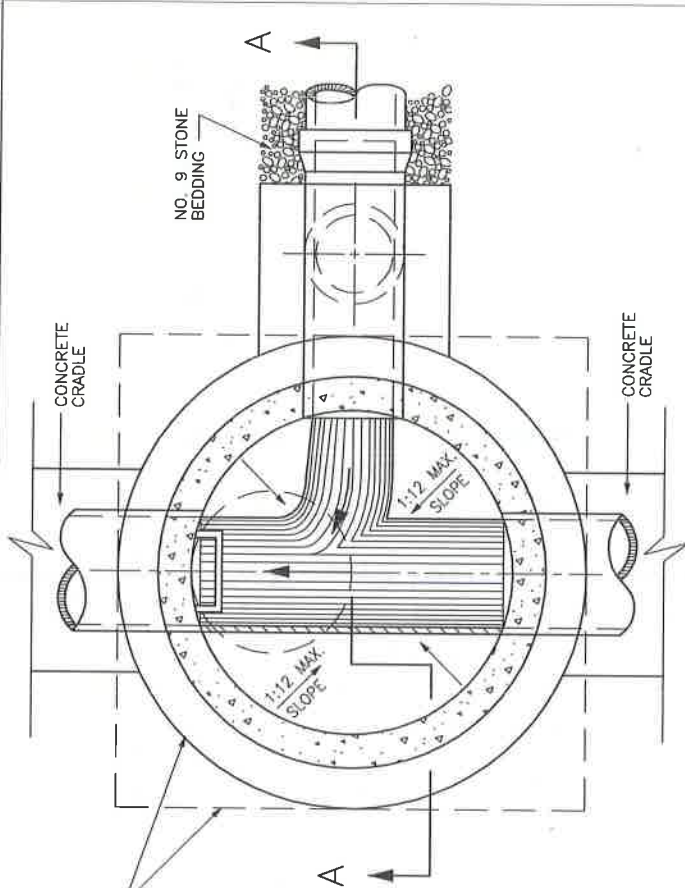


**LEXINGTON**

DIVISION OF ENGINEERING

TYPICAL STANDARD PRECAST CONCRETE MANHOLE FOR PIPES UP TO 24"

STANDARD DRAWING NO.	211
APPROVAL:	9/22/17
URBAN COUNTY ENGINEER	9/23/17
COMMISSIONER	DATE



SECTION B-B

MANHOLE BASE MAY BE EITHER ROUND OR SQUARE

PROVIDE COLLAR OF 6" FOR FUTURE ADJUSTMENT PRECAST CONCRETE RINGS

SET FRAME CASTING IN MASTIC BED FOR WATERTIGHT FRAME & LID - SEE APPLICABLE STANDARD DRAWING

GRADE

2'-0"

CONCENTRIC CONICAL BARREL SECTION

4'-0"

VARIES

NO. 9 STONE BEDDING

2'-0" MIN.

CONCRETE ENCASEMENT

3 1/8"

VARIES

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

NOTES:

1. ALL BARREL JOINTS BETWEEN BASE AND BARREL, BETWEEN BARREL AND TOP, BETWEEN TOP AND ADJUSTING RINGS, BETWEEN ADJUSTING RINGS AND FRAME SHALL HAVE ONE OUTER MASTIC SEAL AND AN INNER SEAL OF NONSHRINK GROUT.
2. COAT OUTSIDE OF ADJUSTING RINGS WITH SEMI-FIBRATED ASPHALT DAMPROOFING COMPOUND APPLIED BY BRUSH OR SPRAY.
3. WATER STOPS SHOULD BE PROVIDED FOR INLETS AND OUTLETS OF EVERY MANHOLE, DESIGNED FOR TYPE OF PIPE USED AND WITH EXPANSIVE GROUT. SEE STD. DWG. 213 APPLICABLE FOR WATER STOP DETAIL.
4. NO REINFORCEMENT NEEDED IN BOTTOM SLAB AT DEPTHS UP TO 12' AT DEPTHS GREATER THAN 12' REINFORCE WITH NO. 4 BARS - 12 C-C.
5. PROVIDE A MINIMUM FALL OF 0.1 FOOT FROM DROP TO MANHOLE OUTLET.
6. MANHOLES SHALL PASS VACUUM TEST PER ASTM C-1244 PRIOR TO ACCEPTANCE.
7. PIPE SHALL NOT ENTER CONE SECTION.
8. MANHOLE STEPS SHALL BE ALIGNED WITH STRAIGHT SIDE OF CONCENTRIC CONE SECTION, AND ALIGNED OVER OUTLET PIPE.
9. DO NOT USE IN CASES WHERE THE DROP IS 2'-0" OR LESS.

5" FOR 4'-0" MANHOLE  
6" FOR 5'-0" MANHOLE

1 PIPE DIA. FOR  
10 3/8 PIPE DIA.  
FOR PIPES GREATER  
THAN 10"  
FOR PIPES LESS

4'-0" & 5'-0"

MANHOLE STEPS  
(SEE STD. DWG. 103)

PRECAST CONCRETE  
BARREL

CONCENTRIC CONICAL  
BARREL SECTION

GRADE

2'-0"

NO. 9 STONE  
BEDDING

2'-0" MIN.

CONCRETE  
ENCASEMENT

3 1/8"

VARIES

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

6" MIN.

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6" MIN.

6" MIN.

6" MIN.

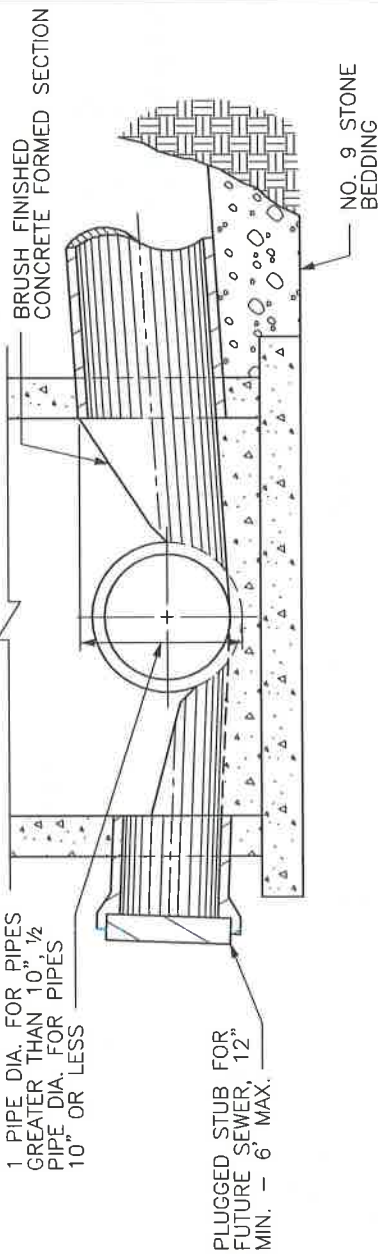
6" MIN.

6" MIN.

SECTION A-A

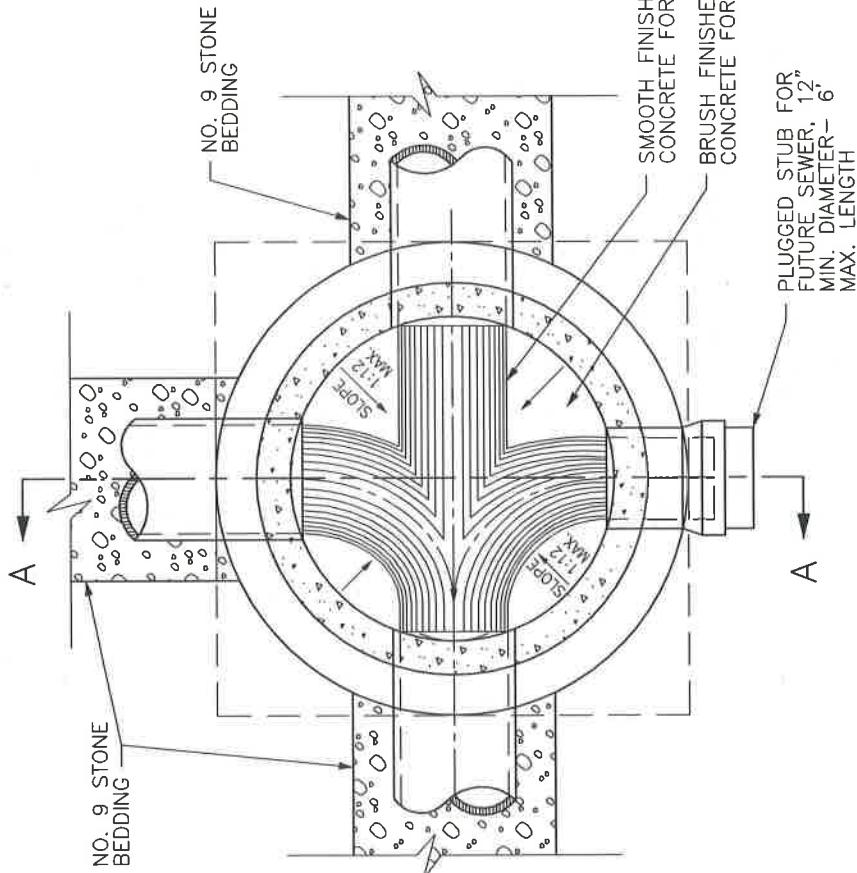
**LEXINGTON**  
DIVISION OF ENGINEERING  
TYPICAL PRECAST CONCRETE  
DROP MANHOLE  
FOR PIPES UP TO 36"

STANDARD DRAWING NO. 212  
APPROVAL: 9/22/17  
URBAN COUNTY ENGINEER: [Signature]  
DATE: 9/22/17  
COMMISSIONER: [Signature]



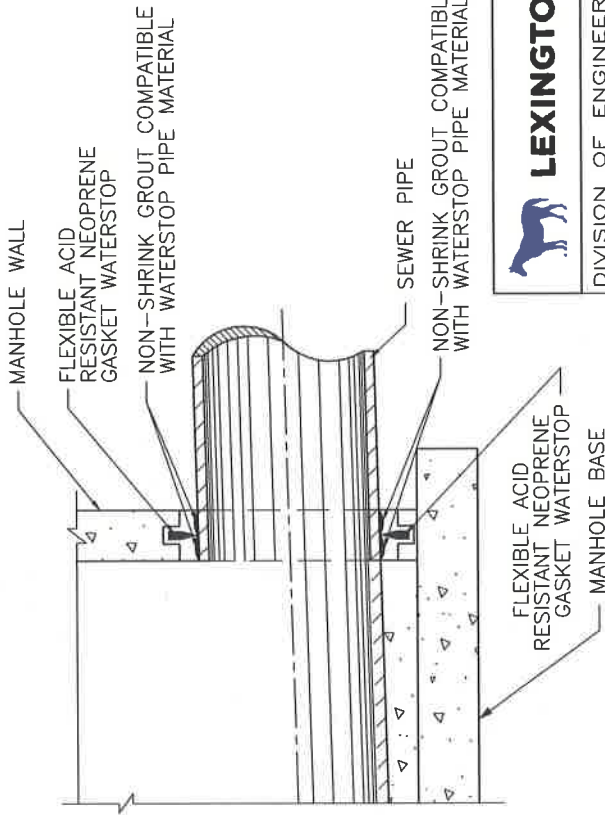
1- PIPE DIA. FOR PIPES  
GREATER THAN 10", 1/2"  
PIPE DIA. FOR PIPES  
10" OR LESS

PLUGGED STUB FOR  
FUTURE SEWER, 12"  
MIN. - 6" MAX.



SECTION PLAN

SECTION A-A



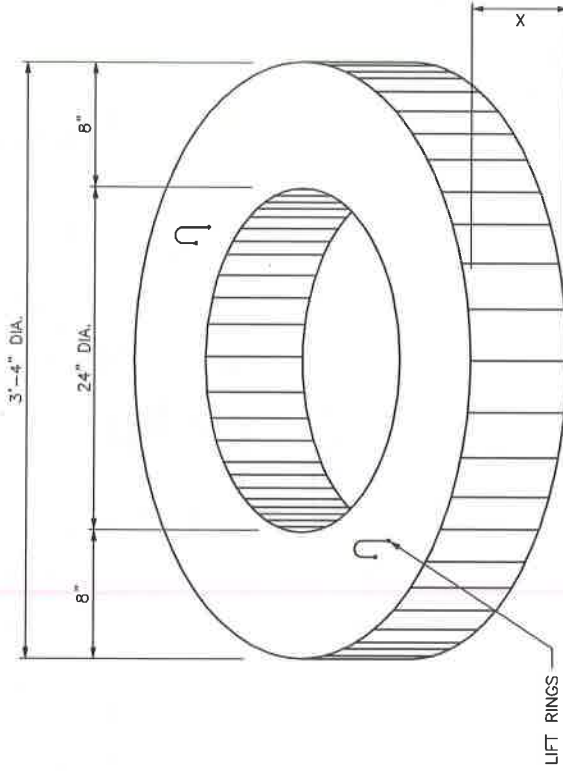
WATER STOP DETAIL

NOTE:  
MANHOLES SHALL PASS VACUUM TEST PER  
ASTM C-1244 PRIOR TO ACCEPTANCE.

 <b>LEXINGTON</b>	DIVISION OF ENGINEERING
	STANDARD MANHOLE JUNCTION AND WATER STOP DETAILS
STANDARD DRAWING NO. 213	DATE 9/23/17
APPROVAL: 	DATE 9/23/17
URBAN COUNTY ENGINEER	COMMISSIONER

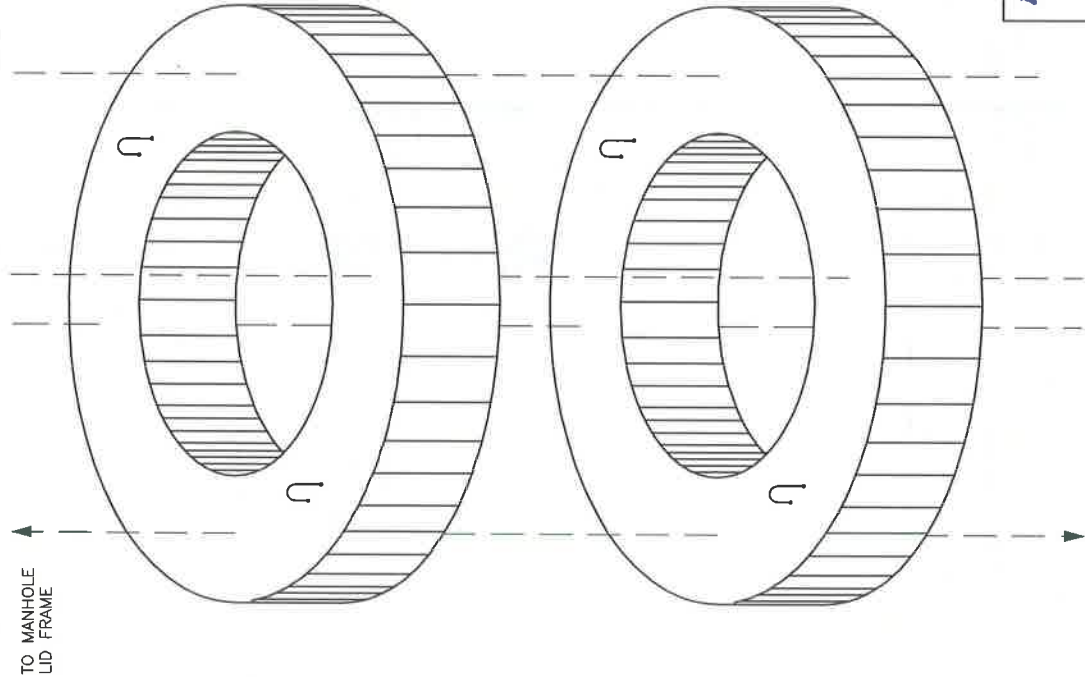
**NOTES:**

1. LIFT RINGS TO BE CUT BEFORE ADDING THE NEXT RING OR TOP.
2. COAT OUTSIDE AND IN BETWEEN ADJUSTING RINGS WITH SEMI-FIBRATED ASPHALT DAMPROOFING COMPOUND APPLIED BY BRUSH OR SPRAY.
3. GRADE RINGS WITH NON-PARALLEL SURFACES MAY BE USED TO ADJUST CASTING TO SLOPED SURFACE.
4. CONCRETE: CLASS "A" 3500 PSI AT 28 DAYS, AND IN ACCORDANCE WITH ASTM C-478, OR APPROVED EQUAL.
5. NO MORE THAN 2 GRADE RINGS MAY BE USED AT ONE LOCATION AND THE MAXIMUM HEIGHT OF ALL RINGS USED SHALL NOT EXCEED 12 INCHES.
6. APPLY MASTIC BETWEEN ALL JOINTS.



**GRADE RING WIDTH CHART**

X	WEIGHT LBS.
2"	140
3"	210
4"	279
6"	419
8"	560
12"	730



**LEXINGTON**

DIVISION OF ENGINEERING

---

SEWER MANHOLE ADJUSTMENT  
GRADE RINGS

STANDARD DRAWING NO. **214**

APPROVAL: **9/22/17**

URBAN COUNTY ENGINEER **9/22/17**

COMMISSIONER **9/22/17**

## GENERAL NOTES

1. SHALLOW MANHOLE TYPE CONSTRUCTION SHOWN ON STD. DWG. 210 MAY BE USED FOR ALL MANHOLES UP TO 5' IN DEPTH.
2. ALL DIMENSIONS ARE BASED ON SIZE OF LARGEST PIPE IN MANHOLE.
3. MANHOLES FOR PIPE LARGER THAN 36" SHALL BE SPECIALLY DESIGNED.
4. BOTTOM SLAB OF MANHOLES SHALL BE SPECIALLY DESIGNED WITH REGARD TO AREA, THICKNESS, AND REINFORCING IN SITUATIONS WHERE HIGH WATER TABLE OR UNSTABLE SOIL CONDITIONS EXIST.
5. MANHOLE STEPS SHALL BE INSTALLED IN A VERTICAL LINE AND SHALL COMPLY WITH OSHA STANDARDS IN ALL RESPECTS.
6. ALL FLOORS OF MANHOLES SHALL SLOPE AT LEAST 1" PER FT. FROM WALL TO CHANNELS AND SHALL HAVE SMOOTH FLOAT AND BRUSH FINISH.
7. CHANNEL SURFACE OF MANHOLES FROM INLET TO OUTLET SHALL HAVE SMOOTH FLOAT FINISH.
8. ELEVATIONS OF PIPES IN MANHOLES SHALL BE SUCH THAT THE TOP OF ALL INFLUENT PIPES WILL BE AT AN ELEVATION EQUAL TO OR GREATER THAN THE TOP OF THE EFFLUENT PIPE.

9. A MINIMUM FALL OF 0.10 FOOT SHALL BE PROVIDED.
10. BASE OF MANHOLES GREATER THAN 12' DEEP TO BE REINFORCED WITH NO. 4 BARS AT 12" BOTH WAYS.
11. ASPHALT DAMPROOFING COMPOUND IS REQUIRED ON PRECAST MANHOLES IN WET AREAS OR OTHERWISE AS DIRECTED BY THE ENGINEER.
12. LEAKS IN MANHOLES OBSERVED DURING CONSTRUCTION OR INSPECTION SHALL BE CORRECTED IMMEDIATELY.
13. MANHOLES SHALL PASS VACUUM TEST PER ASTM C-1244 PRIOR TO ACCEPTANCE.
14. ALL INLETS, INCLUDING LATERALS, MUST HAVE FLOW CHANNELS.
15. NEW CONNECTIONS TO EXISTING SANITARY SEWER MANHOLES MUST REPLACE EXISTING BRICK MANHOLES OR DAMAGED MANHOLES AT NO EXPENSE TO THE LFUGG.
16. FIELD POURED BASES (DOGHOUSE MANHOLES) SHALL ONLY BE ALLOWED WITH PRIOR APPROVAL OF THE LFUGG.

## SPECIFICATIONS

1. CASTINGS SHALL BE ASTM A-48, CLASS 35.
2. CONCRETE FOR MANHOLES, CRADLE ENCASUREMENT ETC. SHOWN IN THESE DETAILS SHALL BE CLASS "A".
3. CONCRETE MANHOLE BARREL CONSTRUCTION SHALL CONFORM TO ASTM C-478 OR ITS LATEST REVISION.



**LEXINGTON**

DIVISION OF ENGINEERING

MANHOLE SIZE STANDARDS  
AND GENERAL NOTES  
FOR DEEP MANHOLES

STANDARD DRAWING NO. 216

APPROVAL:

URBAN COUNTY ENGINEER

DATE: 9/22/17

COMMISSIONER

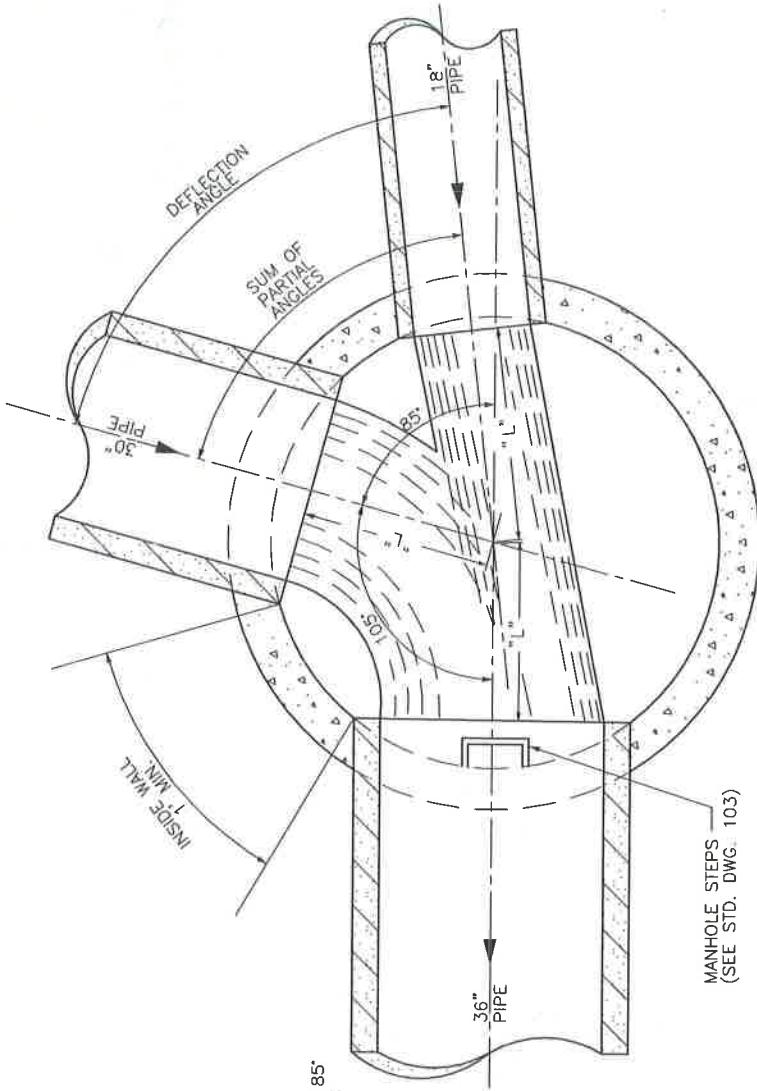


**CIRCULAR MANHOLE NOTES:**

1. THE ANGLE BETWEEN ANY TWO PIPES (e.g. ANGLE "Y" OR "Z") MUST BE GREATER THAN THE SUM OF THE PARTIAL ANGLES. REFER TO SEPARATE STANDARD DRAWINGS FOR TABLE OF MINIMUM PARTIAL ANGLES. ANGLES SMALLER THAN LISTED ON TABLE SHALL REQUIRE LARGER MANHOLE SELECTION.
2. THE MAXIMUM DEFLECTION ANGLE BETWEEN ANY INCOMING PIPE AND THE CENTERLINE EXTENSION OF THE DISCHARGE PIPE SHALL BE NO MORE THAN 90° FOR PIPES UP TO 24" IN DIAMETER. THE MAXIMUM DEFLECTION ANGLE FOR 27" TO 36" PIPES SHALL BE 75°.

**EXAMPLE FOR SANITARY MANHOLE SIZE SELECTION:**

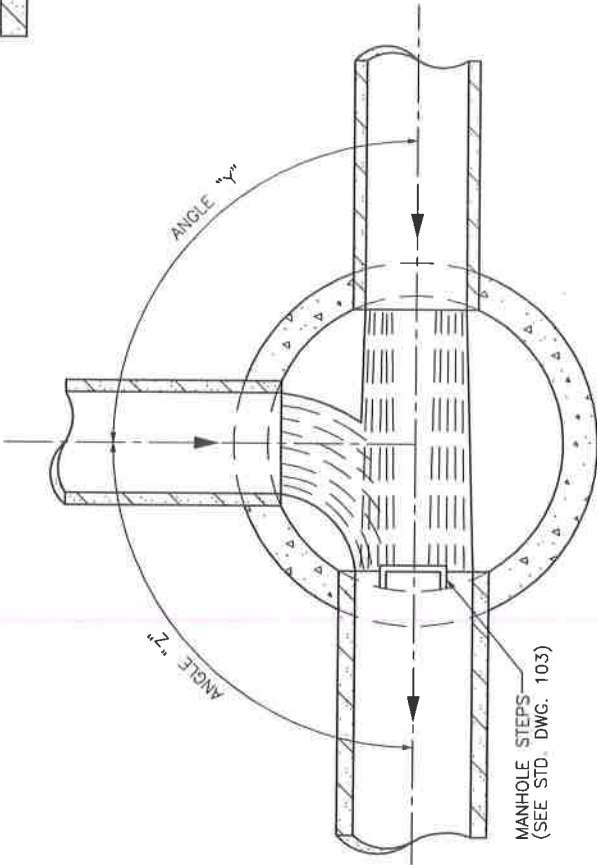
FOR MANHOLE SHOWN AT RIGHT, THE ANGLE BETWEEN THE 18" AND 30" PIPES IS 85° AND THE ANGLE BETWEEN THE 30" AND 36" PIPES IS 105°. THE TABLE INDICATES THAT FOR A 5'-0" DIAMETER MANHOLE THE MINIMUM PARTIAL ANGLE FOR AN 18" PIPE IS 34° AND FOR A 30" PIPE IS 50°. THE SUM OF THE PARTIAL ANGLES IS 84°. THIS SUM IS LESS THAN THE 85° THEREFORE, A 5'-0" MANHOLE DIAMETER IS ACCEPTABLE.



**PLAN SECTION**

**TABLE OF MINIMUM PARTIAL ANGLES FOR SANITARY MANHOLES**

PIPE SIZE	MANHOLE SIZE			
	4'-0"	5'-0"		
	P. ANGLE	L. DIST.	P. ANGLE	L. DIST.
15"	38°	1'-10"	30°	2'-3"
18"	43°	1'-8"	34°	2'-3"
24"	53°	1'-6"	39°	2'-2"
27"	-	-	45°	2'-0"
30"	-	-	50°	1'-11"



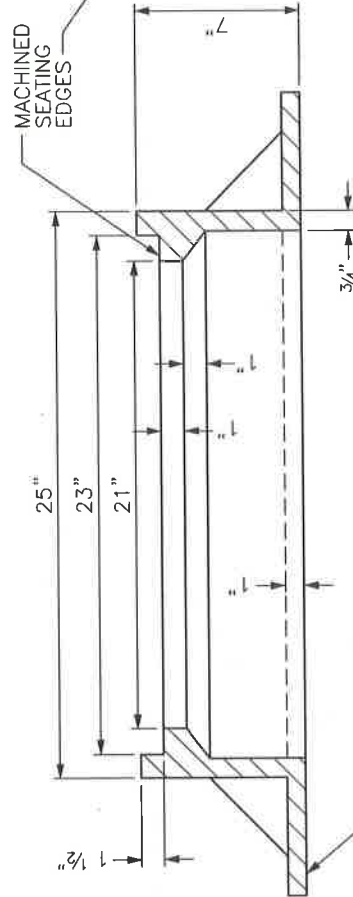
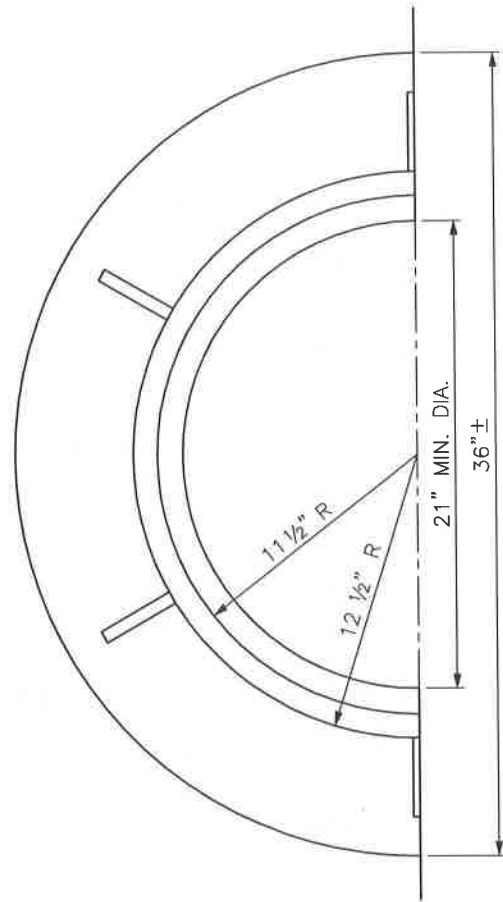
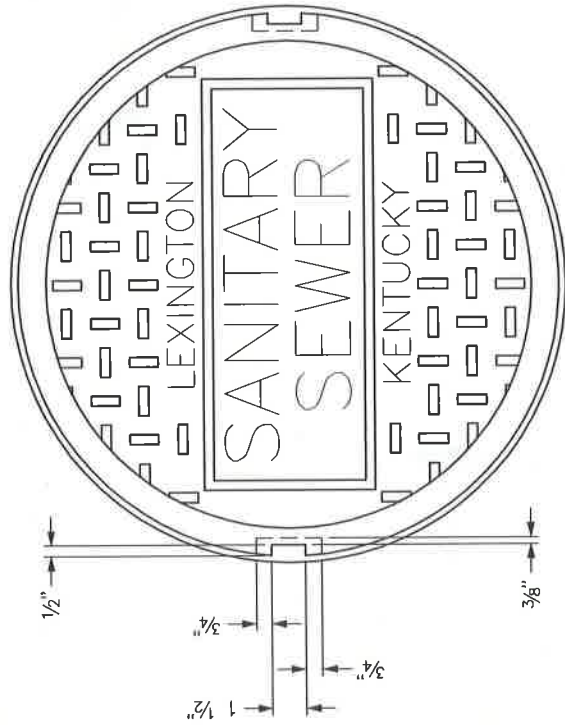
**PLAN SECTION**



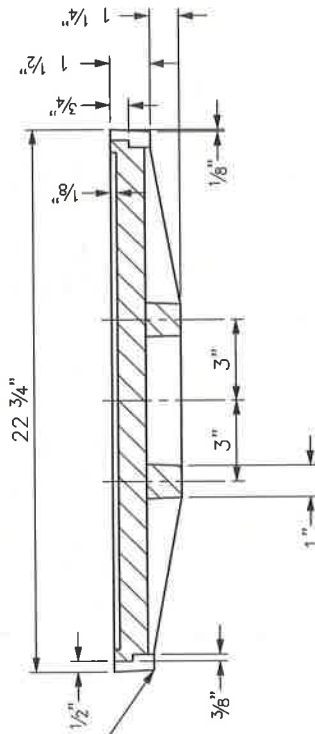
DIVISION OF ENGINEERING

DEFLECTION ANGLE CRITERIA FOR SANITARY MANHOLES

STANDARD DRAWING NO. 217  
 APPROVAL: [Signature] 9/22/17  
 URBAN COUNTY ENGINEER: [Signature] 9/22/17  
 COMMISSIONER DATE



SET FRAME CASTING IN FULL MORTAR BED, FOR WATERTIGHT MANHOLE FRAME AND LID - SEE APPLICABLE STANDARD DRAWING



COVER DETAIL

NOTE:

MANHOLE FRAME & LID ASSEMBLY SHALL HAVE A MINIMUM LID WEIGHT OF 120 LBS. AND A TOTAL MINIMUM FRAME & LID WEIGHT OF 305 LBS. WITH ALL STEEL IN ACCORDANCE WITH ASTM A-48 CLASS 35 SPEC.

FRAME DETAIL



DIVISION OF ENGINEERING

STANDARD CIRCULAR  
MANHOLE FRAME & COVER

STANDARD DRAWING NO. 220

APPROVAL: [Signature] 9/22/17

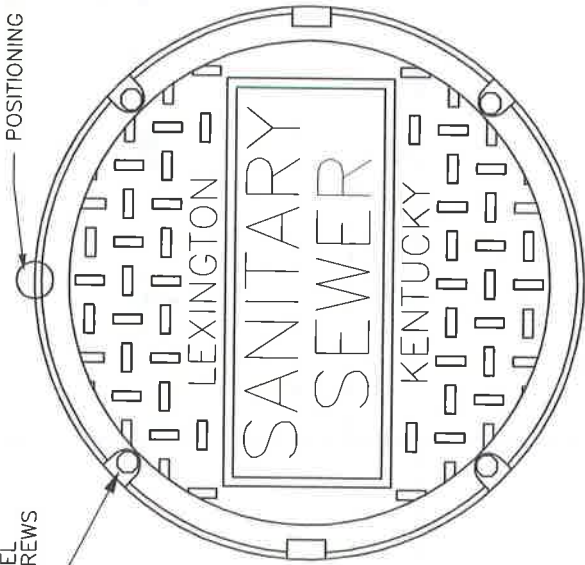
URBAN COUNTY ENGINEER [Signature]

DATE: 9/22/17

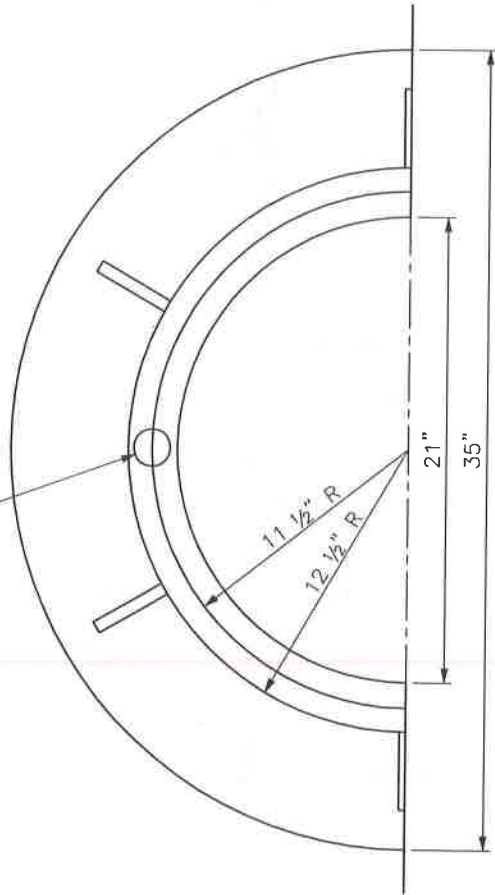
COMMISSIONER [Signature]

POSITIONING HOLE

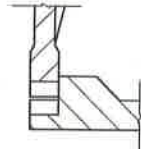
4 1/2" - 13" X 1 3/4" STAINLESS STEEL REC'D CAP SCREWS GREASED



POSITION HOLE



4 - S.S. 3/8" DIA. BOLTS GREASED

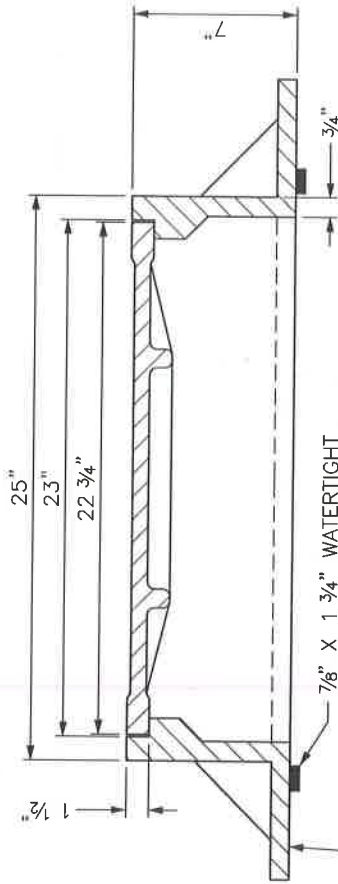


3/8" O-RING GUIDE TO FRAME

POSITIONING HOLE

WATERTIGHT DETAIL

COVER DETAIL



7/8" X 1 3/4" WATERTIGHT GASKET BETWEEN BOTTOM FRAME AND TOP OF BARREL

SET FRAME CASTING IN FULL MORTAR BED, FOR WATERTIGHT MANHOLE FRAME AND LID - SEE APPLICABLE STANDARD DRAWING.

NOTE:

MANHOLE FRAME & LID ASSEMBLY SHALL BE NEENAH #R-1916-D OR APPROVED EQUAL, HAVE A MINIMUM LID WEIGHT OF 150 LBS., AND A TOTAL MINIMUM FRAME & LID WEIGHT OF 335 LBS. WITH ALL STEEL IN ACCORDANCE WITH ASTM A-48 CLASS 35 SPEC. OR HIGHER.

FRAME DETAIL

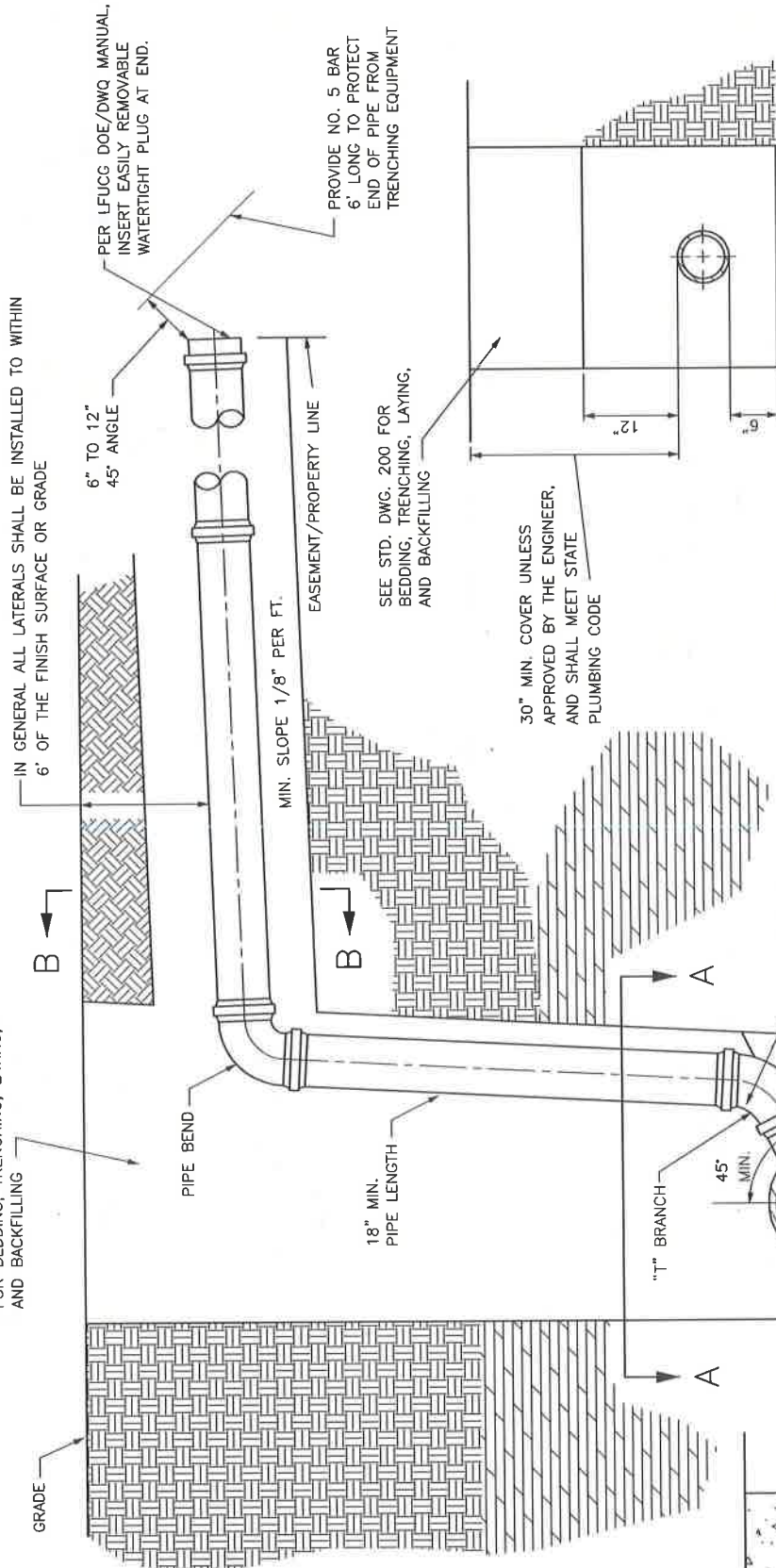


DIVISION OF ENGINEERING

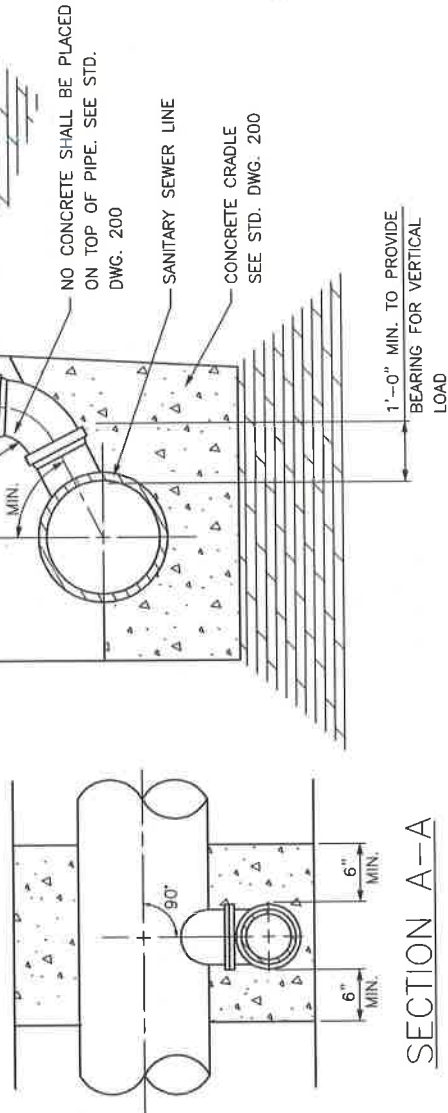
STANDARD WATERTIGHT MANHOLE FRAME & COVER

STANDARD DRAWING NO	222
APPROVAL	9/22/17
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	DATE

SEE APPLICABLE STANDARD DRAWING FOR BEDDING, TRENCHING, LAYING, AND BACKFILLING



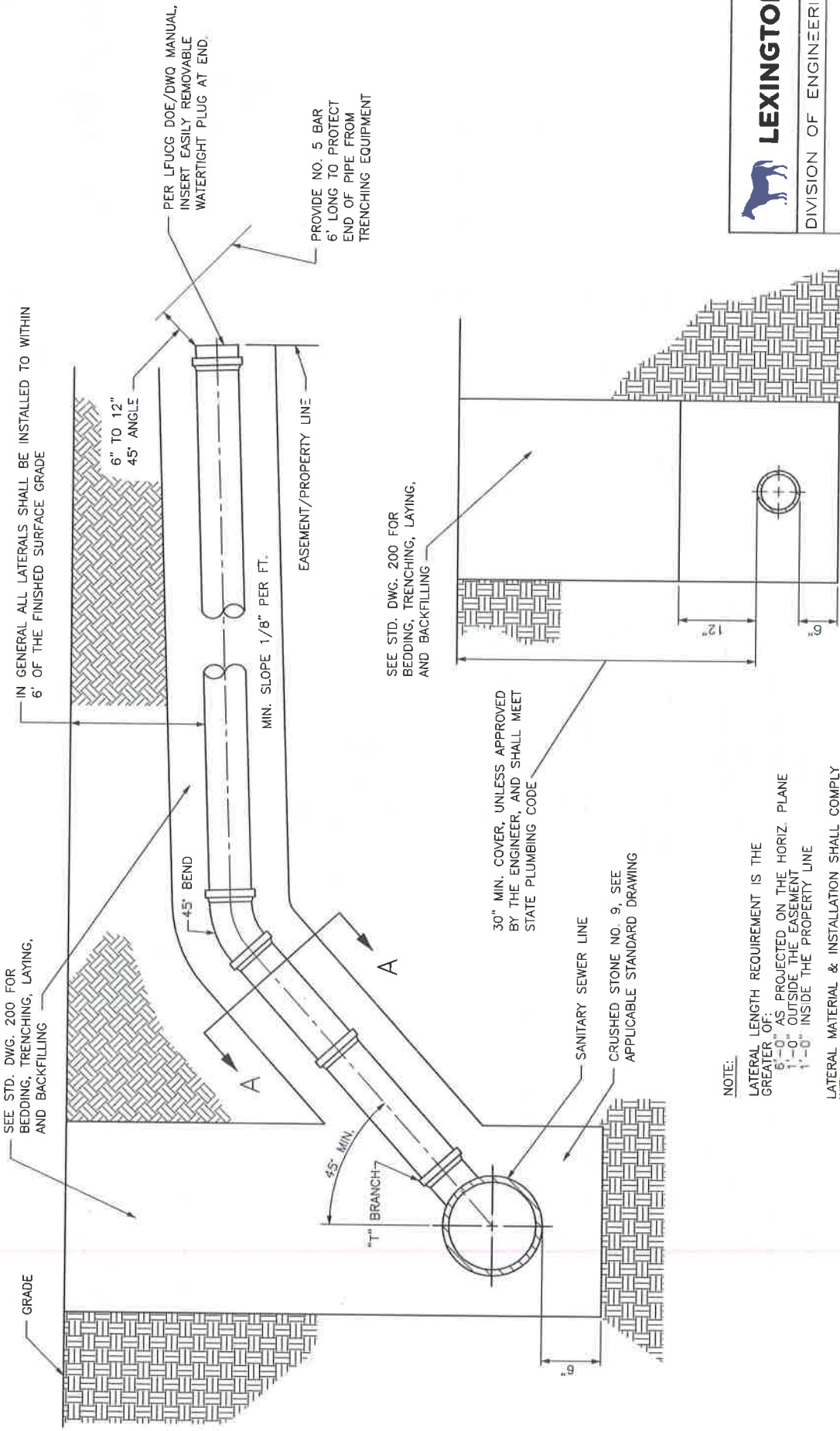
SECTION B-B



NOTE:  
 LATERAL LENGTH REQUIREMENT IS THE GREATER OF:  
 6'-0" AS PROJECTED ON THE HORIZ. PLANE  
 1'-0" OUTSIDE THE EASEMENT  
 1'-0" INSIDE THE PROPERTY LINE  
 LATERAL MATERIAL & INSTALLATION SHALL COMPLY WITH SANITARY SEWER AND PUMP STATION MANUAL, LFUCG, LATEST EDITION.



DIVISION OF ENGINEERING	
HOUSE LATERAL FOR GREATER THAN 6' DEEP SEWER IN SOIL & ROCK EXCAVATION	
STANDARD DRAWING NO.	230
APPROVAL:	9/28/17
URBAN COUNTY ENGINEER	9/27/17
COMMISSIONER	DATE



IN GENERAL ALL LATERALS SHALL BE INSTALLED TO WITHIN 6' OF THE FINISHED SURFACE GRADE

6" TO 12" 45° ANGLE

MIN. SLOPE 1/8" PER FT.

EASEMENT/PROPERTY LINE

PER LFUCC DOE/DWO MANUAL, INSERT EASILY REMOVABLE WATERTIGHT PLUG AT END.

PROVIDE NO. 5 BAR 6' LONG TO PROTECT END OF PIPE FROM TRENCHING EQUIPMENT

SEE STD. DWG. 200 FOR BEDDING, TRENCHING, LAYING, AND BACKFILLING

30" MIN. COVER, UNLESS APPROVED BY THE ENGINEER, AND SHALL MEET STATE PLUMBING CODE

CRUSHED STONE NO. 9, SEE APPLICABLE STANDARD DRAWING

**NOTE:**

LATERAL LENGTH REQUIREMENT IS THE GREATER OF:  
 6'-0" AS PROJECTED ON THE HORIZ. PLANE  
 1'-0" OUTSIDE THE EASEMENT  
 1'-0" INSIDE THE PROPERTY LINE

LATERAL MATERIAL & INSTALLATION SHALL COMPLY WITH SANITARY SEWER AND PUMP STATION MANUAL, LFUCC, LATEST EDITION.

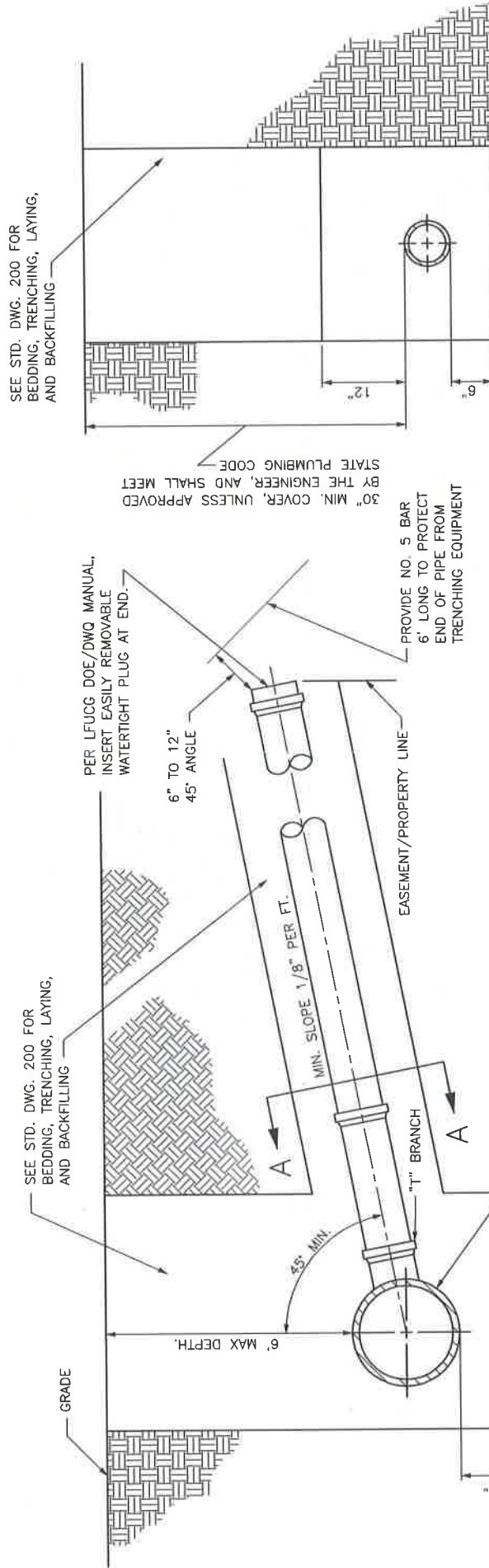
**LEXINGTON**

DIVISION OF ENGINEERING

HOUSE LATERAL FOR GREATER THAN 6' DEEP SEWER IN SOIL

STANDARD DRAWING NO	231	
APPROVAL	9/22/17	DATE
URBAN COUNTY ENGINEER	9/22/17	DATE
COMMISSIONER		

SECTION A-A



SECTION A-A

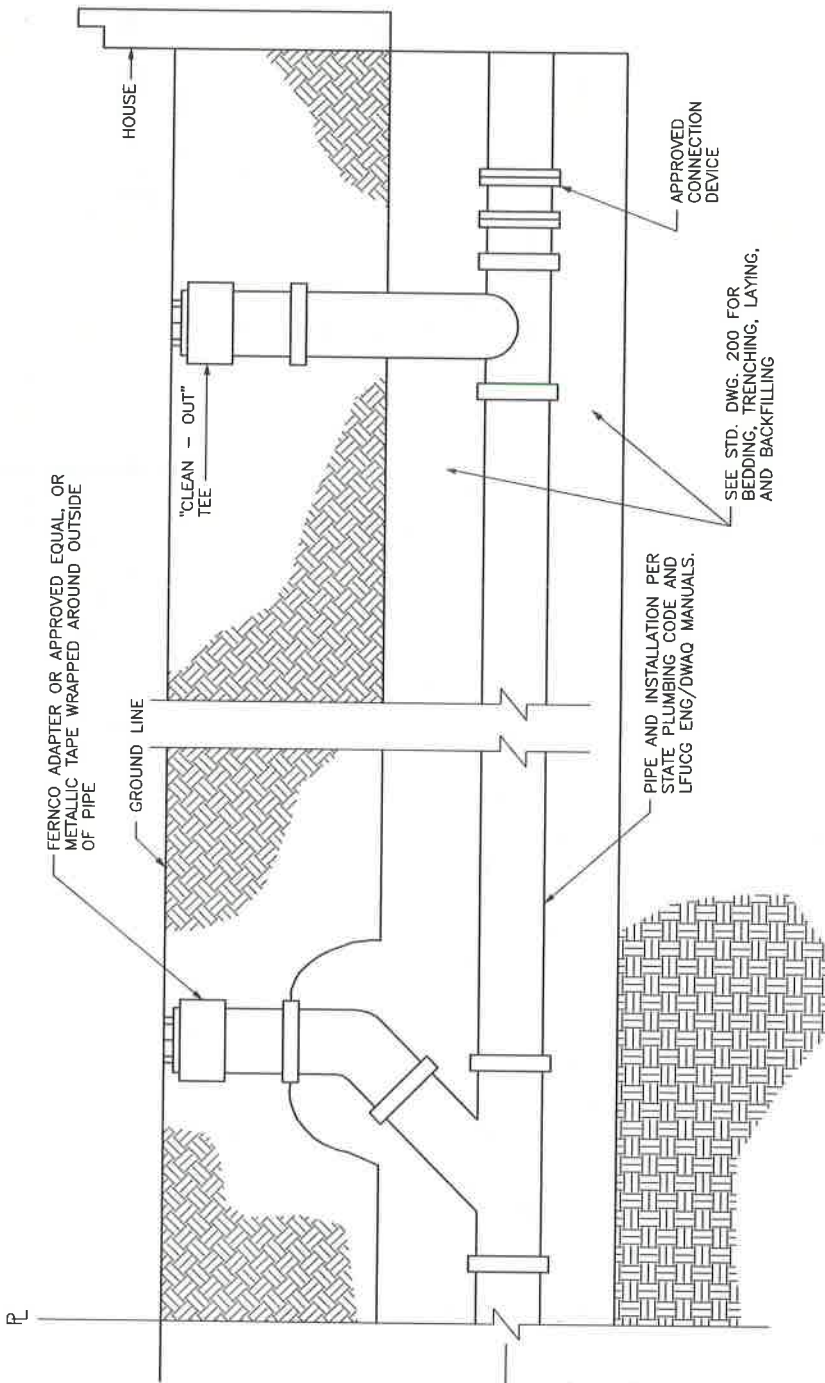
NOTE:

LATERAL LENGTH REQUIREMENT IS THE GREATER OF:  
 6'-0" AS PROJECTED ON THE HORIZ. PLANE  
 1'-0" OUTSIDE THE EASEMENT  
 1'-0" INSIDE THE PROPERTY LINE

LATERAL MATERIAL & INSTALLATION SHALL COMPLY WITH SANITARY SEWER AND PUMP STATION MANUAL, LFCUG, LATEST EDITION.



<b>LEXINGTON</b>	
DIVISION OF ENGINEERING	
HOUSE LATERAL FOR SHALLOW SEWER IN SOIL OR ROCK	
STANDARD DRAWING NO.	232
APPROVAL	[Signature]
URBAN COUNTY ENGINEER	9/22/17
DATE	9/22/17
COMMISSIONER	[Signature]
	DATE



REFER TO STD. DWG. 231 FOR DETAILS OF "HOUSE LATERAL FOR GREATER THAN 6' DEEP SEWER IN SOIL" AND STD. DWG. 230 FOR DETAILS OF "HOUSE LATERAL FOR GREATER THAN 6' DEEP SEWER IN SOIL AND ROCK EXCAVATION"

REFER TO STD. DWG. 232 FOR DETAILS OF "HOUSE LATERAL FOR SHALLOW SEWER IN SOIL OR ROCK"

PIPE AND INSTALLATION PER STATE PLUMBING CODE AND LFUGG ENG/DWAG MANUALS.

SEE STD. DWG. 200 FOR BEDDING, TRENCHING, LAYING, AND BACKFILLING

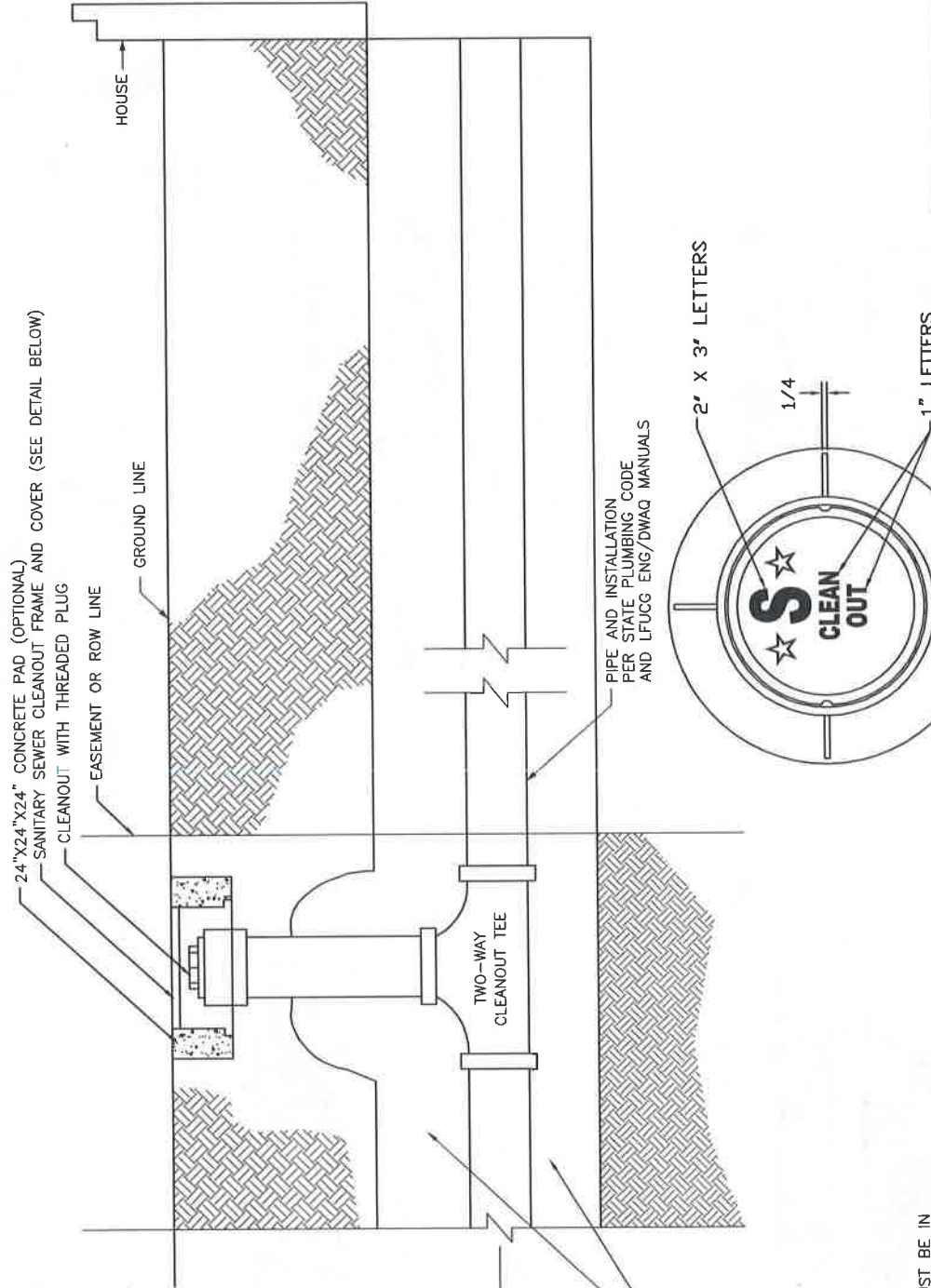
NOTE:  
SEWER PIPE FROM HOUSE TO THE LONG SWEEP "L" MUST BE IN ACCORDANCE WITH STATE PLUMBING CODE AND LFUGG ENG/DWAG MANUALS.



DIVISION OF ENGINEERING

LATERAL CLEANOUT IN NON-PAVED AREAS AND YARDS

STANDARD DRAWING NO	233
APPROVAL:	
URBAN COUNTY ENGINEER	9/12/17
COMMISSIONER	DATE

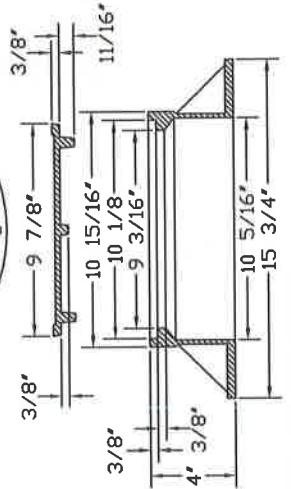
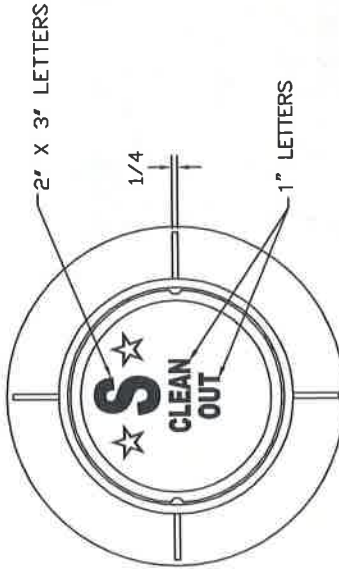


REFER TO STD. DWG. 231 FOR DETAILS OF "HOUSE LATERAL FOR GREATER THAN 6' DEEP SEWER IN SOIL" AND STD. DWG. 250 FOR DETAILS OF "HOUSE LATERAL FOR GREATER THAN 6' DEEP SEWER IN SOIL AND ROCK EXCAVATION"

REFER TO STD. DWG. 232 FOR DETAILS OF "HOUSE LATERAL FOR SHALLOW SEWER IN SOIL OR ROCK"

SEE STD. DWG. 200 FOR BEDDING, TRENCHING, LAYING, AND BACKFILLING

PIPE AND INSTALLATION PER STATE PLUMBING CODE AND LFUGG ENG/DWAQ MANUALS



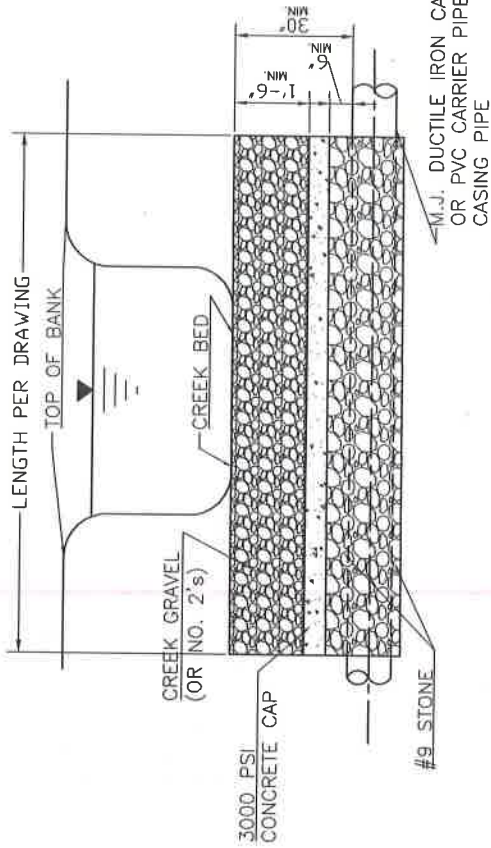
NOTES:  
SEWER PIPE FROM HOUSE TO CLEANOUT MUST BE IN ACCORDANCE WITH STATE PLUMBING CODE AND LFUGG ENG/DWAQ MANUALS.  
TWO-WAY CLEANOUT TEE IS TO BE INSTALLED BY THE PLUMBER AND OR CONTRACTOR PRIOR TO CONNECTION OF THE LATERAL TO PUBLIC SANITARY SEWER LINE.  
CLEANOUT TO BE INSTALLED AT THE END OF PUBLICLY MAINTAINED SEWER. POINT TO BE DETERMINED BY THE DIVISION OF ENGINEERING.

**LEXINGTON**  
DIVISION OF ENGINEERING

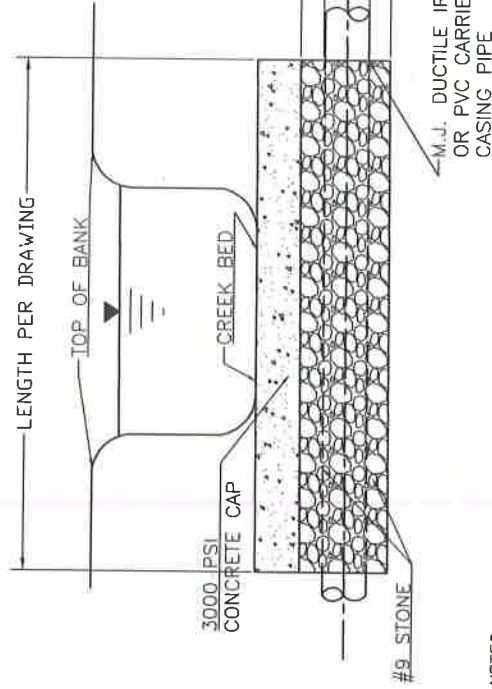
RIGHT OF WAY OR EASEMENT LATERAL CLEANOUT IN NON-PAVED AREAS AND YARDS

STANDARD DRAWING NO. 234  
APPROVAL: [Signature] 9/22/17  
URBAN COUNTY ENGINEER [Signature] 9/22/17  
COMMISSIONER [Signature] DATE



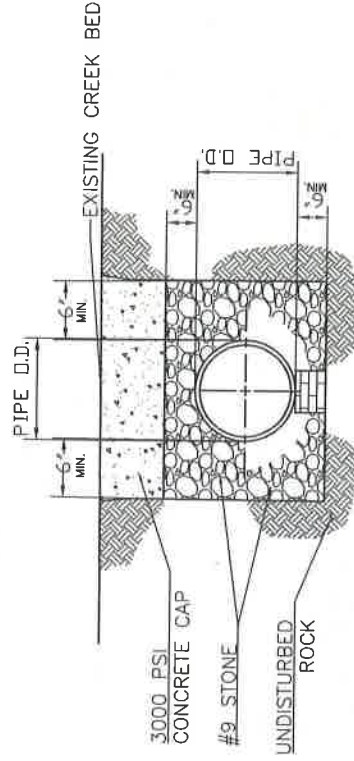
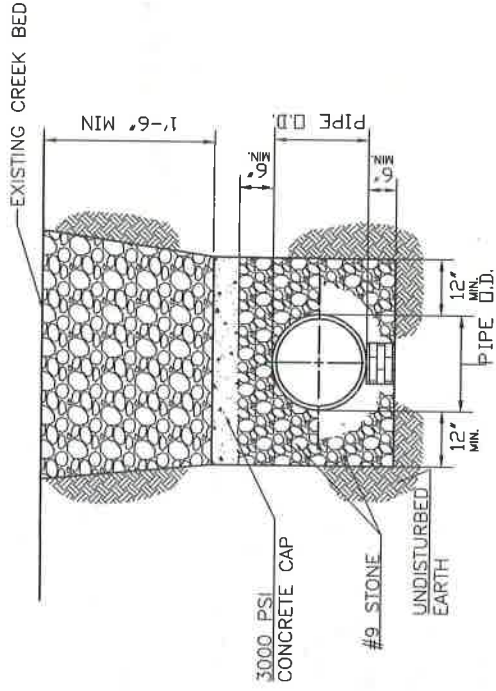


CREEK CROSSING DETAIL FOR SOIL CREEKBED



NOTES:

1. A WATERSTOP SHALL BE PROVIDED ON THE UPSTREAM SIDE OF THE DOWNSTREAM MANHOLE.
2. PIPE TO BE DUCTILE IRON WHEN DEPTH OF COVER IS LESS THAN 4'.
3. SPECIAL DESIGN REQUIRED WHEN COVER IS 30" OR LESS.
4. CONTRACTOR SHALL USE THE CREEK CROSSING DETAIL THAT CORRESPONDS TO THE CHANNEL BED ENCOUNTERED.



CREEK CROSSING DETAIL FOR ROCK CREEKBED

- CONCRETE CAP SHALL BE PLACED ACROSS CHANNEL BED AND EXTEND 10 FT. MIN. TO EACH CHANNEL BANK, MEASURED FROM BOTTOM OF BANK.
- SAWCUT EDGE OF TRENCH (4" MIN. DEPTH) TO PREVENT FRACTURING OF SURFACE BEDROCK BEYOND TRENCH EXCAVATION (TYP. EACH SIDE).
- WHILE CROSSING THE CREEK WITH EQUIPMENT, PROVIDE NECESSARY MEANS TO PREVENT FRACTURING OF BEDROCK OUTSIDE TRENCH USING GRAVEL, SWAMP MATS, OR OTHER APPROVED METHOD.

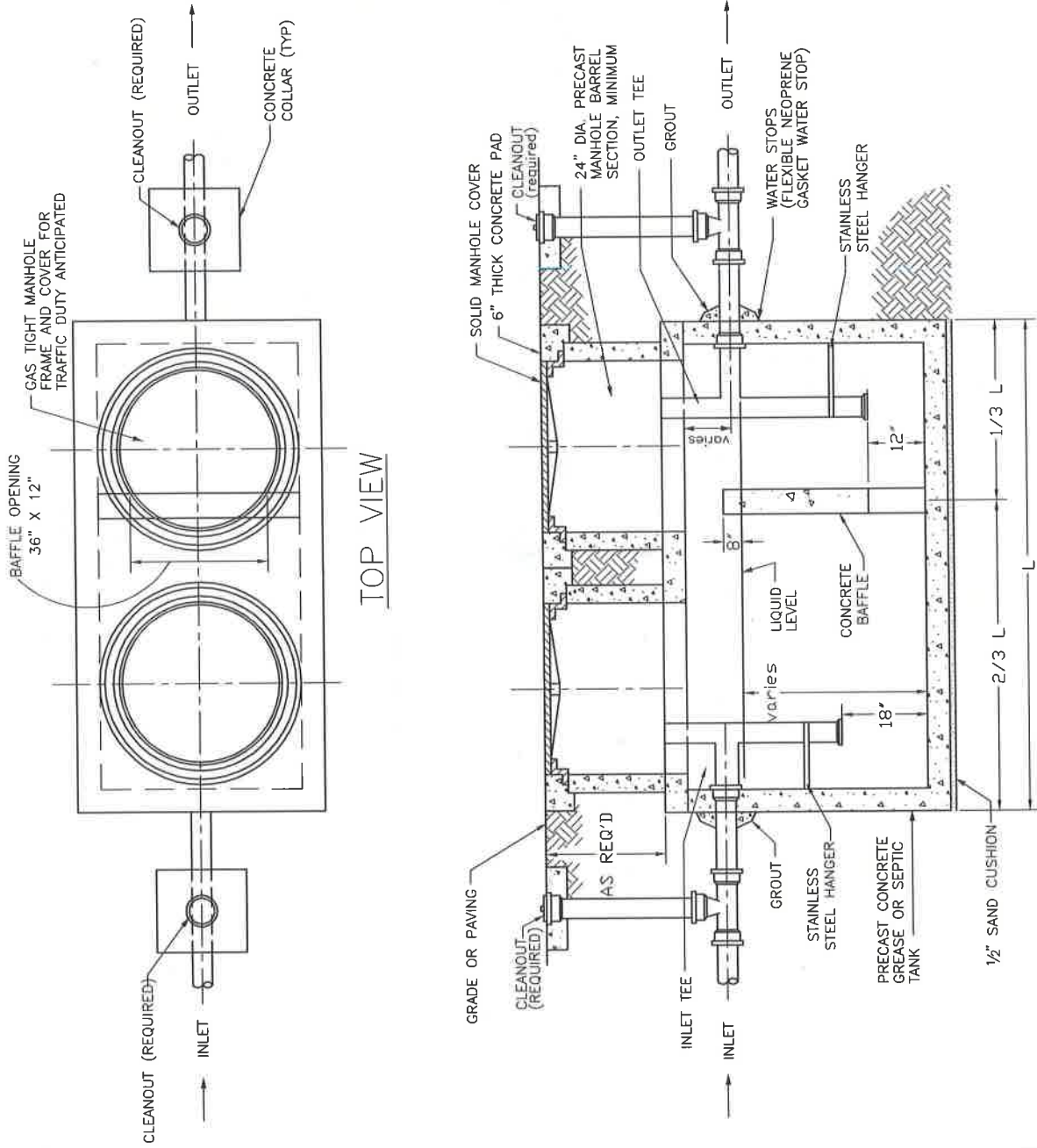


**LEXINGTON**

DIVISION OF ENGINEERING

SANITARY SEWER STREAM  
CROSSING AND STREAM BED  
RESTORATION DETAIL

STANDARD DRAWING NO.	240
APPROVAL:	9/22/17
URBAN COUNTY ENGINEER	9/22/17
DATE	
COMMISSIONER	



TOP VIEW

SECTION

GENERAL NOTES:

1. THIS STRUCTURE IS TO BE ACCESSIBLE FOR MAINTENANCE OR INSPECTION WITH COVERS AND CLEANOUTS BROUGHT TO GRADE.
2. DESIGN CRITERIA SHALL BE HS-20 LOADING.
3. FLOW TO THE INTERCEPTOR SHALL EXCLUDE SANITARY SEWAGE AND SURFACE DRAINAGE.
4. DESIGN AND CAPACITY OF GREASE INTERCEPTOR TO BE CERTIFIED BY ENGINEER IN ACCORD WITH KENTUCKY STATE PLUMBING CODE AND REVIEWED FOR CAPACITY BY THE DIVISION OF WATER QUALITY PRIOR TO CONSTRUCTION.
5. MULTIPLE COMPARTMENT INTERCEPTORS ARE ACCEPTABLE.
6. THE MINIMUM CAPACITY OF INTERCEPTORS IS 1000 GALLONS.
7. PIPE CLEANOUT TEE SHALL BE THE SAME SIZE AS THE PIPE AND BE WITHIN 6" OF THE GREASE INTERCEPTOR ON THE OUTLET LINE. THE INLET LINE CLEANOUT IS OPTIONAL.
8. MANUFACTURER WILL PROVIDE GREASE TRAP WITH TWO(2) ACCESS POINTS AS SHOWN. PLUMBING CONTRACTOR TO INSTALL FIXTURES AS SHOWN.
9. DIAMETER OF PIPE IN GREASE INTERCEPTOR SHALL BE THE SAME DIAMETER AS THE INLET LATERAL PIPE.

**LEXINGTON**

DIVISION OF ENGINEERING

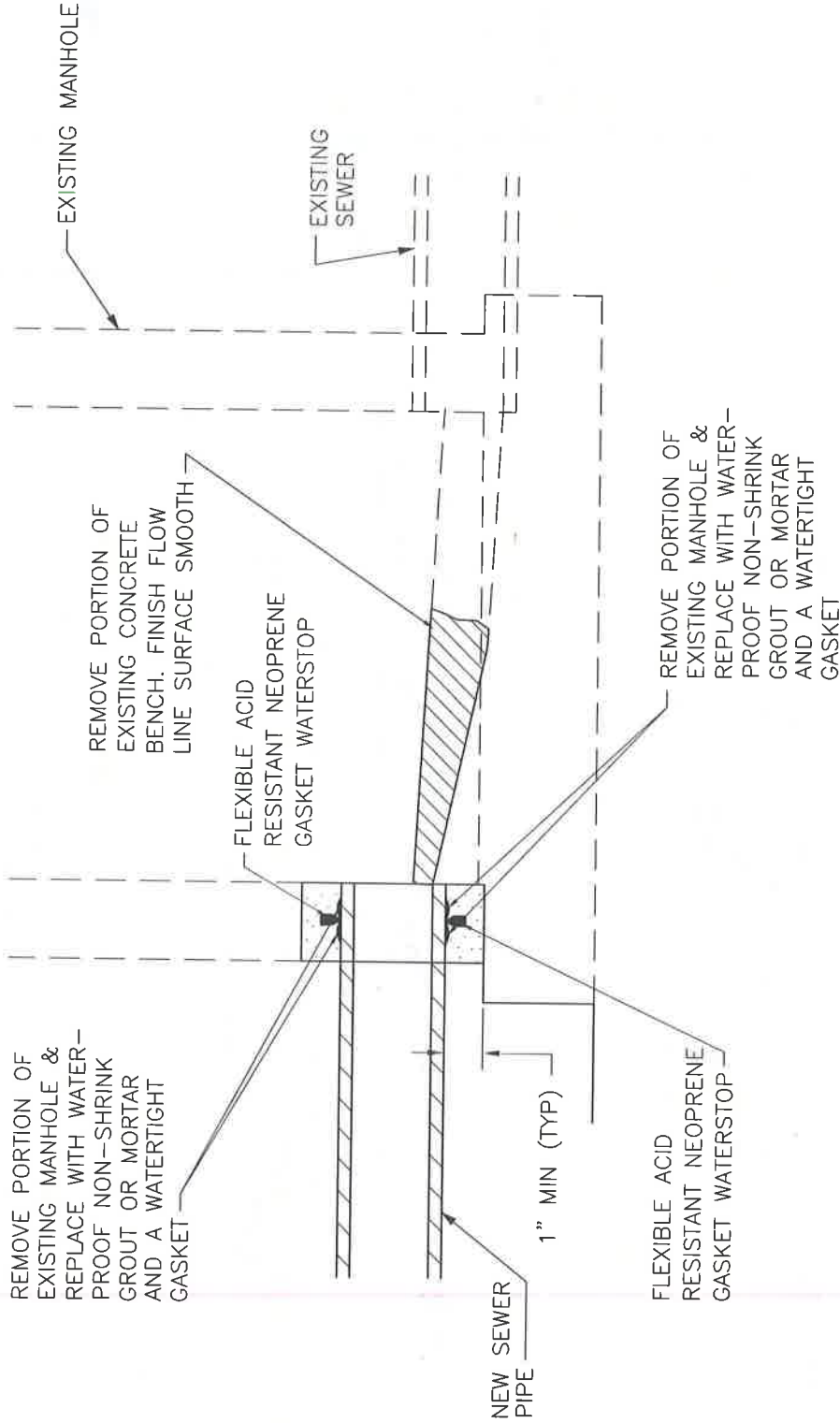
GREASE INTERCEPTOR  
TYPICAL  
CONFIGURATION

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STANDARD DRAWING NO. **250**

APPROVAL: **URBAN COUNTY ENGINEER** DATE: **9/12/17**

COMMISSIONER: DATE: **9/12/17**



ALL HOLES CUT INTO SEWER MANHOLES SHALL BE CORE DRILLED.

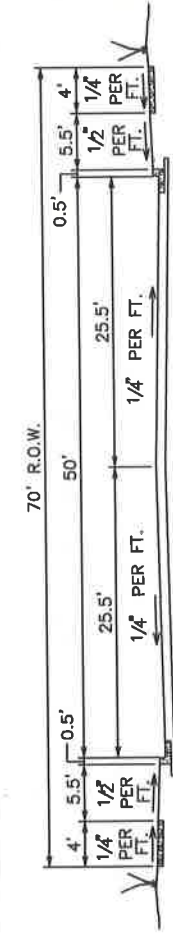
SEWER CONNECTION TO EXISTING MANHOLE



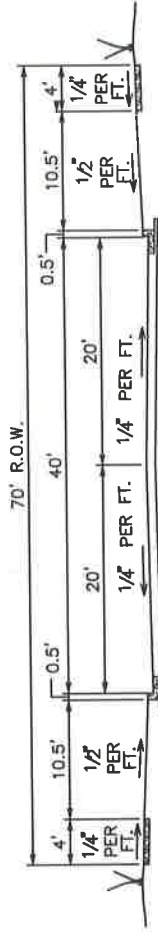
DIVISION OF ENGINEERING

SEWER CONNECTION TO  
EXISTING CONCRETE MANHOLE

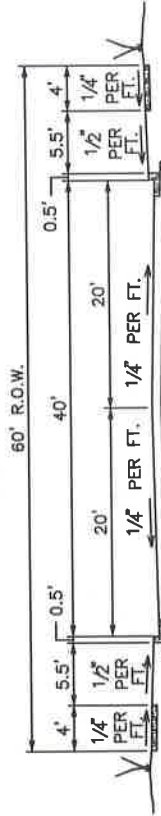
STANDARD DRAWING NO.	260
APPROVAL:	
URBAN COUNTY ENGINEER	9/20/17
COMMISSIONER	9/20/17
	DATE



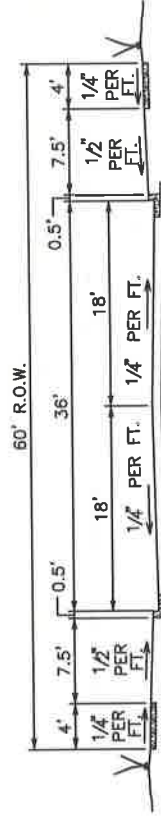
NON-RESIDENTIAL COLLECTOR



NON-RESIDENTIAL OR INDUSTRIAL COLLECTOR



RESIDENTIAL COLLECTOR AND INDUSTRIAL LOCAL

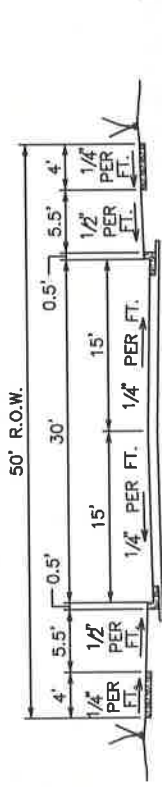


RESIDENTIAL COLLECTOR

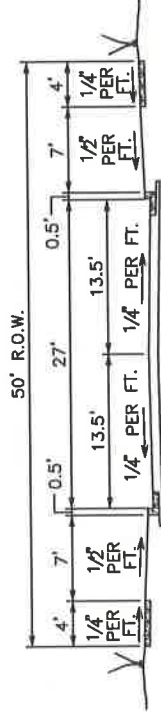
(OBSOLETE) - USED TO COMPLETE EXISTING STREETS

- NOTES:
1. SLOPES AND DRAINAGE DITCHES OUTSIDE THE R.O.W. SHALL BE APPROVED BY THE ENGINEER.
  2. THE APPLICATIONS AND USES OF THE ABOVE TYPICAL SECTIONS SHALL BE IN ACCORDANCE WITH THE L.F.U.C.G. LAND SUBDIVISION REGULATIONS, ARTICLE 6.
  3. PARKING RESTRICTED TO ONE SIDE OF ROADWAY.

\*\*\*PENDING LAND SUBDIVISION REGULATIONS UPDATE\*\*\*

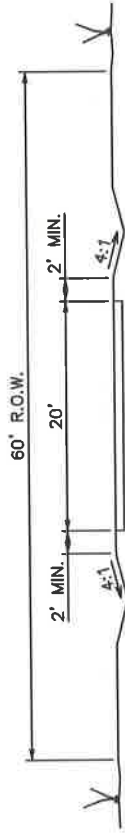


RESIDENTIAL CONTINUING LOCAL OR COMMERCIAL SERVICE



RESIDENTIAL CUL-DE-SAC AND CONTINUING LOCAL

(SEE NOTE 3)



RURAL LOCAL

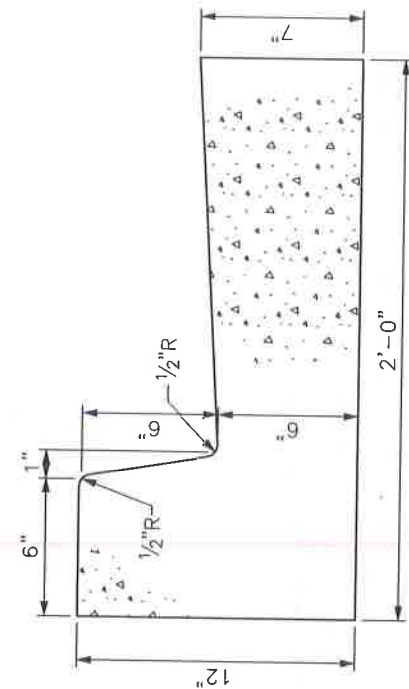


LEXINGTON

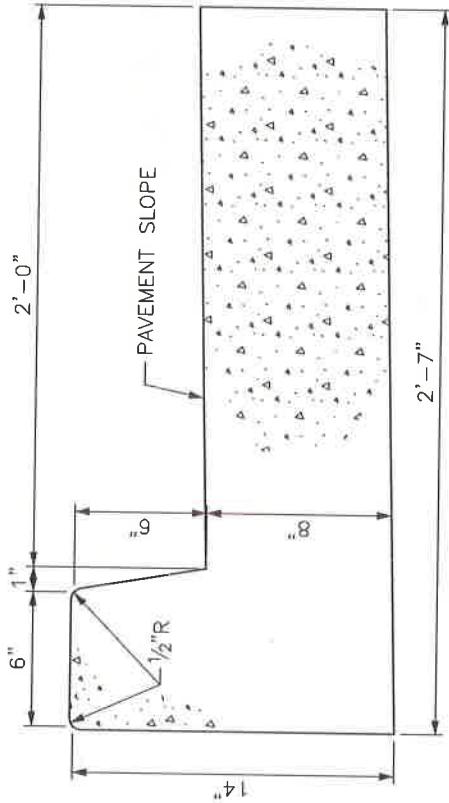
DIVISION OF ENGINEERING

TYPICAL STREET SECTIONS

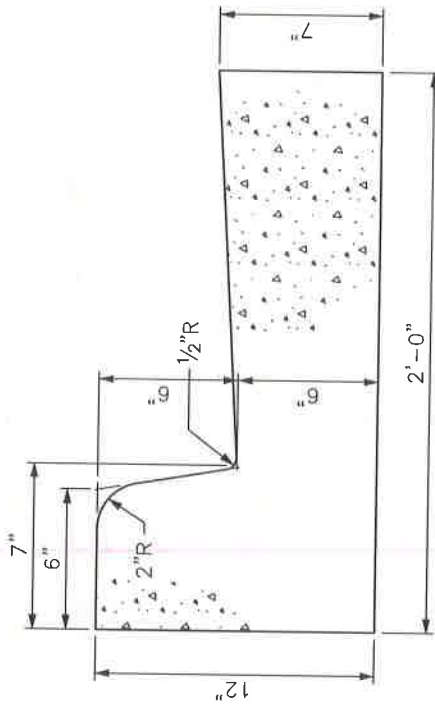
STANDARD DRAWING NO.	300
APPROVAL:	
URBAN COUNTY ENGINEER	9/22/17
DATE	9/22/17
COMMISSIONER	



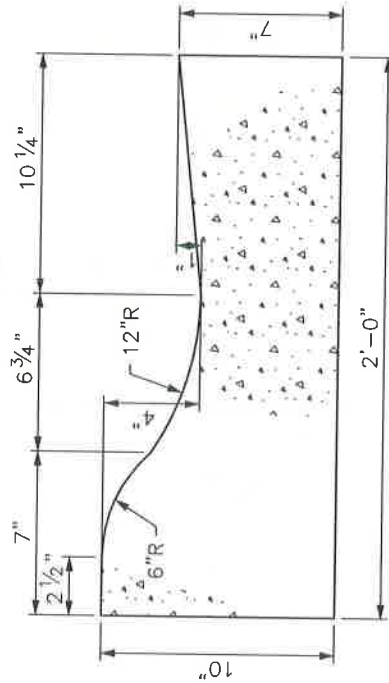
TYPE 1



TYPE 2



TYPE 3



TYPE 4  
(RESIDENTIAL LOCAL STREETS ONLY)

NOTES:

1. CONCRETE SHALL BE KDOT CLASS "A".
2. SAWED CONTRACTION JOINTS SHALL BE CONSTRUCTED EVERY 20 FEET, WITH A MIN. DEPTH OF 3", IN ACCORDANCE WITH KDOT STANDARD SPECIFICATION.
3. FULL DEPTH EXPANSION JOINTS SHALL BE CONSTRUCTED AT ALL BREAKS IN ALIGNMENT, AT CONTACT WITH NEW OR EXISTING CONCRETE, AT ALL DRAINAGE INLETS, AT THE BEGINNING AND ENDING POINTS OF CURVES, AND NOT TO EXCEED 200' MAXIMUM SPACING FOR SLIP FORM APPLICATION AND 30' MAXIMUM SPACING FOR HAND PLACED.
4. ALL CONCRETE SHALL BE CURED WITH WHITE PIGMENTED MEMBRANE FORMING COMPOUND (AASHTO M 148, TYPE 2).

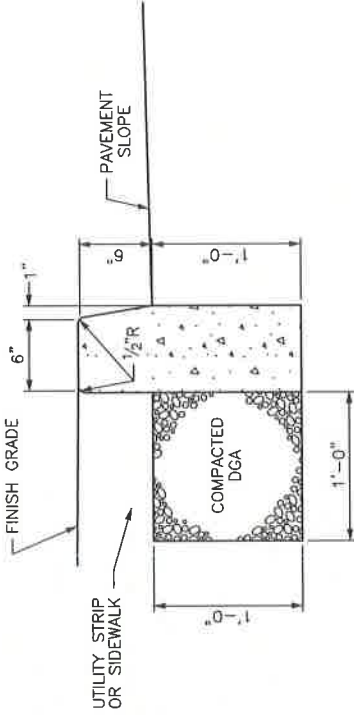


**LEXINGTON**

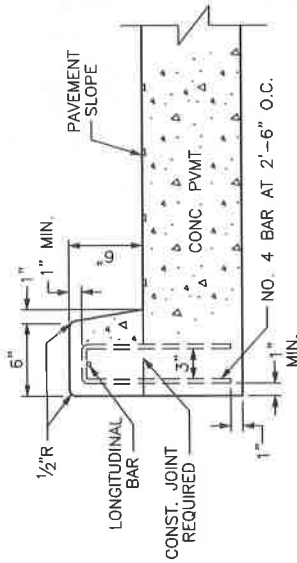
DIVISION OF ENGINEERING

CURB & GUTTER

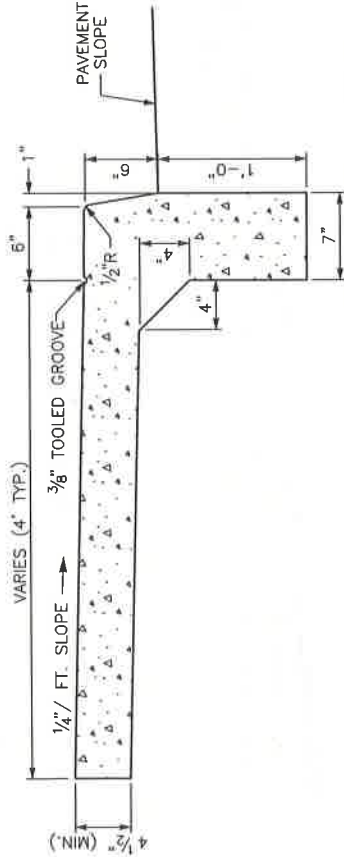
STANDARD DRAWING NO.	301
APPROVAL:	
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	9/22/17
DATE	



HEADER CURB



INTEGRAL CURB, TYPE 1



INTEGRAL CURB, TYPE 2

NOTES:

1. CONCRETE SHALL BE KDOT CLASS "A".
2. SAWED CONTRACTION JOINTS SHALL BE CONSTRUCTED EVERY 20 FEET, 3" MINIMUM DEPTH.
3. THE CONTRACTOR HAS THE OPTION OF CONSTRUCTING THE STANDARD INTEGRAL CURB AS DETAILED IN EITHER TYPE 1 OR 2. IF TYPE 2 IS CHOSEN A LONGITUDINAL CONSTRUCTION JOINT SHALL BE REQUIRED AND THE REMAINING PAVEMENT AND CURB SHALL BE CONSTRUCTED MONOLITHIC WITHOUT A HORIZONTAL CONSTRUCTION JOINT AND ACCOMPANYING REINFORCING STEEL (TYPE 1).
4. FULL DEPTH EXPANSION JOINTS SHALL BE CONSTRUCTED AT ALL BREAKS IN ALIGNMENT, AT ALL DRAINAGE INLETS AND AT THE BEGINNING AND ENDING POINTS OF CURVES.
5. ALL CONCRETE, EXCEPT BONDING SURFACES, SHALL BE CURED WITH WHITE PIGMENTED MEMBRANE FORMING COMPOUND (AASHTO M 148, TYPE 2).

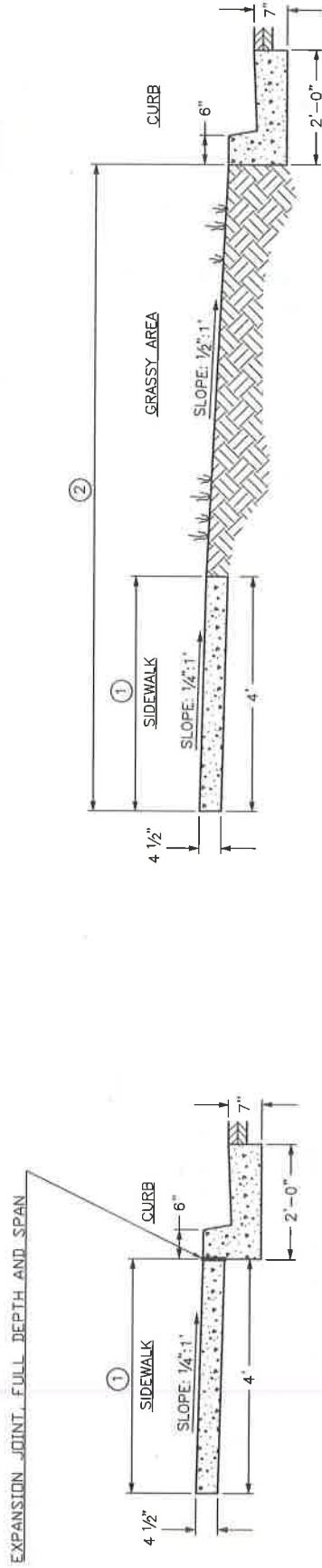


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DIVISION OF ENGINEERING

INTEGRAL CURB,  
HEADER CURB,  
MONOLITHIC CURB  
& SIDEWALK

STANDARD DRAWING NO. 302  
APPROVAL: [Signature] 9/22/17  
URBAN COUNTY ENGINEER DATE  
COMMISSIONER [Signature] 9/22/17 DATE



SIDEWALK/CURB AND GUTTER WITH GRASS UTILITY STRIP

SIDEWALK/CURB AND GUTTER

NOTES:

1. CONCRETE SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED ON A THOROUGHLY COMPACTED SUB-GRADE AND SHALL BE FOUR AND ONE HALF (4 1/2) INCHES IN THICKNESS AND A MINIMUM WIDTH OF FOUR (4) FEET. CONCRETE SHALL MEET THE REQUIREMENTS FOR CLASS "A" AND SHALL BE COATED WITH WHITE PIGMENTED CURING COMPOUND TYPE 2, ALL AS SPECIFIED IN KYTC SPECIFICATION, SECTION 823.02.
2. FULL DEPTH EXPANSION JOINTS SHALL BE PLACED AT CONTACT WITH NEW OR EXISTING CONCRETE, EXISTING CONCRETE, AT ABUTTING RIGID STRUCTURES OR FEATURES SUCH AS BUILDINGS, DRIVEWAYS, UTILITY POLES FIRE HYDRANTS, ECT. AND NOT TO EXCEED 200' MAXIMUM SPACING FOR SLIP FORM APPLICATION AND 32' FOR HAND PLACED. EXPANSION MATERIAL SHALL BE 1/2" ASPHALTIC MATERIAL OR APPROVED EQUAL MEETING KYTC 807.04.03.
3. CONTROL JOINTS SHALL BE PLACED AT INTERVALS EQUIVALENT TO THE SIDEWALK WIDTH, WITH A DEPTH OF 1/4 THE SIDEWALK THICKNESS.
4. THE SIDEWALKS SHALL BE PLACED ADJACENT TO THE STREET RIGHT-OF-WAY LINE SLOPE TOWARD CURB SHALL BE ONE QUARTER (1/4) OF AN INCH TO THE FOOT. CONSTRUCTION IN EXISTING NEIGHBORHOODS SHALL REQUIRE THE CONTRACTOR TO MATCH EXISTING GRADE AND SIDEWALK WIDTH UNLESS SPECIFIED OTHERWISE BY THE DIVISION OF ENGINEERING.
5. SIDEWALK REPAIR FOR ANY CUTS MADE FOR UTILITY WORK REPLACEMENT SHALL BE FULL PANEL MATCHING THE ORIGINAL DIMENSIONS.

SHEET NOTES:

- ① NORMAL SIDEWALK WIDTH SHALL BE 4' UNLESS CHANGE IS AUTHORIZED BY URBAN COUNTY ENGINEER'S OFFICE.
- ② DISTANCE WILL VARY WITH ROAD CROSS-SECTION.

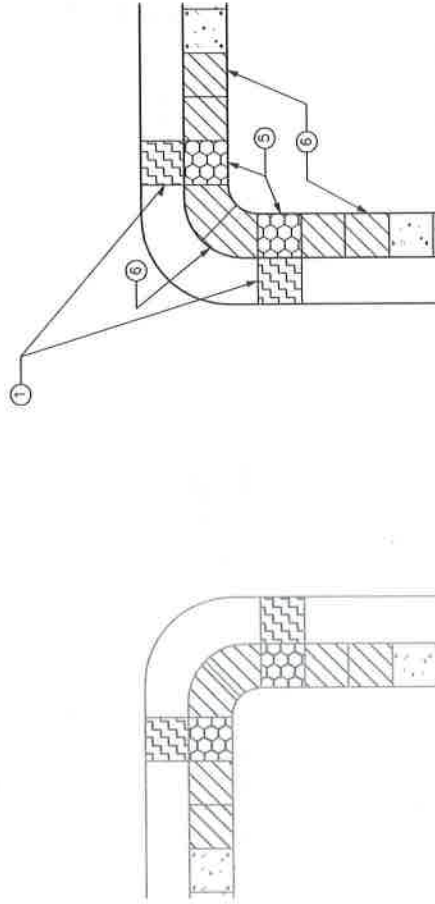
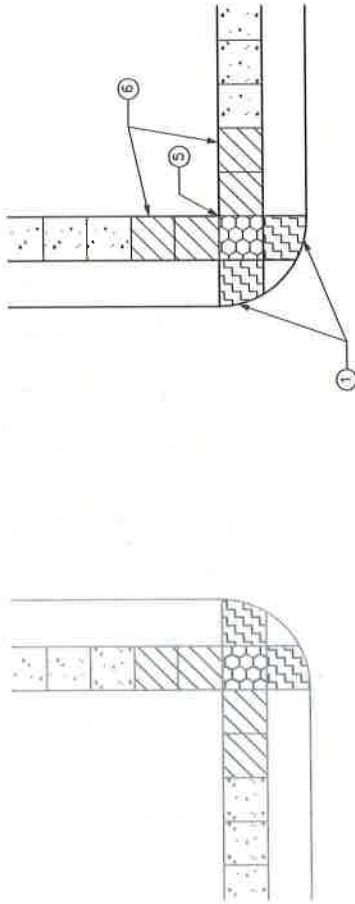
	
DIVISION OF ENGINEERING	
SIDEWALK CONSTRUCTION SPECIFICATIONS	
STANDARD DRAWING NO	303
APPROVAL	9/22/17
URBAN COUNTY ENGINEER	DATE
COMMISSIONER	9/22/17
	DATE

**NOTES:**

1. INLET LOCATIONS WILL VARY, DEPENDENT ON CROSSWALK AND RAMP LOCATION.
2. THE RAMP SHALL BE CONSTRUCTED OF CLASS A" CONCRETE, AND SHALL UTILIZE CAST IN PLACE REPLACEABLE TACTILE WARNING TILE, SUCH AS ADA SOLUTIONS, INC., ACCESS TILE TACTILE SYSTEMS, ARMOR-TILE HERCULITE OR APPROVED EQUAL. TILE COLOR SHALL BE FEDERAL YELLOW.
3. THE NORMAL GUTTER LINE SHOULD BE MAINTAINED THROUGH THE RAMP.
4. RAMPS SHOULD BE LOCATED WITHIN MARKED LIMITS OF CROSSWALKS.
5. WHERE NO CURB EXISTS, STREET EDGE SHALL BE SAW CUT, OR AS DIRECTED BY L.F.U.C.G. ENGINEER.
6. MAXIMUM CROSS SLOPE OF SIDEWALK 1/4": 1'.
7. SIDEWALK REPAIR FOR ANY CUTS MADE FOR UTILITY WORK REPLACEMENT SHALL BE FULL PANEL MATCHING THE ORIGINAL DIMENSIONS.

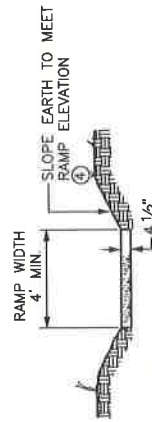
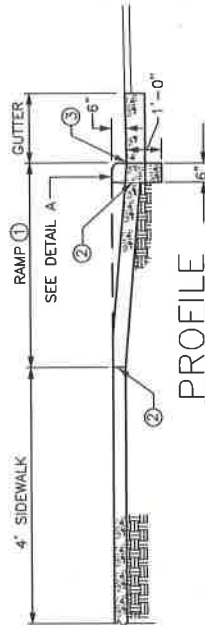
**SHEET NOTES:**

- ① MAXIMUM RAMP SLOPE 1":1'.
- ② 1/2" EXPANSION JOINT AT BACK OF CURBLINE AND SIDEWALK LINE, FULL DEPTH.
- ③ NO BUMP PERMITTED.
- ④ SLOPE VARIES UNIFORMLY TO A MAXIMUM OF 1":1' AT GUTTER LINE.
- ⑤ MAXIMUM CROSS SLOPE OF LANDING 1/4": 1' IN ALL DIRECTIONS.
- ⑥ MAXIMUM LONGITUDINAL SLOPE 1/2": 1', OR ALONG THE CENTERLINE GRADE OF THE ADJACENT ROADWAY.

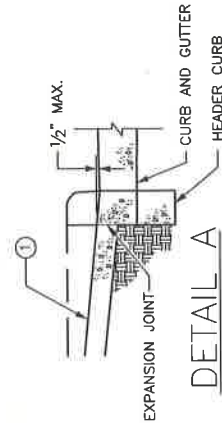


**PLAN VIEW**

NORMAL TREATMENT FOR ARTERIALS AND SIGNALIZED INTERSECTIONS



**CROSS SECTION**



DIVISION OF ENGINEERING

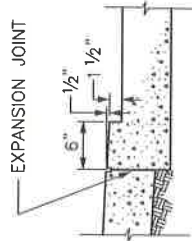
SIDEWALK RAMP

STANDARD DRAWING NO.	304
APPROVAL:	9/22/17
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	DATE

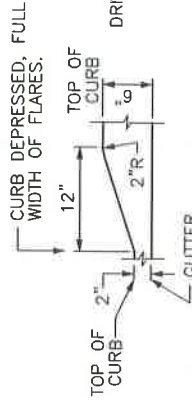


**MAXIMUM ALLOWABLE APRON AND DRIVEWAY WIDTHS**

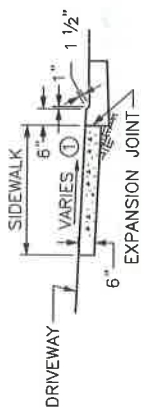
CLASSIFICATION	DRIVEWAY	APRON
SINGLE RESIDENTIAL	12'	18'
DOUBLE OR JOINT RESIDENTIAL	20'	26'



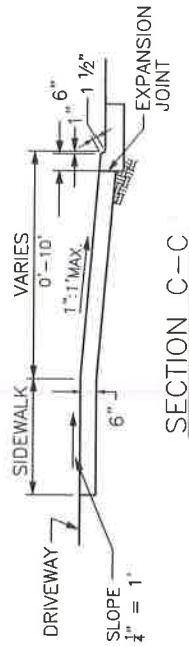
SECTION A-A



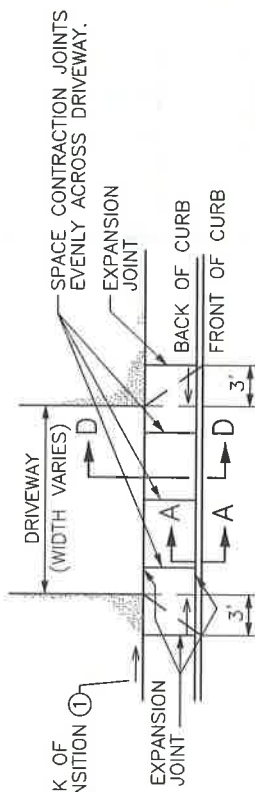
SECTION B-B



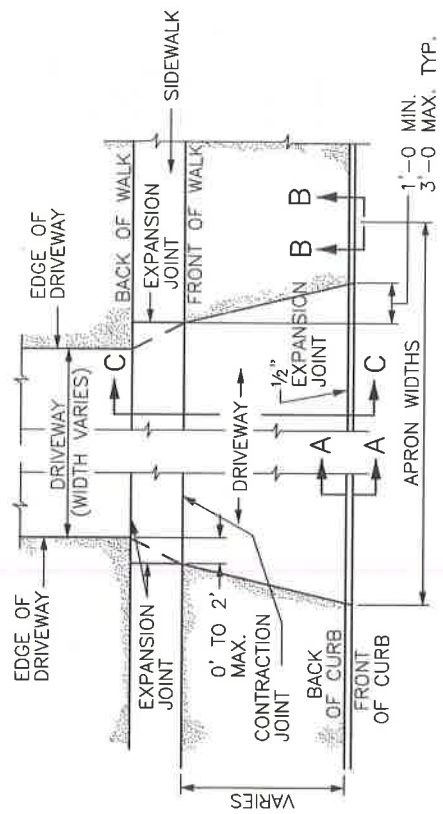
SECTION D-D



SECTION C-C



ENTRANCE WITHOUT UTILITY STRIP



ENTRANCE WITH UTILITY STRIP

**NOTES:**

- DROP BACK OF SIDEWALK GRADE 1 1/2" OVER 3' TO PROVIDE A MAXIMUM SLOPE OF 1:1.
- PROVIDE A SAWED JOINT ALONG CENTER LINE OF APRON.
- MAXIMUM DROP AT BACK OF SIDEWALK SHALL NOT EXCEED 1 1/2".
- MAXIMUM CROSS SLOPE ON SIDEWALK SHALL NOT EXCEED 1/4" = 1' (8.33%).
- MAXIMUM SLOPE ON APRON SHALL NOT EXCEED 1:1 (8.33%).
- ENTIRE APRON FROM BACK OF CURB TO BACK OF SIDEWALK SHALL BE CONSTRUCTED WITH A SINGLE POUR.
- ALL EXPANSION JOINTS SHALL BE FULL DEPTH.

NOTE: FOR USE WITH 6" HEADER CURB OR 6" CURB AND GUTTER

UTILITY STRIP WIDTH	DROP BACK OF 4" SIDEWALK	SIDEWALK SLOPE	SLOPE ON APRON
0"	1 1/2"	7.29%	N/A
2"	1 1/2"	5.21%	8.33%
4"	1 1/2"	3.12%	8.33%
5"	1 1/2"	2.08%	8.33%
6"	0"	2.08%	8.33%
8"	0"	2.08%	8.33%
10"	0"	2.08%	7.50%

UTILITY STRIP WIDTH	DROP BACK OF 4" SIDEWALK	SIDEWALK SLOPE	SLOPE ON APRON
0"	1 1/2"	7.29%	N/A
2"	1 1/2"	4.17%	8.33%
3"	1 1/2"	2.60%	8.33%
4"	1"	2.08%	8.33%
6"	0"	2.08%	7.64%
8"	0"	2.08%	6.25%
10"	0"	2.08%	5.42%



DIVISION OF ENGINEERING

RESIDENTIAL ENTRANCE DETAILS

STANDARD DRAWING NO. 307-1

APPROVAL: 9/25/17

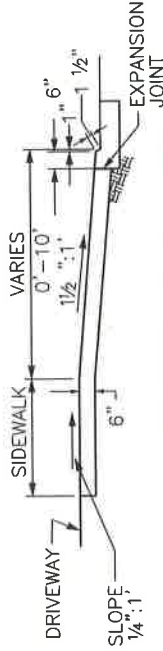
URBAN COUNTY ENGINEER: [Signature]

COMMISSIONER: [Signature]

DATE: 9/23/17

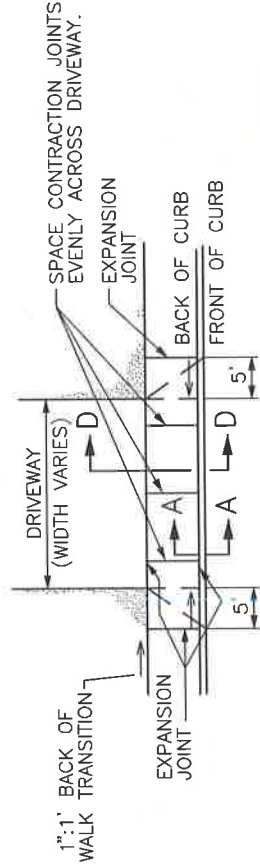
### MAXIMUM ALLOWABLE APRON AND DRIVEWAY WIDTHS

CLASSIFICATION	DRIVEWAY	STANDARD APRON	ALTERNATE APRON
NON-RESIDENTIAL	30'	5' STRAIGHT FLARE=40' CURB CUT	10' RADIAL FLARE=50' CURB CUT
COMMERCIAL LOADING	30'	15' STRAIGHT FLARE=60' CURB CUT	20' RADIAL FLARE=70' CURB CUT
INDUSTRIAL	40'	20' STRAIGHT FLARE=80' CURB CUT	25' RADIAL FLARE=90' CURB CUT



SECTION C-C

FRONT OF SIDEWALK ELEVATION DETERMINED BY ADDING 1/2" TO 1' ACROSS UTILITY STRIP FROM TOP OF CURB. IF COMING OFF 1 1/2" LIP ADD ANOTHER 4 1/2" TO DETERMINE ELEVATION AT FRONT OF SIDEWALK.



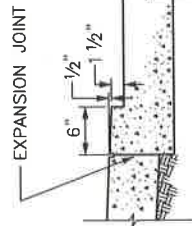
ENTRANCE WITHOUT UTILITY STRIP

**NOTES:**

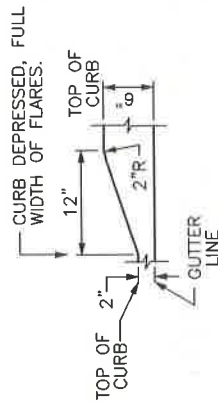
1. PROVIDE A SAWED JOINT ALONG CENTER LINE OF APRON.
2. MAXIMUM CROSS-SLOPE ON SIDEWALK SHALL NOT EXCEED 1/4" : 1'
3. MAXIMUM SLOPE ON APRON SHALL NOT EXCEED 1 1/2" : 1'
4. NO CATCH BASINS WILL BE PUT IN APRONS.
5. ALL EXPANSION JOINTS SHALL BE FULL DEPTH.



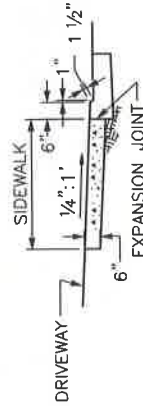
ENTRANCE WITH UTILITY STRIP



SECTION A-A



SECTION B-B



SECTION D-D

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DIVISION OF ENGINEERING

COMMERCIAL  
ENTRANCE DETAILS

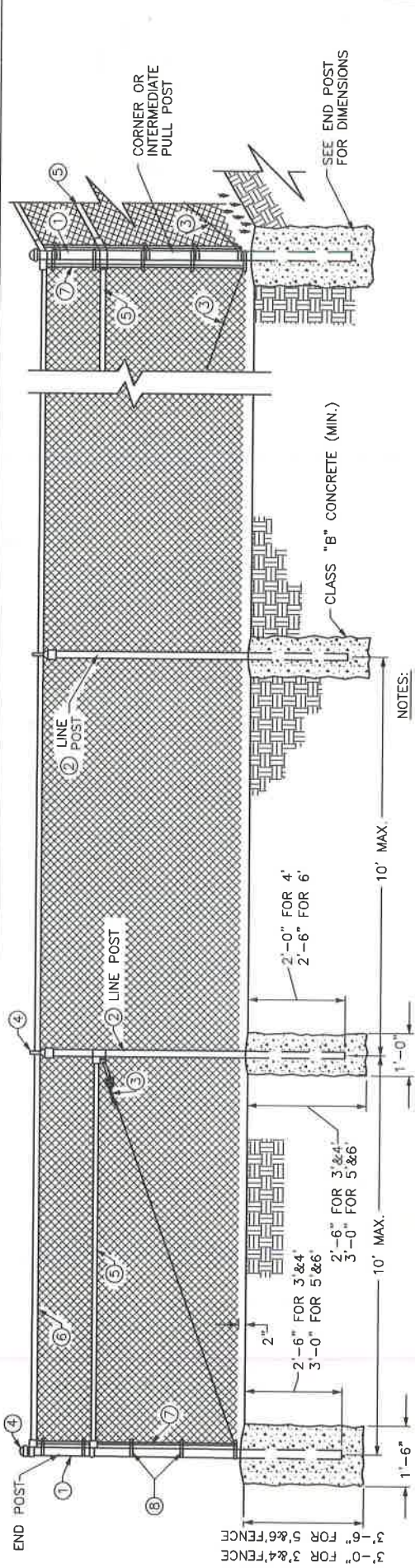
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STANDARD DRAWING NO. **307-2**

APPROVAL: 9/22/17 DATE

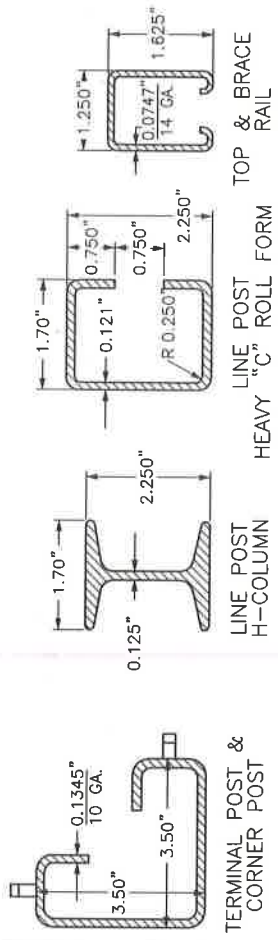
URBAN COUNTY ENGINEER: 9/23/17 DATE

COMMISSIONER:



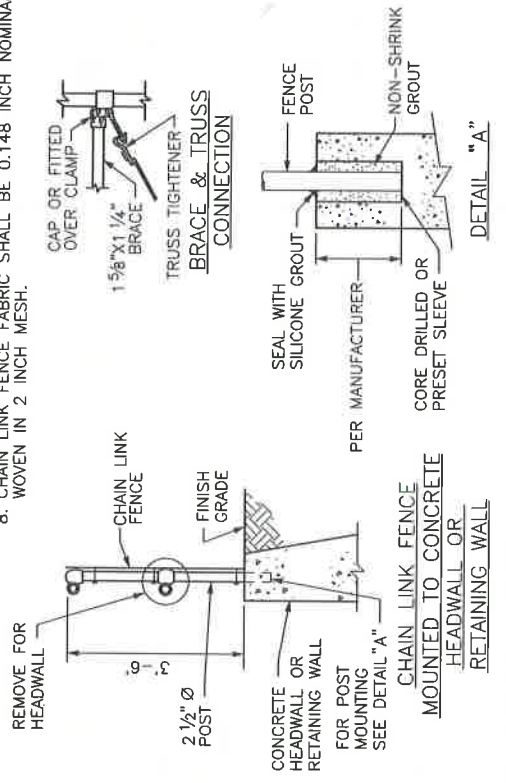
**NOTES:**

1. ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWING.
2. 3' HIGH FENCE SHALL HAVE 3" FABRIC HEIGHT. 4' HIGH FENCE SHALL HAVE 4" FABRIC HEIGHT. 5' HIGH FENCE SHALL HAVE 5" FABRIC HEIGHT. 6' HIGH FENCE SHALL HAVE 6" FABRIC HEIGHT.
3. BRACE BANDS SHALL BE 7/8"x1/8" GALVANIZED STEEL 5/16"x1 1/4" CARRIAGE BOLT.
4. POST CAPS AND SOCKET TYPE BRACE END CONNECTIONS SHALL BE GALVANIZED MALLEABLE IRON OR OTHER TYPE AS APPROVED BY THE ENGINEER. THEY SHALL BE DESIGNED IN A MANNER TO EXCLUDE MOISTURE FROM INSIDE POSTS AND RAILS.
5. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL--ASTM A-120 SHALL GOVERN.
6. STRUCTURAL SHAPES SHALL CONFORM TO STD. SPEC. 816.07.01 EXCEPT YIELD SHALL BE A MIN. 45,000 P.S.I.
7. INDISCRIMINATE MIXING OF POSTS WILL NOT BE PERMITTED.
8. CHAIN LINK FENCE FABRIC SHALL BE 0.148 INCH NOMINAL DIAMETER (NO. 9 GAGE) WIRE WOVEN IN 2 INCH MESH.



**LEGEND - (ALTERNATES)**

	TUBULAR	ROLL FORMED
①	2 1/2" O.D. @ 3.65#/L.F.	3.5"x3.5" @ 5.14#/L.F.
②	2" O.D. @ 2.72#/L.F.	2.250" H-COL @ 3.26#/L.F. OR 2.250" C-COL @ 2.64#/L.F.
③	3/8" TRUSS ROD & TIGHTENER	0.375" TRUSS ROD & TIGHTENER
④	APPROVED CAPS	NOT REQUIRED
⑤	1 5/8" BRACE @ 2.27#/L.F.	1.250"x1.625" @ 1.35#/L.F.
⑥	1 5/8" O.D. @ 2.27#/L.F.	1.250"x1.625" @ 1.35#/L.F.
⑦	3/16"x3/4" FLAT STRETCHER BAR	NOT REQUIRED
⑧	BRACE BAND & TENSION BAND	NOT REQUIRED



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DIVISION OF ENGINEERING

CHAIN LINK FENCE

3'-6"

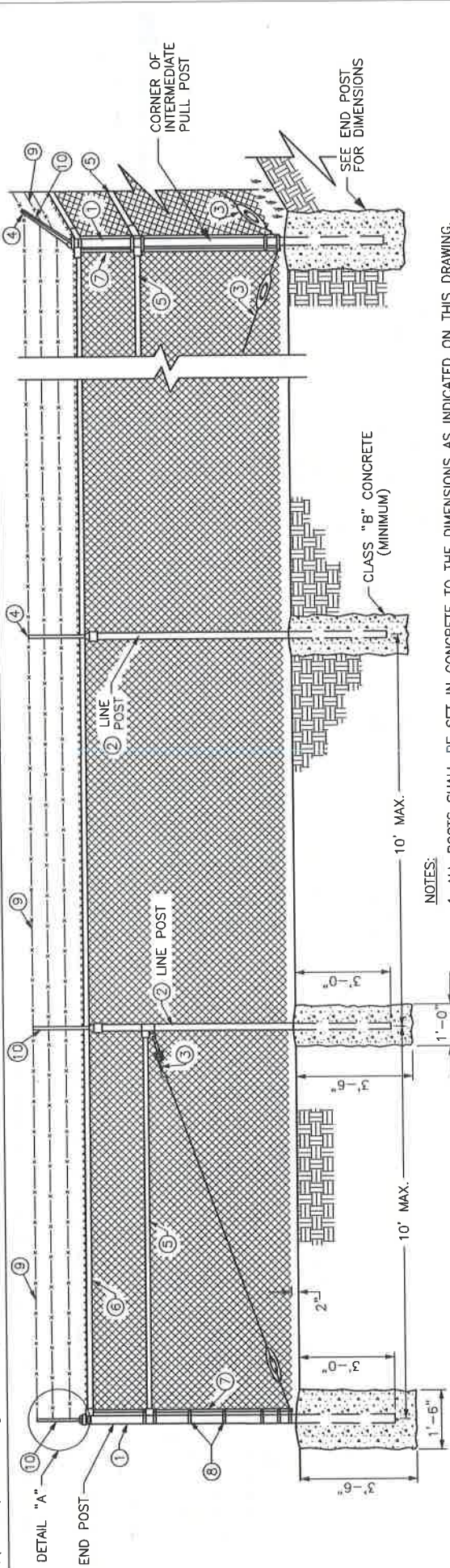
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STANDARD DRAWING NO. 308

APPROVAL: 9/22/17 DATE

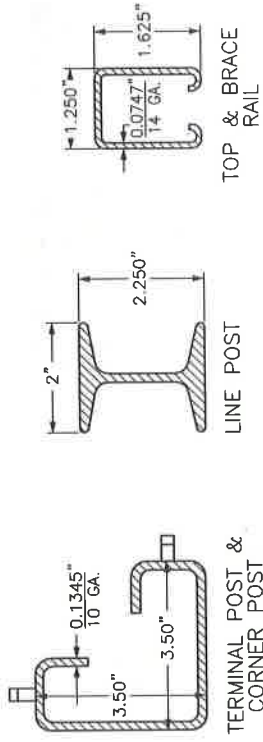
URBAN COUNTY ENGINEER: 9/22/17 DATE

COMMISSIONER: DATE



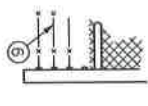
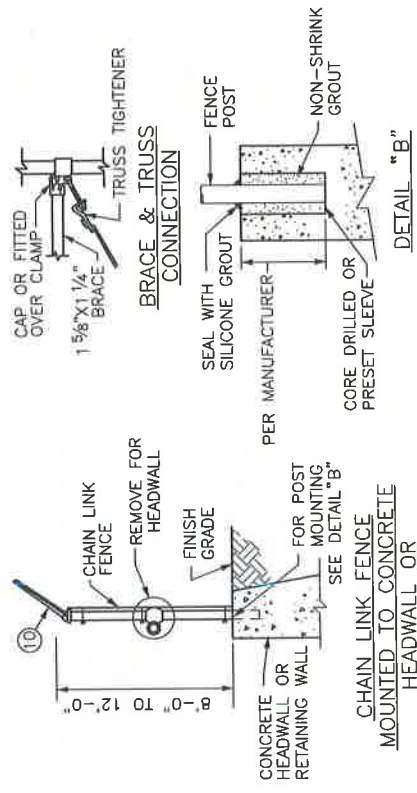
**NOTES:**

1. ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWING.
2. A 1-5/8" O.D. AT 2.27 LB. PER L.F. OR 1-1/4"x1-5/8" ROLL FORMED SECTION AT 1.35 LB. PER L.F. BOTTOM RAIL SHALL BE REQUIRED AROUND ALL UTILITY INSTALLATIONS AND AT OTHER LOCATIONS DESIGNATED BY THE ENGINEER.
3. 8' HIGH FENCE SHALL HAVE 7' FABRIC HEIGHT. 9' HIGH FENCE SHALL HAVE 8' FABRIC HEIGHT. 10' HIGH FENCE SHALL HAVE 9' FABRIC HEIGHT. 11' HIGH FENCE SHALL HAVE 10' FABRIC HEIGHT. 12' HIGH FENCE SHALL HAVE 11' FABRIC HEIGHT.
4. BRACE BAND SHALL BE 7/8"x1/8" GALVANIZED STEEL WITH 5/16"x1 1/4" CARRIAGE BOLTS. POST CAPS AND SOCKET TYPE BRACE END CONNECTION SHALL BE GALVANIZED MALLEABLE IRON OR OTHER TYPE AS APPROVED BY THE ENGINEER. THEY SHALL BE DESIGNED IN A MANNER TO EXCLUDE MOISTURE FROM INSIDE POSTS AND RAILS.
5. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL - ASTM A-120 SHALL GOVERN.
6. CHAIN LINK FENCE FABRIC SHALL BE 0.148 INCH NOMINAL DIAMETER (NO.9 GAGE) WIRE WOVEN IN 2 INCH MESH.



**LEGEND - (ALTERNATES)**

	TUBULAR	ROLL FORMED
①	2 1/2" O.D. @ 3.65#/L.F.	3.5"x3.5" @ 5.14#/L.F.
②	2" O.D. @ 2.72#/L.F.	2.250" H-COL. @ 3.26#/L.F. OR 2.250" C-COL. @ 2.64#/L.F.
③	3/8" Ø TRUSS ROD & TIGHTENER	0.375" Ø TRUSS ROD & TIGHTENER
④	APPROVED CAPS	NOT REQUIRED
⑤	1 5/8" BRACE @ 2.27#/L.F.	1.250"x1.625" @ 1.35#/L.F.
⑥	1 5/8" O.D. @ 2.27#/L.F.	1.250"x1.625" @ 1.35#/L.F.
⑦	3/16"x3/4" FLAT STRETCHER BAR	NOT REQUIRED
⑧	BRACE BAND & TENSION BAND	NOT REQUIRED
⑨	BARBED WIRE	BARBED WIRE
⑩	BARBED WIRE ARMS	BARBED WIRE ARMS



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DIVISION OF ENGINEERING

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CHAIN LINK FENCE

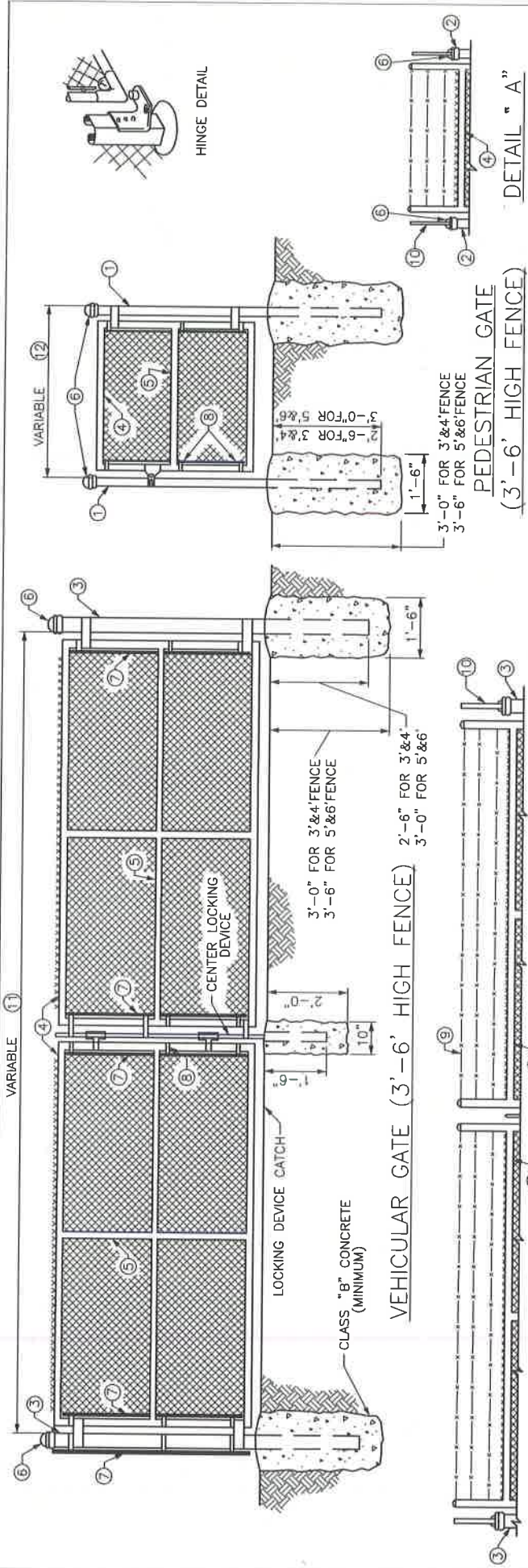
8'-12'

STANDARD DRAWING NO. **309**

APPROVAL: 9/22/17

DATE: 9/22/17

COMMISSIONER



NOTES:

1. ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWING.
2. VEHICULAR AND PEDESTRIAN GATES SHALL HAVE HEAVY PRESSED STEEL CORNERS SECURELY RIVETED OR SHALL BE MACHINE NOTCHED, AND ELECTRICALLY WELDED SO AS TO BE RIGID AND WATER TIGHT; AND EQUIPPED WITH PADLOCKING DEVICE AND GROUND STOP.
3. ALL WELDED JOINTS SHALL BE CLEANED AND PAINTED WITH TWO (2) COATS OF ALUMINUM PAINT.
4. 3' HIGH GATES SHALL HAVE 3' FABRIC HEIGHT. 4' HIGH GATES SHALL HAVE 4' FABRIC HEIGHT. 5' HIGH GATES SHALL HAVE 5' FABRIC HEIGHT. 6' HIGH GATES SHALL HAVE 6' FABRIC HEIGHT. 8' HIGH GATES SHALL HAVE 7' FABRIC HEIGHT. 9' HIGH GATES SHALL HAVE 8' FABRIC HEIGHT. 10' HIGH GATES SHALL HAVE 9' FABRIC HEIGHT. 11' HIGH GATES SHALL HAVE 10' FABRIC HEIGHT. 12' HIGH GATES SHALL HAVE 11' FABRIC HEIGHT.
5. SEE DETAIL "A" FOR BARBED WIRE INSTALLATION ON 8' TO 12' HIGH PEDESTRIAN GATES.
6. SEE DETAIL "B" FOR BARBED WIRE INSTALLATION ON 8' TO 12' HIGH VEHICULAR GATES.
7. THE CONTRACTOR IS NOT TO ORDER GATES UNTIL THEIR NECESSITY AND LOCATION HAVE BEEN CERTIFIED BY THE ENGINEER.
8. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL - ASTM A-120 SHALL GOVERN.
9. CHAIN LINK FENCE FABRIC SHALL BE 0.148 INCH NOMINAL DIAMETER (NO.9 GAGE) WIRE WOVEN 2 INCH MESH.

LEGEND - (ALTERNATES)

	TUBULAR	ROLL FORMED
①	END POST 2 1/2" O.D. @ 3.65#/L.F.	3 1/2" X 3 1/2" @ 5.14#/L.F.
②	END POST 3" O.D. @ 3.65#/L.F.	3 1/2" X 3 1/2" @ 5.14#/L.F.
③	4" O.D. @ 9.1#/L.F. GATE POST	NO ALTERNATE
④	2" O.D. @ 2.72#/L.F. GATE FRAME	NO ALTERNATE
⑤	1 5/8" O.D. @ 2.27#/L.F.	NO ALTERNATE
⑥	APPROVED CAPS	NOT REQUIRED
⑦	3/16" X 5/8" FLAT STRETCHER BAR	NOT REQUIRED
⑧	BRACE BAND & TENSION BAND	NOT REQUIRED
⑨	BARBED WIRE	BARBED WIRE
⑩	BARBED WIRE ARMS	BARBED WIRE ARMS

- ⑪ 6' TO 13' WIDTH FOR SINGLE GATE OR 12' TO 26' WIDTH FOR DOUBLE GATE.  
 ⑫ 4' TO 6' WIDTH

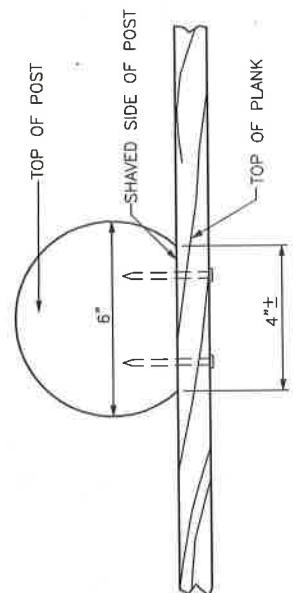
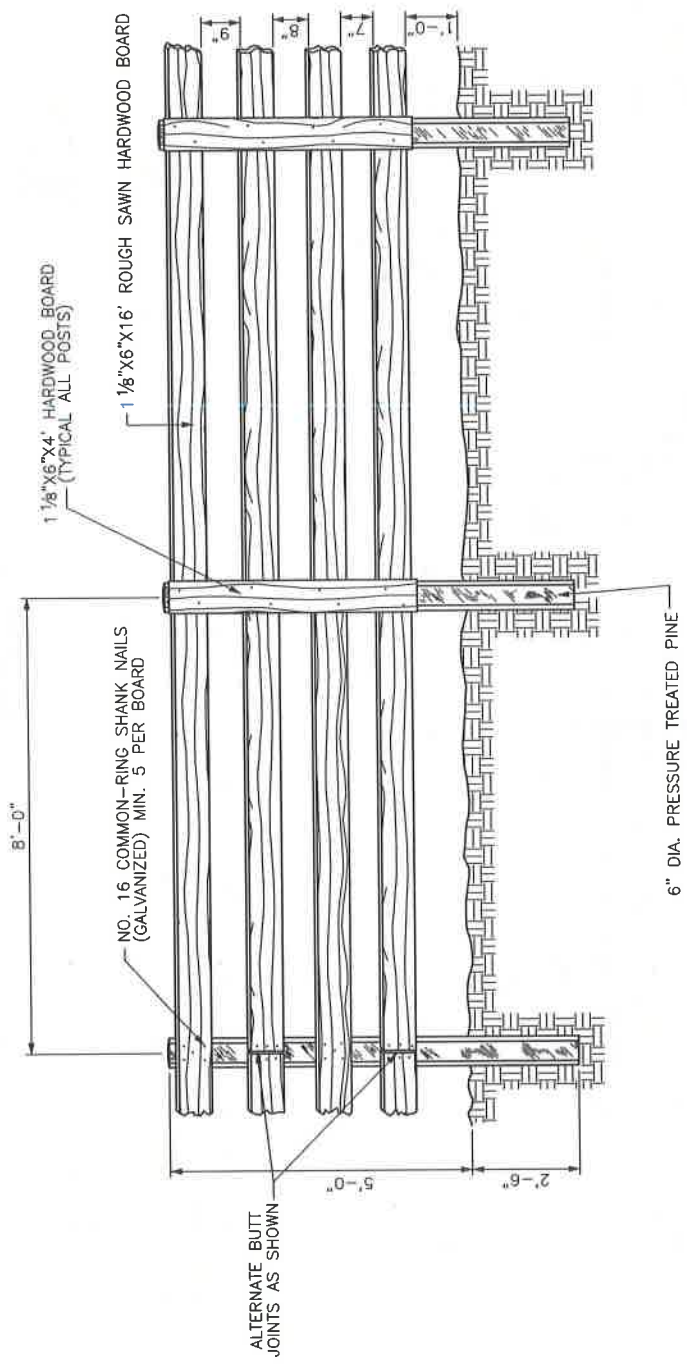


**LEXINGTON**

DIVISION OF ENGINEERING

CHAIN LINK GATE

STANDARD DRAWING NO	310
APPROVAL:	
URBAN COUNTY ENGINEER	9/23/17
COMMISSIONER	DATE



NOTES:

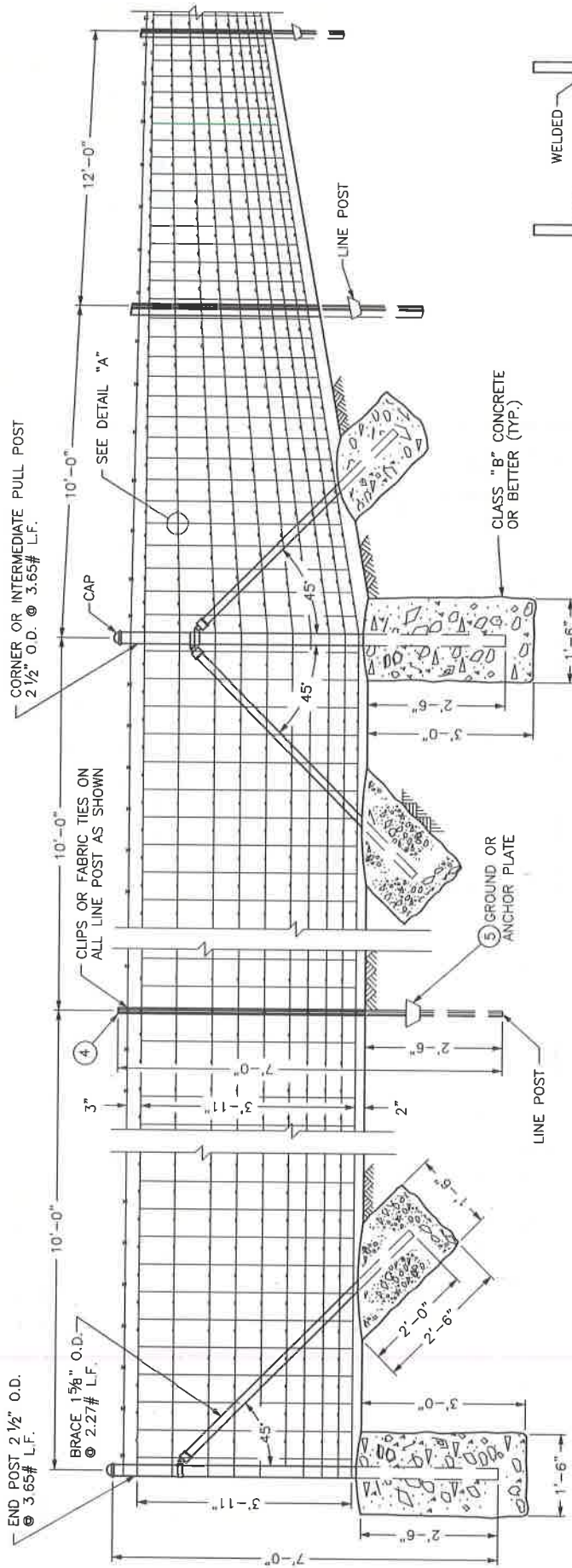
1. POSTS ARE TO BE DRIVEN 2'-6" INTO GROUND AND TOPS CUT AT AN ANGLE TO DRAIN WATER.
2. FENCE SHALL BE PAINTED BLACK OR WHITE WITH PAINT AND APPLICATION RATE AS APPROVED BY THE ENGINEER.
3. HARDWOODS APPROVED ARE RED OAK, WHITE OAK, AND POPLAR.



DIVISION OF ENGINEERING

PLANK FENCE

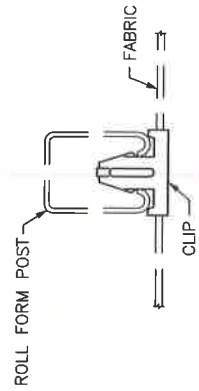
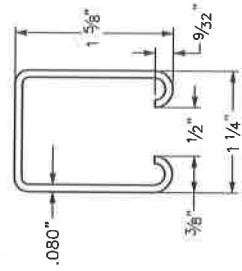
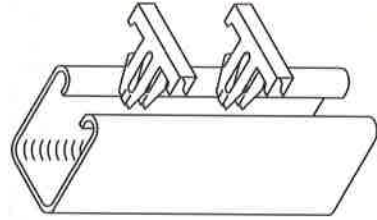
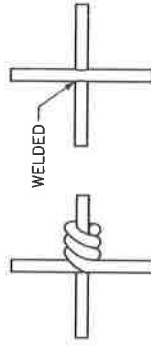
STANDARD DRAWING NO.	311
APPROVAL:	<i>[Signature]</i>
URBAN COUNTY ENGINEER	9/22/17
DATE	9/22/17
COMMISSIONER	<i>[Signature]</i>
DATE	



**RIGHT-OF-WAY FENCE**

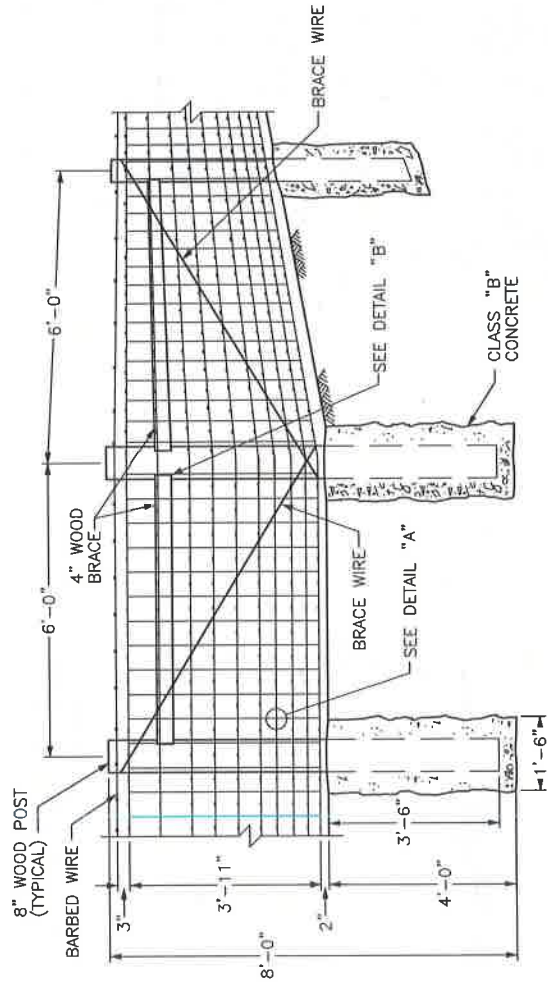
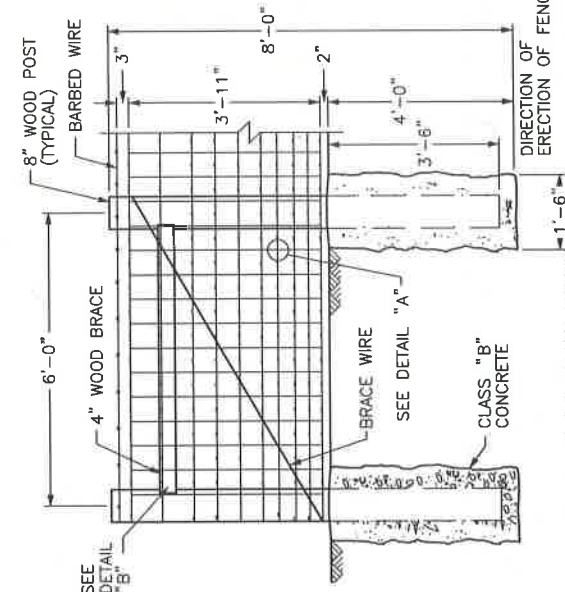
**NOTES:**

1. WOVEN-WIRE USED FABRIC IN RIGHT-OF-WAY FENCE SHALL BE EITHER ALUMINUM-COATED STEEL NO. 1047-6-9 OR ZINC-COATED STEEL NO. 1047-6-9.
2. ALL FENCE FITTINGS SHALL COMPLY WITH ASTM F 626.
3. O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL - ASTM F 1083 SHALL GOVERN.
4. STUDDED "T" POST AT 1.33 LBS. PER FOOT. - OR -  
ROLL FORM POST AT 1.35 LBS. PER FOOT. (SEE DETAIL)
5. NOT REQUIRED FOR ROLL FORM POST.



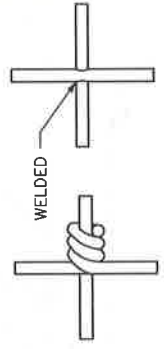
**LEXINGTON**  
 DIVISION OF ENGINEERING  
 WOVEN WIRE  
 RIGHT-OF-WAY FENCE  
 TYPE 1

STANDARD DRAWING NO. **312**  
 APPROVAL: *[Signature]* 9/22/17  
 URBAN COUNTY ENGINEER: *[Signature]* 9/29/17  
 COMMISSIONER: *[Signature]* DATE

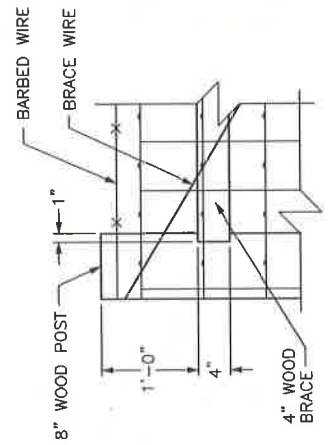
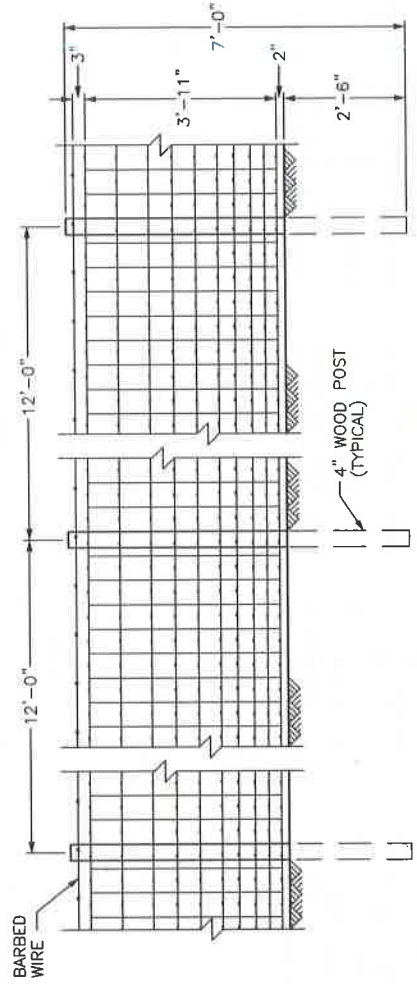


**PULL OR END POST ASSEMBLY**

**CORNER POST ASSEMBLY**



ALTERNATE METHODS OF SECURING VERTICAL STAY WIRE TO THE HORIZONTAL WIRE OF THE FABRIC.



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WOVEN WIRE  
RIGHT-OF-WAY FENCE  
TYPE 2

STANDARD DRAWING NO. 313

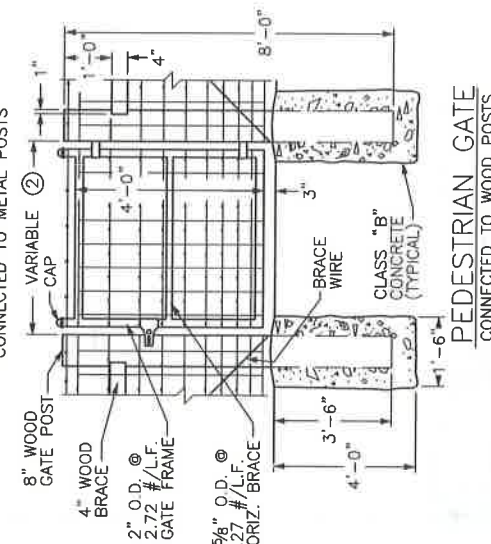
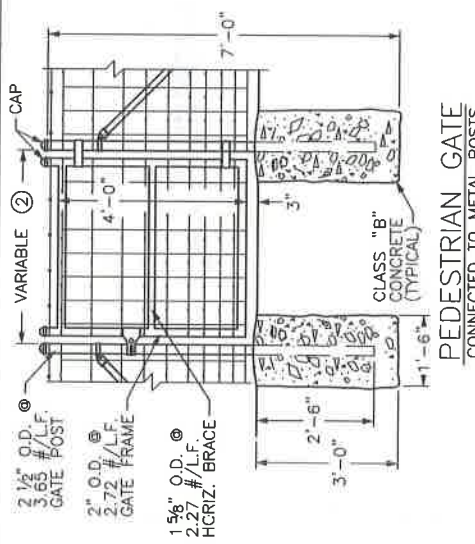
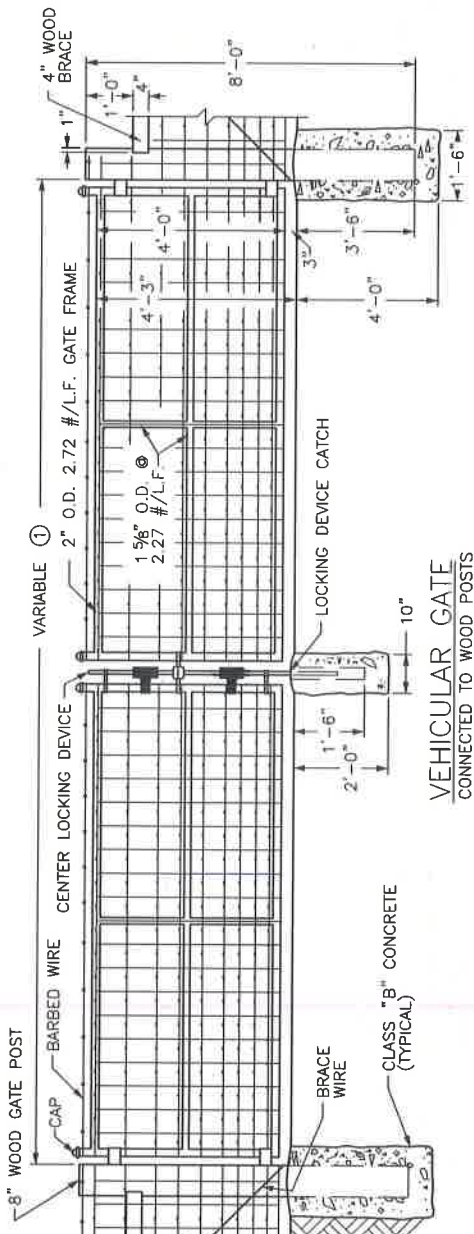
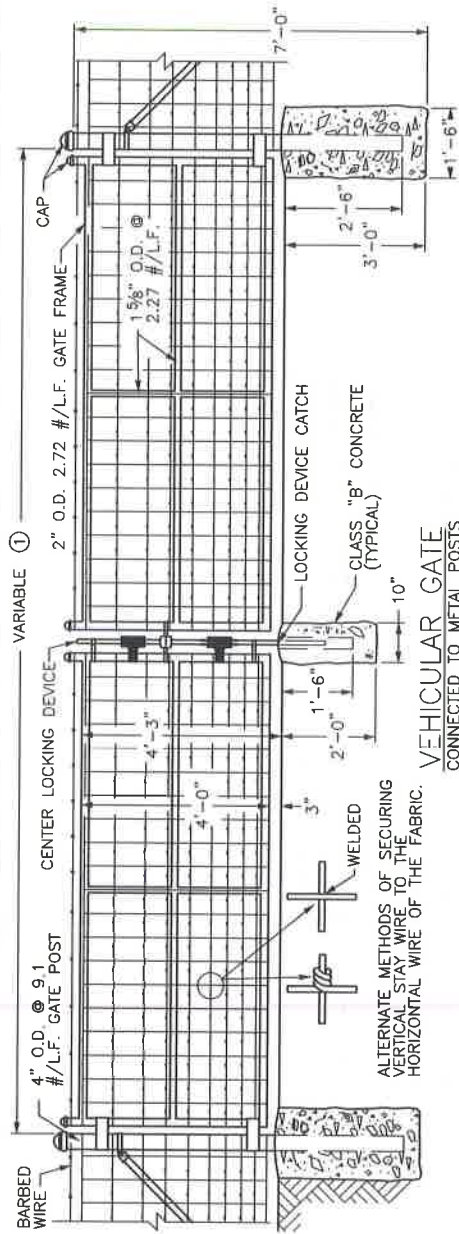
APPROVAL: *[Signature]* 9/22/17

URBAN COUNTY ENGINEER: *[Signature]* 9/22/17

COMMISSIONER: *[Signature]* DATE

- NOTES:**
- ON INTERMEDIATE PULL POST ASSEMBLIES, BRACE WIRES SHALL BE REQUIRED FOR BOTH DIRECTIONS.
  - WOVEN-WIRE FABRIC USED IN RIGHT-OF-WAY FENCE SHALL BE EITHER ALUMINUM-COATED STEEL NO. 1047-6-9 OR ZINC-COATED STEEL NO. 1047-6-9





**BASIS OF PAYMENT:**  
THE CONTRACT UNIT PRICE FOR WOVEN WIRE GATES SHALL BE:  
 (1) FEET WIDE SINGLE VEHICULAR WOVEN WIRE GATE  
 (1) FEET WIDE DOUBLE VEHICULAR WOVEN WIRE GATE  
 (2) FEET WIDE PEDESTRIAN WOVEN WIRE GATE  
 (1) - (2) AS SHOWN ON PLANS

**CONSTRUCTION REQUIREMENTS:**  
FABRIC TIE WIRES SHALL BE SPACED 12 INCHES ON CENTERS.  
THE CONTRACTOR IS NOT TO ORDER GATES UNTIL THEIR NECESSITY AND LOCATION HAVE BEEN CERTIFIED BY THE ENGINEER.

**NOTES:**

**MATERIALS:**  
WOVEN-WIRE FABRIC USED IN THE GATES SHALL EITHER BE ALUMINUM-COATED STEEL NO. 1047-6-9 OR ZINC-COATED STEEL NO. 1047-6-9.  
O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL - ASTM F 1083 SHALL GOVERN.

GATES SHALL HAVE HEAVY PRESSED STEEL CORNERS SECURELY RIVETED OR SHALL BE MACHINE NOTCHED AND ELECTRICALLY WELDED SO AS TO BE RIGID AND WATER TIGHT. ALL WELDED JOINTS SHALL BE CLEANED AND PAINTED WITH TWO (2) COATS OF ALUMINUM PAINT.

**GENERAL:**

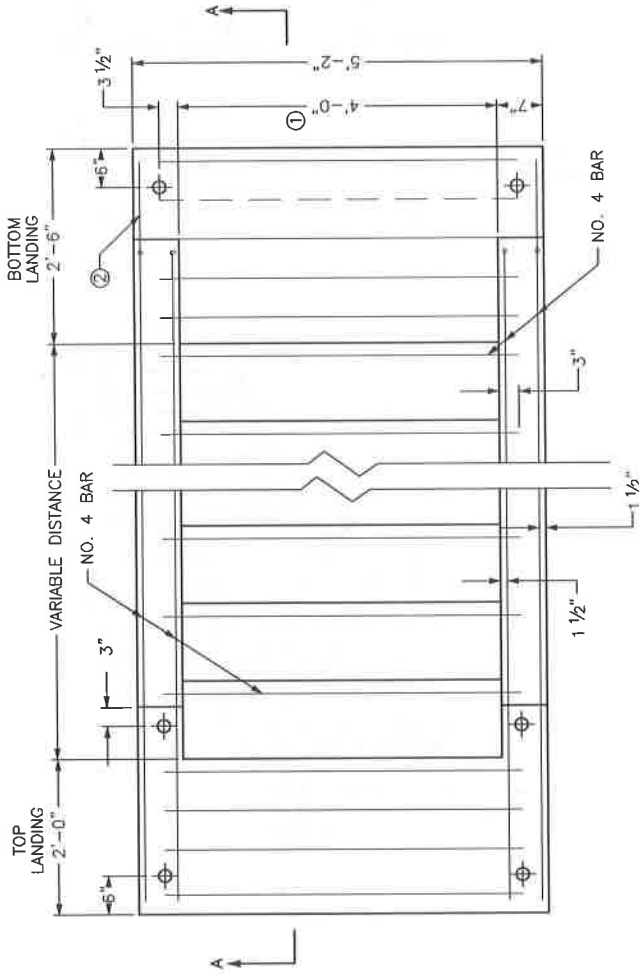
- (1) 6' TO 13' WIDTH FOR SINGLE GATE AND 12' TO 26' WIDTH FOR DOUBLE GATE.
- (2) 4' TO 6' WIDTH

**LEXINGTON**

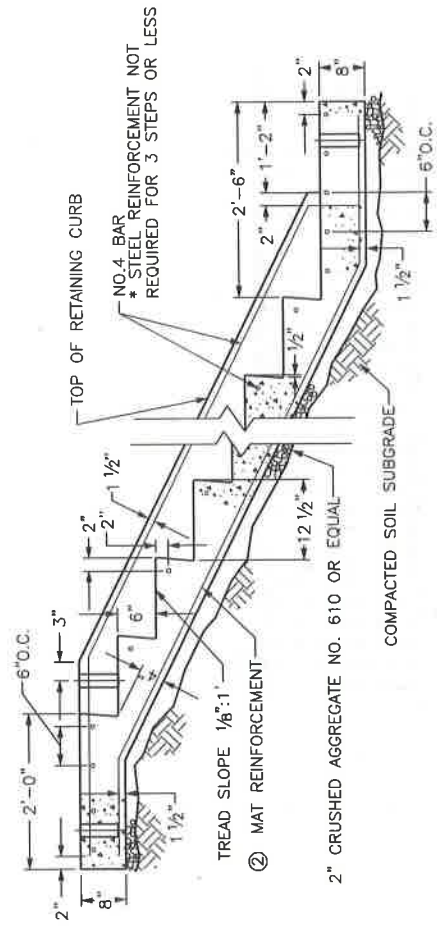
DIVISION OF ENGINEERING

WOVEN WIRE GATES

STANDARD DRAWING NO. 314  
 APPROVAL: 8/22/17  
 URBAN COUNTY ENGINEER  
 COMMISSIONER 9/23/17  
 DATE



PLAN



SECTION A-A 2:1 SLOPE

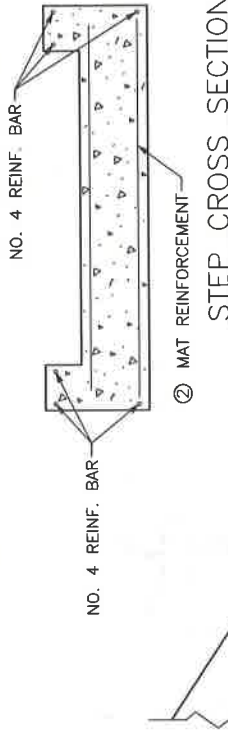
NOTES:

1. MAT REINFORCEMENT ②, LONG BARS 6"O.C. AND TRANSV. BARS 12"O.C., MIN. NO. 4 REINFORCEMENT BARS, LONG BARS 6"O.C. AND TRANSV. BARS 12"O.C., MIN. GRADE 40, OR WELDED WIRE FABRIC-6X6-W4XW4, 58 LBS./100 SQ. FT.
2. NO. 4 REINFORCEMENT BARS ADDITIONALLY AS SHOWN.
3. ROUND ALL EXPOSED EDGES AND CORNERS 1/4" R.
4. MAT REINFORCEMENT IN BOTTOM OF THE STEPS SHALL BE WIRE FABRIC OR BAR MAT ②.
5. HANDRAIL SHALL BE REQUIRED WITH THREE OR MORE STEPS.

TABLE OF QUANTITIES

SLOPE	LOCATION	ADDITIONAL NO. 4 BAR REINF. (LBS)		MAT REINFORCEMENT WIRE FABRIC(SQ.FT.)		BAR MAT (LBS)		CU. YDS. CLASS "A" CONCRETE	
		4' WIDTH ①	4' WIDTH ②	4' WIDTH ①	4' WIDTH ②	4' WIDTH ①	4' WIDTH ②	4' WIDTH ①	4' WIDTH ②
2:1	BOTTOM LANDING	23.547	3.340	11.776	2.375	27.388	5.177	0.337	0.059
	INTERMEDIATE STEP	8.015	1.336	5.991	1.208	12.191	2.283	0.16	0.025
	TOP LANDING	22.483	3.340	9.504	1.917	20.708	3.897	0.265	0.051
1 1/2:1	BOTTOM LANDING	23.603	3.340	12.602	2.542	28.613	5.400	0.36	0.062
	INTERMEDIATE STEP	7.431	1.336	5.268	1.063	11.119	2.088	0.17	0.027
	TOP LANDING	22.545	3.340	9.710	1.958	21.014	3.952	0.281	0.054

① APPROXIMATE QUANTITY TO ADD FOR EACH ADDITIONAL FOOT OF WIDTH OVER 4'-0".



STEP CROSS SECTION



**LEXINGTON**

DIVISION OF ENGINEERING

CONCRETE STEPS

---

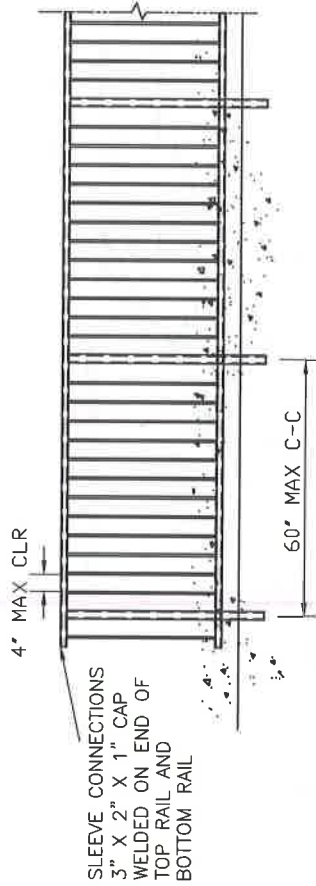
STANDARD DRAWING NO. **315**

APPROVAL:  DATE: 9/22/17

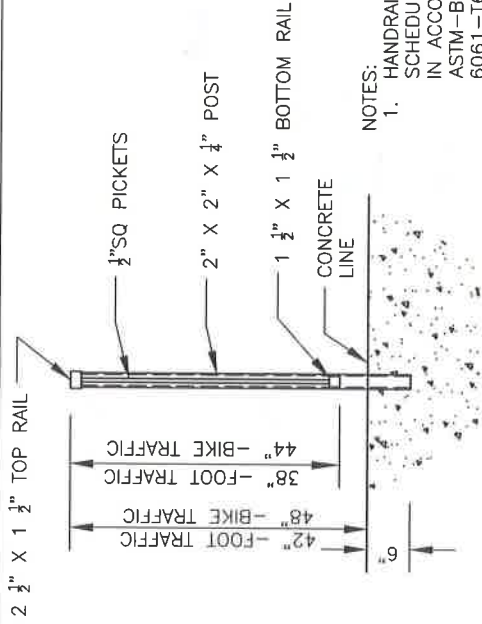
URBAN COUNTY ENGINEER:  DATE: 9/22/17

COMMISSIONER: \_\_\_\_\_ DATE: \_\_\_\_\_

STEP DETAIL FOR 1 1/2:1 SLOPE



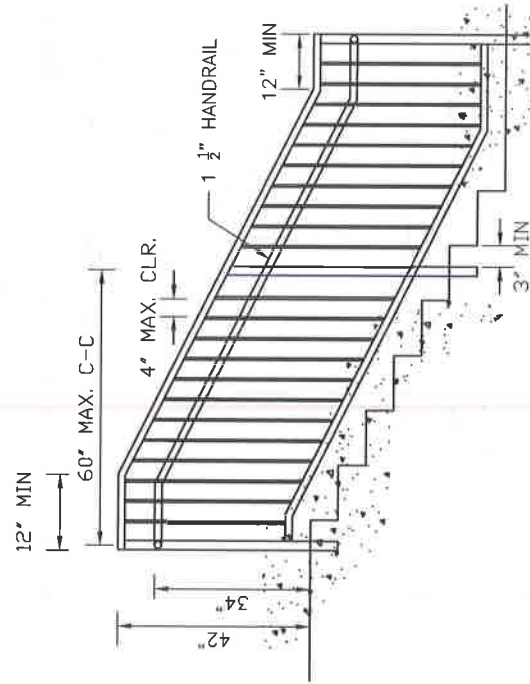
TOP RAIL FOR RETAINING WALLS



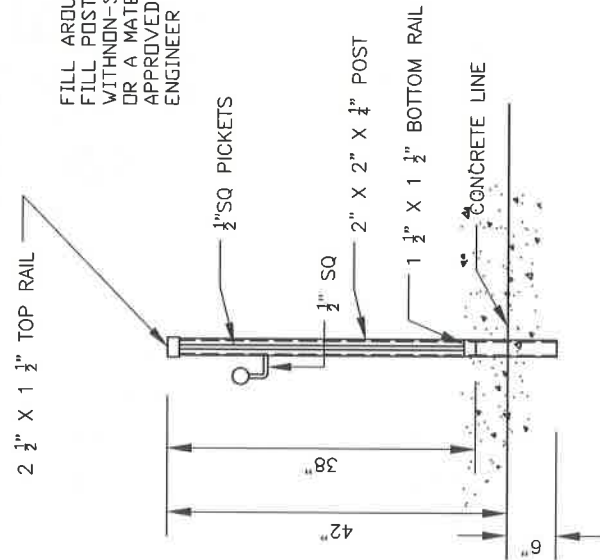
SECTION

NOTES:

- HANDRAILS SHALL BE DN 40 SCHEDULE 40 ALUMINUM PIPE IN ACCORDANCE WITH ASTM-B221 OR B210 ALLOY 6061-T6.
- SQUARE BARS SHALL BE DN 40 SCHEDULE ALUMINUM IN ACCORDANCE WITH ASTM -B221 OR B210 ALLOY 6061-T6.
- ALL METAL TO BE POWDER COATED BLACK IN ACCORDANCE WITH AAMA 2605.
- GROUT POSTS TO CONCRETE - SEE POST SETTINGS DETAIL THIS SHEET.
- ANCHOR POSTS IN CORED OR FORMED HOLES.
- ALUMINUM SURFACES, SUCH AS EXPOSED ENDS, IN CONTACT WITH CONCRETE, GROUT, OR DISSIMILAR METALS SHALL BE PROTECTED WITH A COAT OF BITUMINOUS PAINT.



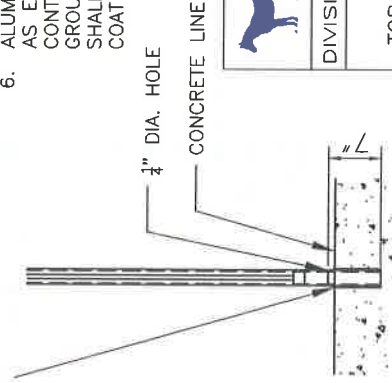
HANDRAIL FOR STEPS



SECTION

POST SETTING DETAIL

FILL AROUND POST AND  
FILL POST TO HOLE  
WITH NON-SHRINK GROUT  
OR A MATERIAL  
APPROVED BY THE  
ENGINEER

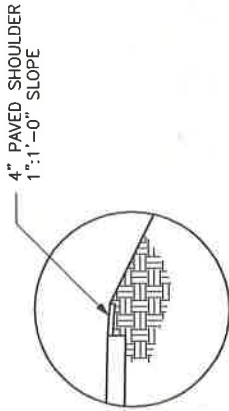


**LEXINGTON**

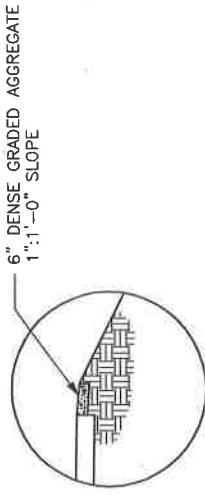
DIVISION OF ENGINEERING

TOP RAIL FOR RETAINING  
WALLS HANDRAIL FOR STEPS

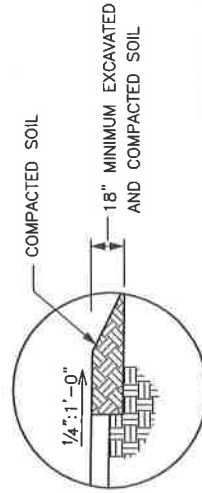
STANDARD DRAWING NO	316
APPROVAL	9/23/17
URBAN COUNTY ENGINEER	5/22/17
COMMISSIONER	DATE



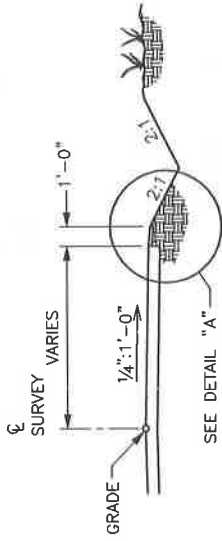
DETAIL "A"



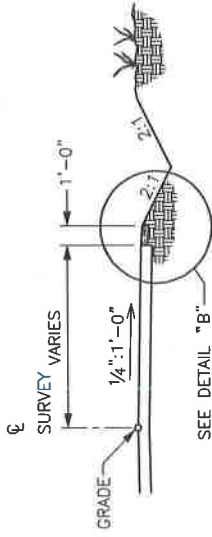
DETAIL "B"



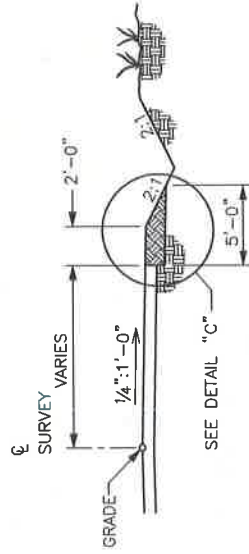
DETAIL "C"



PAVED SHOULDER



ROCK SHOULDER



SOIL SHOULDER

NOTES:

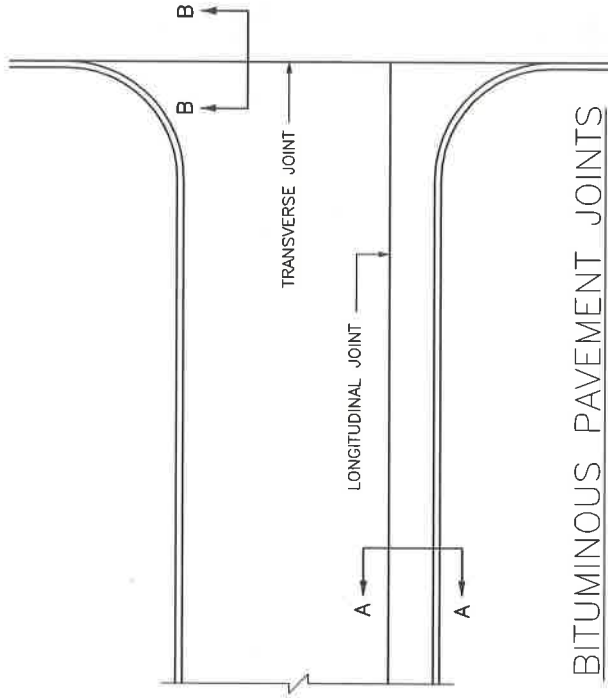
1. SLOPES AND DRAINAGE DITCHES OUTSIDE THE R/W SHALL BE APPROVED BY THE ENGINEER.
2. DRAINAGE DITCH SIDE SLOPES SHALL BE 2:1 MAXIMUM.



DIVISION OF ENGINEERING

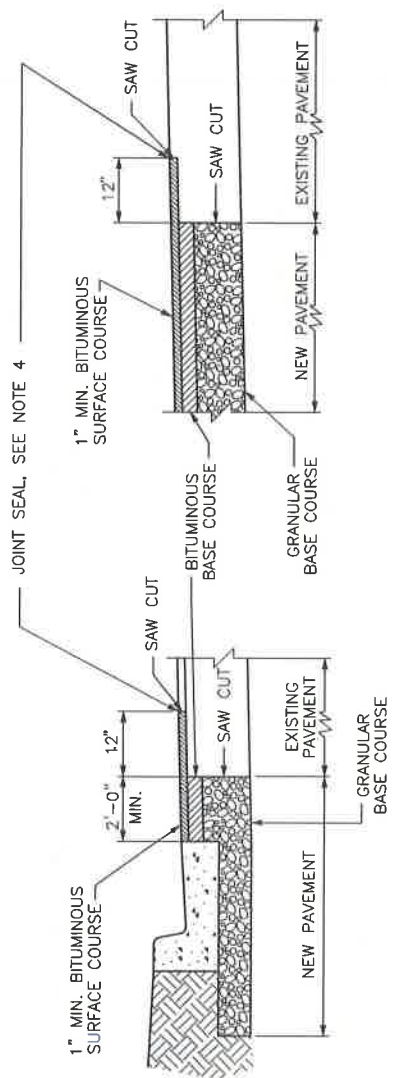
COUNTY ROAD  
TYPICAL SHOULDER SECTIONS  
(MINIMUM REQUIREMENTS)

STANDARD DRAWING NO.	317
APPROVAL:	
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	9/22/17
DATE	
DATE	



BITUMINOUS PAVEMENT JOINTS

- NOTES:
1. ALL SAW-CUTS SHALL BE NEAT AND STRAIGHT.
  2. IMMEDIATELY BEFORE LAYING NEW BITUMINOUS COURSES, ALL SAW CUT EDGES SHALL BE CLEANED OF DUST AND DEBRIS AND SPRAYED WITH A BITUMINOUS TACK COAT.
  3. EDGE KEY SHALL NOT BE REQUIRED IF BOTH EXISTING AND NEW PAVEMENT ARE TO RECEIVE AN OVERLAY AS PART OF THIS CONTRACT.
  4. SEAL PERIMETER OF CUT PAVEMENT WITH CRACK SEALANT THAT MEETS ASTM D6690, TYPE 2.



SECTION A--A

LONGITUDINAL EDGE KEY

SECTION B--B

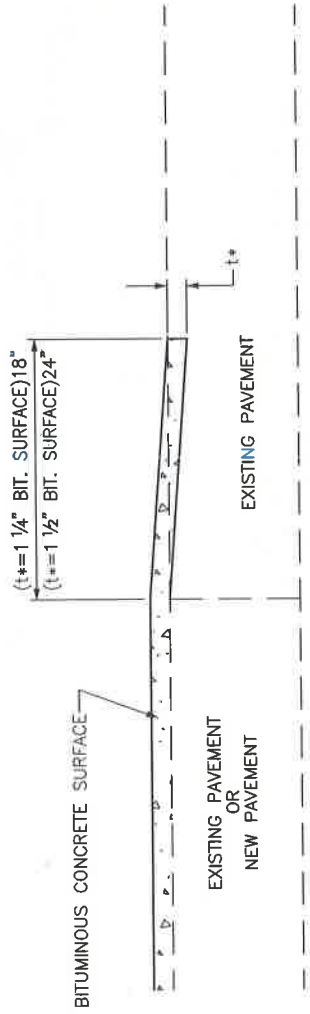
TRANSVERSE EDGE KEY



DIVISION OF ENGINEERING

EDGE KEY

STANDARD DRAWING NO	318
APPROVAL	9/22/17
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	DATE



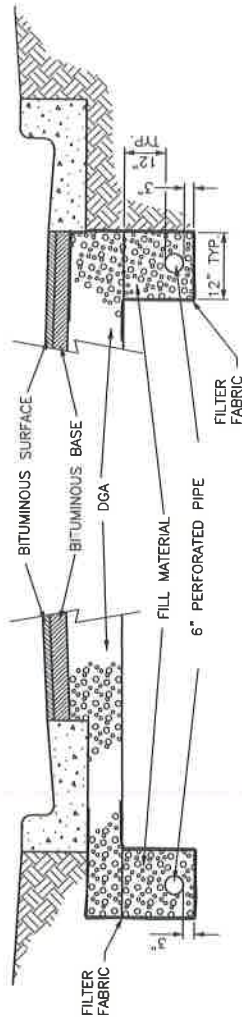
EDGE KEY

 <b>LEXINGTON</b>
DIVISION OF ENGINEERING
TYPICAL EDGE KEY FOR MINIMUM OVERLAYS, SHORT PROJECTS, LOW SPEED
STANDARD DRAWING NO. 319
APPROVAL:  9/22/17
URBAN COUNTY ENGINEER:  9/22/17
DATE
COMMISSIONER: _____ DATE

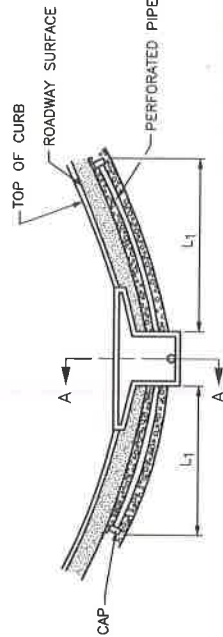
### TYPICAL SECTION

CASE 1

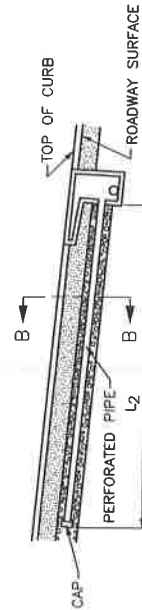
CASE 2



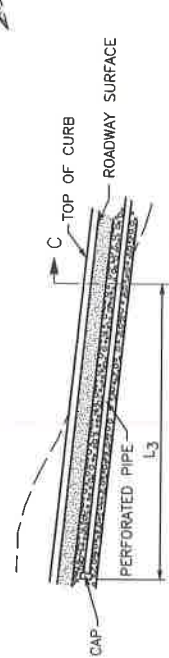
### TYPICAL SUBGRADE DRAINAGE LOCATIONS



SAG VERTICAL CURVE  
 $L_1 = 100$  FT. OR THE LENGTH REQUIRED TO REACH THE  $1\frac{1}{2}\%$  SLOPE POINT, WHICHEVER IS LARGER.



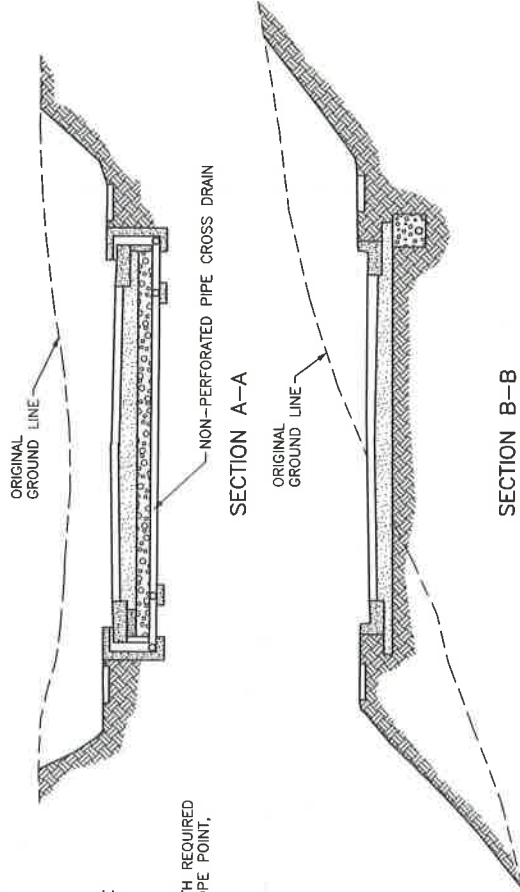
HILLSIDE  
 $L_2 = 100$  FT. OR THE LENGTH REQUIRED TO REACH THE CREST OF THE HILL, WHICHEVER IS LARGER.



CUT TO FILL  
 $L_3 = 100$  FT. OR THE LENGTH REQUIRED TO REACH THE CREST OF THE HILL, WHICHEVER IS LARGER.

NOTES:

1. SUBGRADE DRAINAGE, AS DEPICTED, IS INTENDED FOR USE WITH THE SURFACING PHASE OF CONSTRUCTION, AND SHALL BE INSTALLED ONLY AFTER THE SUBGRADE HAS BEEN COMPLETED, AND PRIOR TO CONSTRUCTING PAVING MATERIALS.
2. THE CAP SHALL BE A STANDARD MANUFACTURED ITEM FURNISHED BY THE PIPE SUPPLIER.
3. TERMINATE PERFORATED PIPE IN CATCH BASIN AT AN ELEVATION WHICH PROVIDES POSITIVE DRAINAGE (MAY REQUIRE ADDITIONAL OPENING IN CATCH BASIN WALL).
4. BACKFILL TO CONSIST OF NO. 78, 8, 9M COARSE AGGREGATE OR NATURAL SAND. THE FILL MATERIAL SHALL BE THOROUGHLY COMPACTED IN LAYERS NOT EXCEEDING 6 INCHES LOOSE MEASUREMENT.
5. CONNECTIONS TO DRAINAGE STRUCTURES AND PIPE TERMINI SHALL BE NON-PERFORATED PIPE MEETING THE REQUIREMENTS OF THE PERFORATED PIPE EXCEPT FOR PERFORATIONS.
6. ALL RAISED NON-PAVED MEDIANS SHALL HAVE SUBGRADE DRAINAGE ASSOCIATED WITH CURB AND GUTTER.



SECTION B-B

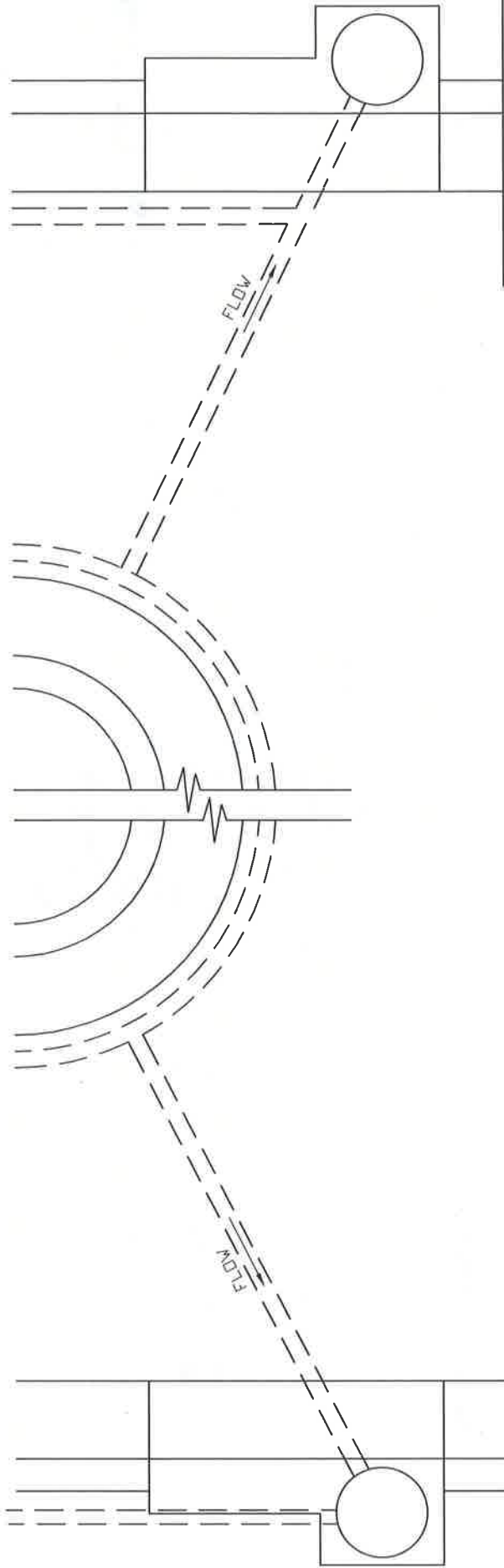
SECTION C-C



DIVISION OF ENGINEERING

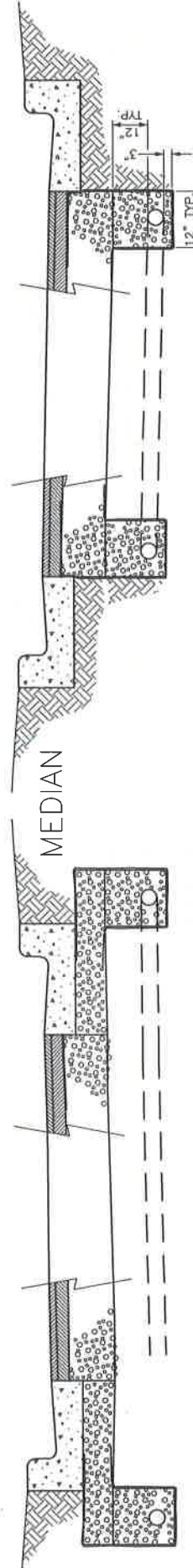
PERFORATED PIPE  
 SUBGRADE DRAINAGE  
 ALONG ROADWAY

STANDARD DRAWING NO.	320-1
APPROVAL	9/28/17
URBAN COUNTY ENGINEER	4/22/17
COMMISSIONER	DATE



CURB ON PAVEMENT

CURB ON SOIL

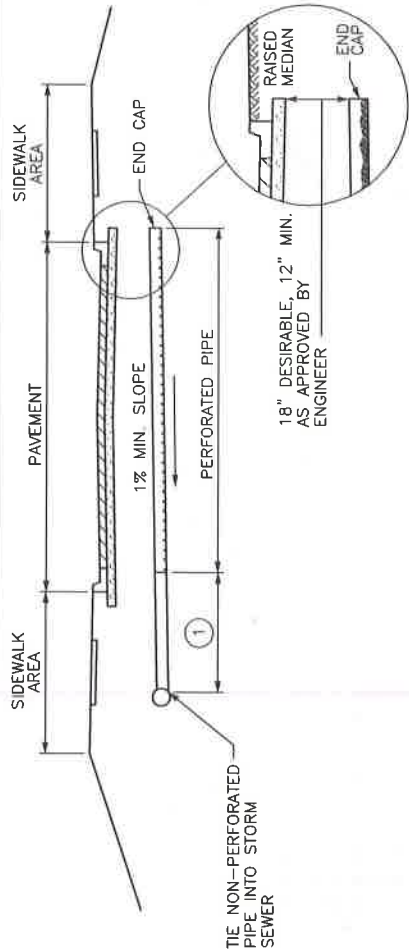


TYPICAL SECTION

1. For installation of perforated pipe see Detail Sheet #320
2. Perforated pipe shall completely surround all islands
3. For islands greater than 50" long or wide, perforated pipe surrounding island and leading to the curb inlet shall be 6" diameter.

 <b>LEXINGTON</b>	DIVISION OF ENGINEERING
	PERFORATED PIPE SUBGRADE DRAINAGE FOR RAISED NON-PAVED MEDIANS
STANDARD DRAWING NO. 320-2	APPROVAL 9/22/17
URBAN COUNTY ENGINEER 	DATE 9/22/17
COMMISSIONER	





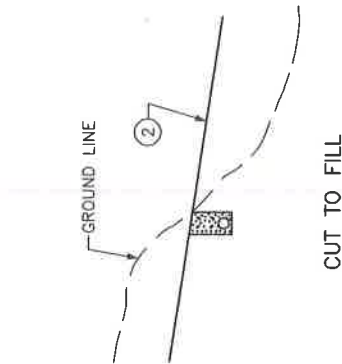
**NOTES:**

1. SUBGRADE DRAINAGE AS DEPICTED IS INTENDED FOR USE WITH THE ROADWAY CONSTRUCTION PHASE AND SHALL BE INSTALLED ONLY AFTER THE SUBGRADE HAS BEEN COMPLETED, AND PRIOR TO PLACING PAVING MATERIALS.
2. SUBGRADE DRAINAGE WILL NOT BE REQUIRED WHEN:
  - A. AGGREGATE SUBGRADE OR NATURAL BANK GRAVEL IS SPECIFIED.
  - B. POKUS OR FREE DRAINING SUBGRADES ARE EVIDENT.
  - C. DIRECTED BY THE LFUGG ENGINEER.
3. THE END CAP SHALL BE A STANDARD MANUFACTURED ITEM FURNISHED BY THE PIPE SUPPLIER.
4. FLOW SHALL BE DIRECTED TOWARD THE FILL SIDE OF THE ROADWAY WHEN POSSIBLE.
5. IF ROCK IS ENCOUNTERED WITHIN 24" OF SUBGRADE, PERFORATED PIPE IS REQUIRED THE FULL LENGTH OF ROCK. POSITIVE OUTLET IS REQUIRED.
6. A MIN. OF 100' OF PERFORATED PIPE IS REQUIRED UPHILL FROM BASINS ON GRADE AND 100' OF PERFORATED PIPE IS REQUIRED EACH WAY FROM SAG BASINS.

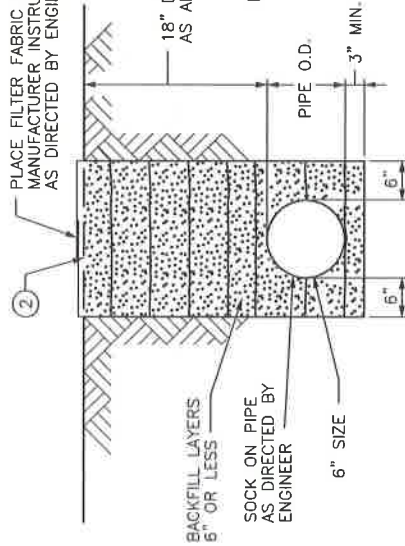


SAG VERTICAL CURVES

BRIDGES



CUT TO FILL



TRENCH DETAIL

**NOTE:** - NO. 75, 8, OR 9M COARSE AGGREGATE. THE FILL MATERIAL SHALL BE THOROUGHLY COMPACTED IN LAYERS NOT EXCEEDING 6 INCHES LOOSE MEASUREMENT.

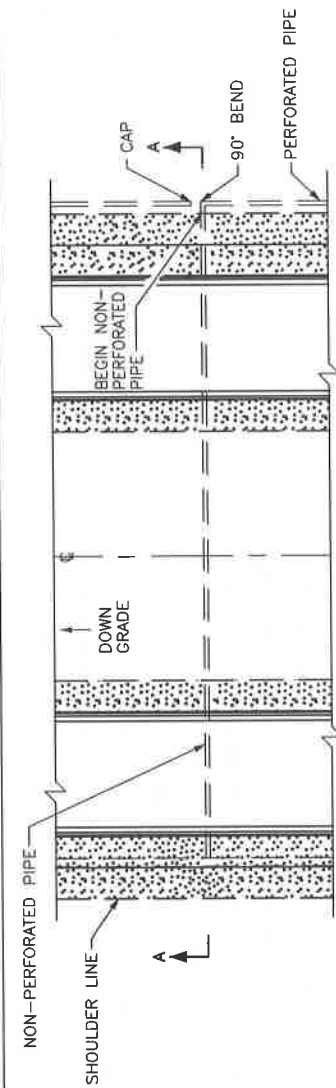


DIVISION OF ENGINEERING

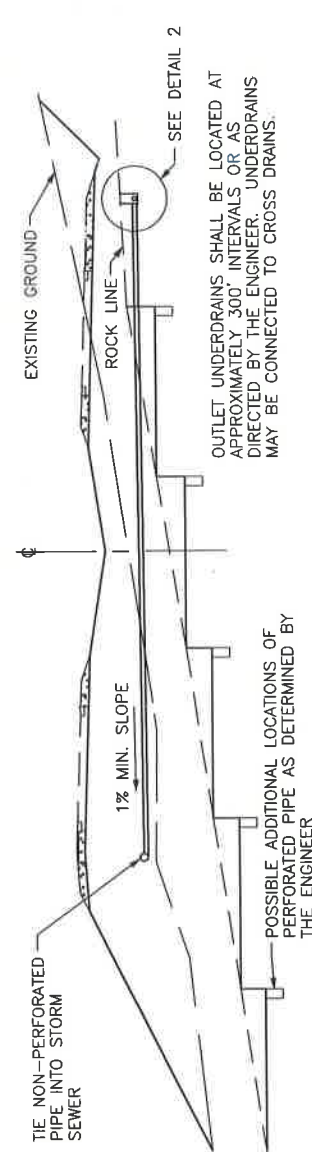
PERFORATED PIPE FOR SUBGRADE DRAINAGE

STANDARD DRAWING NO	321
DATE	9/22/17
DATE	9/22/17
DATE	

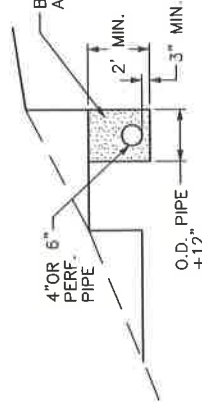
TYPICAL SUBGRADE DRAINAGE LOCATIONS



PLAN VIEW



SECTION A-A



DETAIL 2

DETAIL FOR LONGITUDINAL UNDERDRAINS

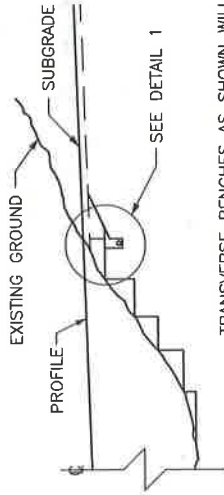
SHEET NOTES: 0

- ① LIMITS OF FIRST BENCH.
- ② BACKFILL MATERIAL

NOTE:

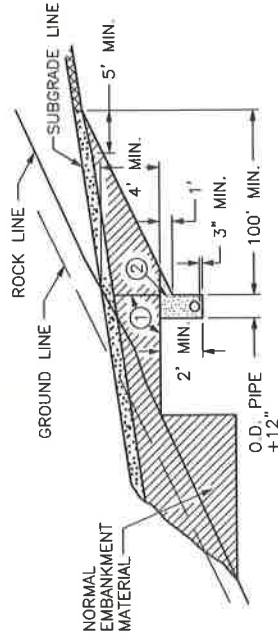
- 1. ALL PERFORATED AND NON-PERFORATED PIPE SHALL COMPLY WITH ASTM & KDOT SPECIFICATIONS.

DETAIL FOR TRANSVERSE UNDERDRAIN CUT TO FILL CONDITION



TRANSVERSE BENCHES AS SHOWN WILL BE REQUIRED WHERE PROPOSED GRADE INTERSECTS EXISTING GROUND.

- 1. UNDERDRAINS WILL BE REQUIRED ON UPGRADE BENCH. THIS PERFORATED PIPE UNDERDRAIN SHOULD BE PLACED IN ROCK OR SHALE FORMATIONS IF POSSIBLE. EXACT LOCATIONS TO BE DETERMINED BY THE ENGINEER ON CONSTRUCTION.
- 2. BENCHING AND UNDERDRAIN SHALL BE REQUIRED AT ALL TRANSITIONS FROM ROCK CUTS TO FILL WHETHER OR NOT UNDERDRAIN IS REQUIRED.
- 3. IF ROCK IS ENCOUNTERED WITHIN 24" OF SUBGRADE, PERFORATED PIPE IS REQUIRED THE FULL LENGTH OF ROCK. POSITIVE OUTLET IS REQUIRED.



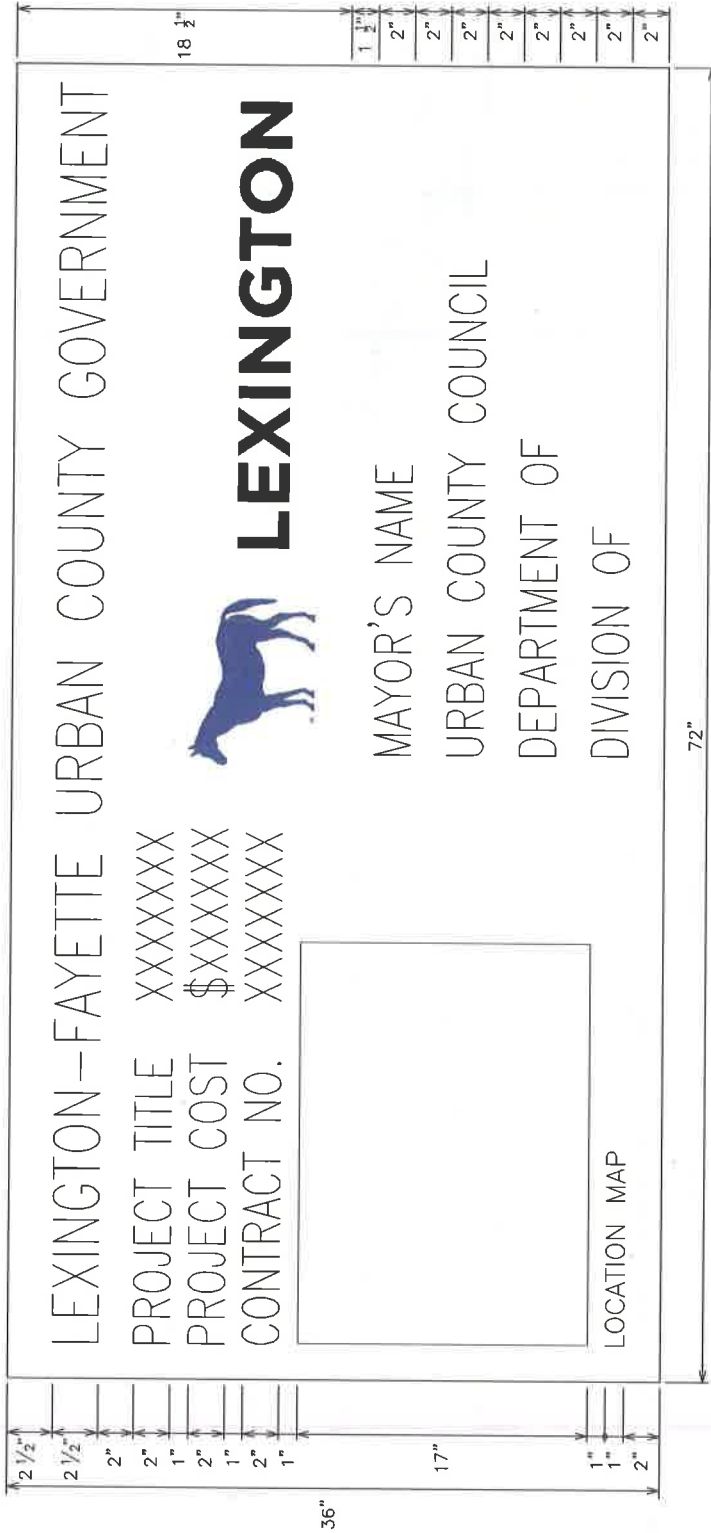
DETAIL 1



DIVISION OF ENGINEERING

PERFORATED PIPE UNDERDRAINS

STANDARD DRAWING NO.	322
APPROVAL:	
URBAN COUNTY ENGINEER	9/22/17
COMMISSIONER	9/22/17
DATE	



**NOTES:**

THIS SIGN SHALL BE:

1. FURNISHED AND ERRECTED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE, IN ADDITION TO THE NORMAL WARNING AND REGULATORY SIGNS.
2. OF GOOD QUALITY EXTERIOR PLYWOOD OR OTHER APPROVED MATERIAL.
3. PAINTED WITH SOLID BLUE LETTERS ON A WHITE BACKGROUND.
4. UPDATED AS NEEDED TO INDICATE THE APPROPRIATE MAYOR'S NAME.
5. FRAMED AND BRACED SO AS TO REMAIN VERTICAL AND PLAINLY VISIBLE TO THE TRAVELING PUBLIC.
6. ERRECTED PRIOR TO STARTING CONSTRUCTION WORK.
7. ERRECTED AT EACH END OF THE PROJECT AT LOCATIONS DIRECTED BY THE ENGINEER AND AT OTHER LOCATIONS SPECIFIED ON THE PLANS OR IN THE PROPOSAL.
8. KEPT CLEAN AND IN GOOD CONDITION FOR THE DURATION OF THE CONSTRUCTION AS DIRECTED BY THE ENGINEER.
9. THE COST SHOWN APPLIES ONLY TO THE PORTION OF PROJECT UNDER CONSTRUCTION IN A CONTINUOUS SECTION. IN THE EVENT THE PROJECT CONSISTS OF MORE THAN ONE CONTINUOUS SECTION THE COST SHOWN SHALL BE FOR THE PARTICULAR SECTION WHERE WORK IS IN PROGRESS.
10. NOT TO BE USED ON FEDERAL AID TRANSPORTATION PROJECTS

**LEXINGTON**

DIVISION OF ENGINEERING

PUBLIC IMPROVEMENT SIGN

STANDARD DRAWING NO. 323

APPROVAL:  9/28/17 DATE

URBAN COUNTY ENGINEER 5/22/12 DATE

COMMISSIONER

## Appendix B

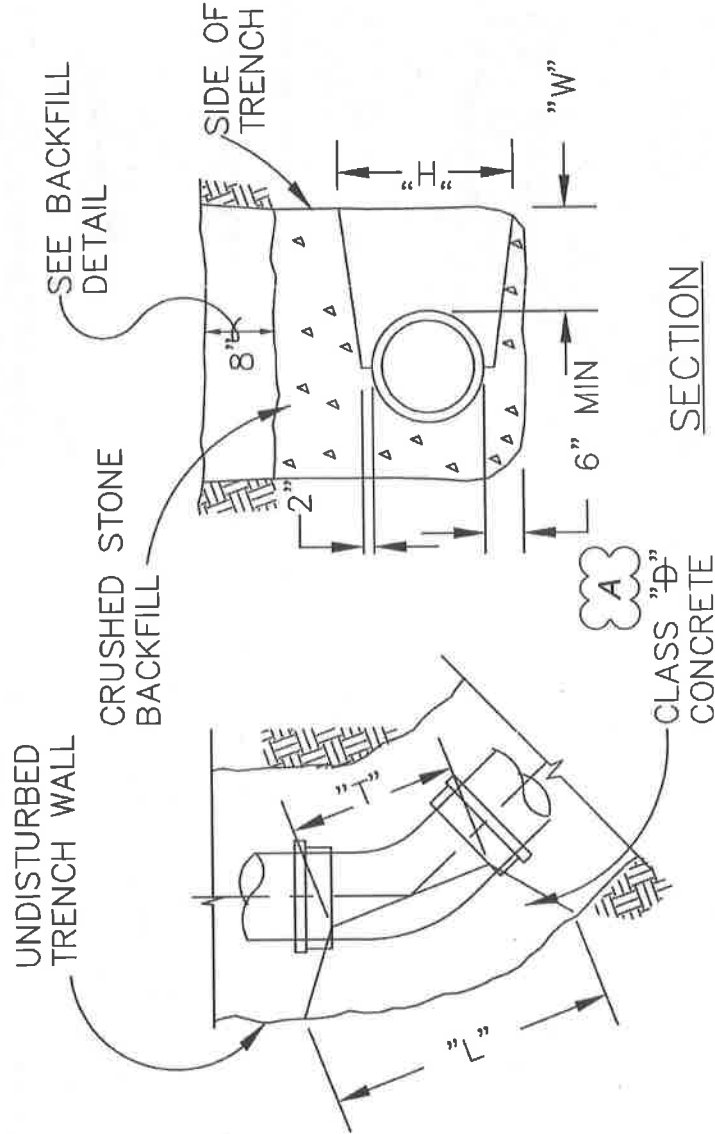
### LFUCG Pump Station Standard Drawings

**Excerpt from:**  
**LFUCG Sanitary Sewer and Pump Station Manual,**  
**Appendix B - Drawings**

\* ALL PIPE AND FITTINGS TO BE BLOCKED SHALL BE WRAPPED TO PREVENT PERMANENT ENCASUREMENT OF JOINTS.

45° BEND						
SIZE D	4"	6"	8"	10"	12"	
W	8"	8"	10"	12"	12"	
L	14"	18"	20"	22"	27"	
H	14"	16"	18"	20"	24"	
T	13"	15"	16"	18"	18"	

90° BEND						
SIZE D	4"	6"	8"	10"	12"	
W	8"	8"	10"	12"	12"	
L	14"	24"	30"	35"	40"	
H	14"	16"	18"	24"	30"	
T	13"	16"	18"	20"	22"	



PLAN

SECTION

HORIZ. & VERT. BENDS &  
CONCRETE BACKING

1/1/09

STANDARD SANITARY SEWER DRAWING NO. PS406-0

2" DIA. PVC VENT  
CRUSHED STONE (NO. 57)  
HALFWAY AROUND  
MANHOLE

MANHOLE SHOULD BE LINED  
WITH VULCAN COATING, OR  
APPROVED EQUAL AS  
SPECIFIED IN SECTION 02608.

STANDARD MANHOLE  
CROSS-SECTION

GRAVITY SEWER

TOP OF PIPE TO BE  
SAME ELEVATION AS  
INVERT OF GRAVITY  
SEWER

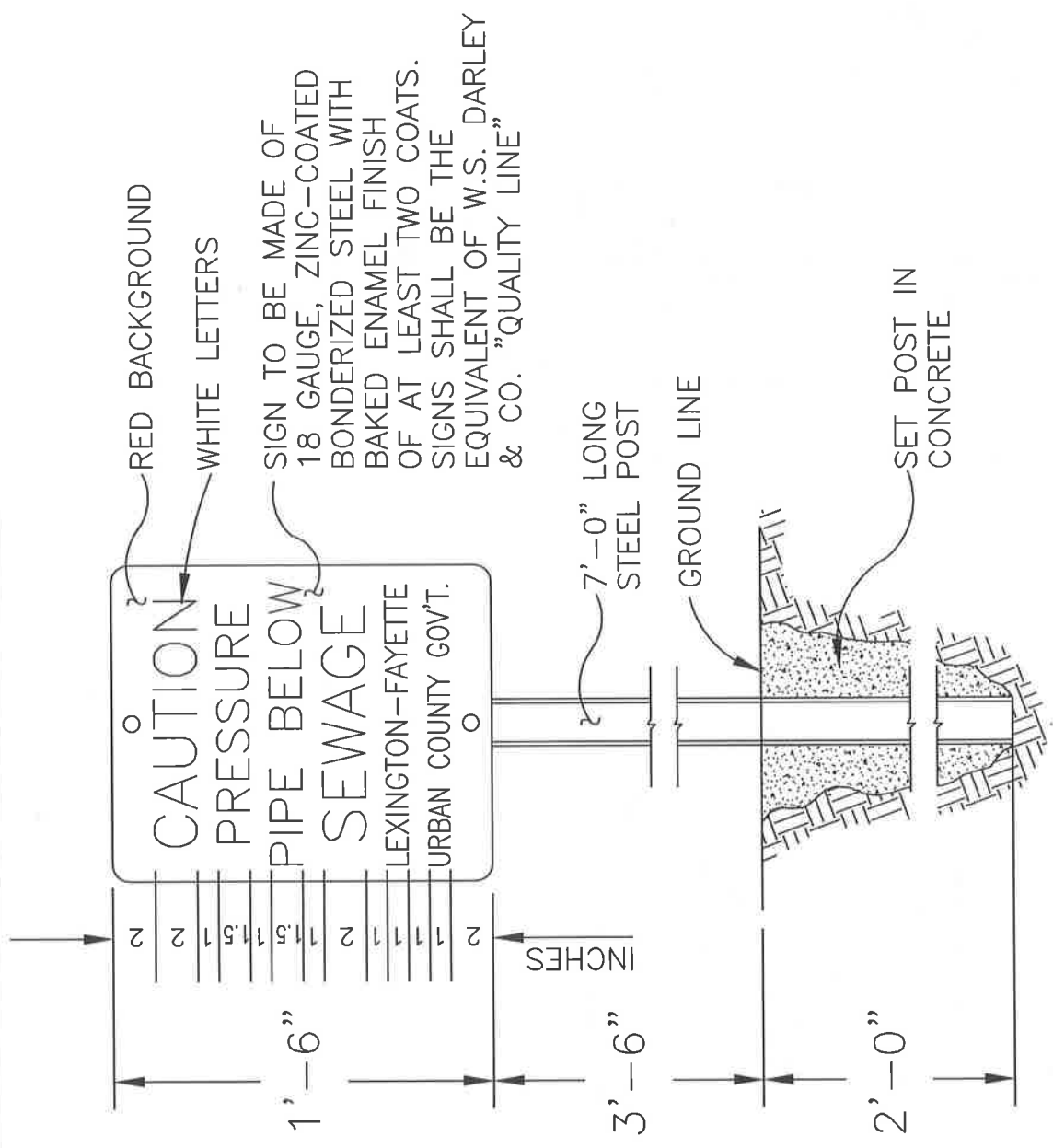
FORCE MAIN

TYPICAL MANHOLE FOR  
TRANSITION FROM FORCE MAIN  
TO GRAVITY SEWER

1/1/09

STANDARD SANITARY SEWER DRAWING NO. PS407-0

LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT

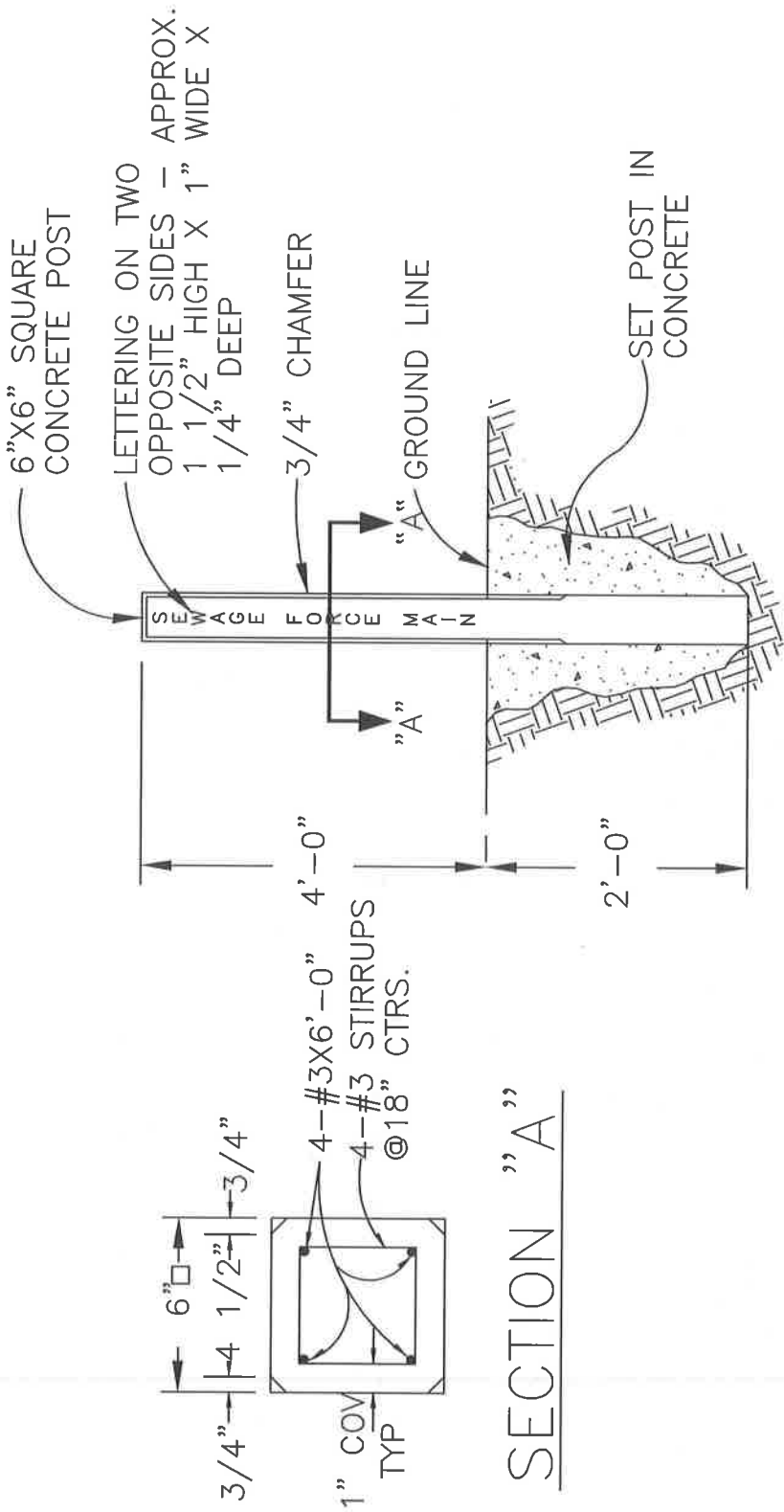


STEEL POST AND  
LINE MARKER

1/1/09

STANDARD SANITARY SEWER DRAWING NO. PS408-0



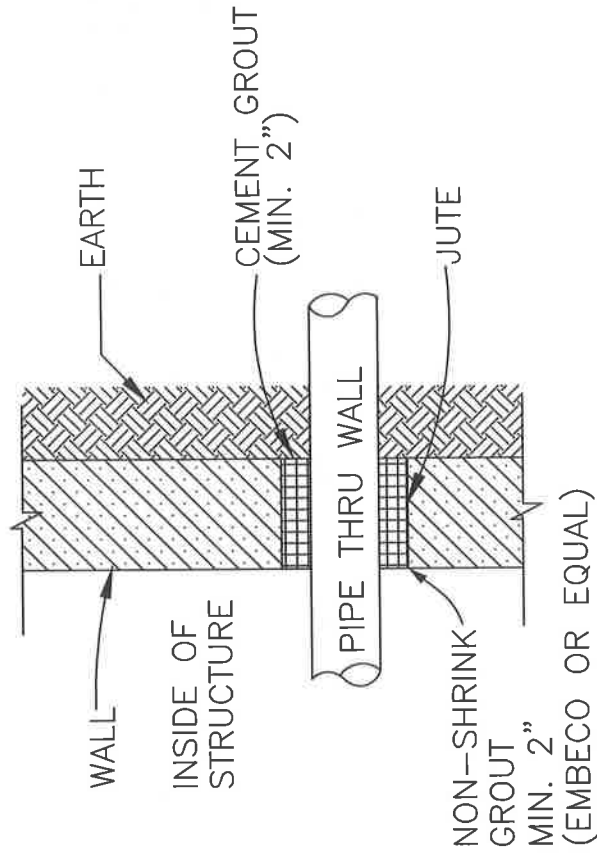
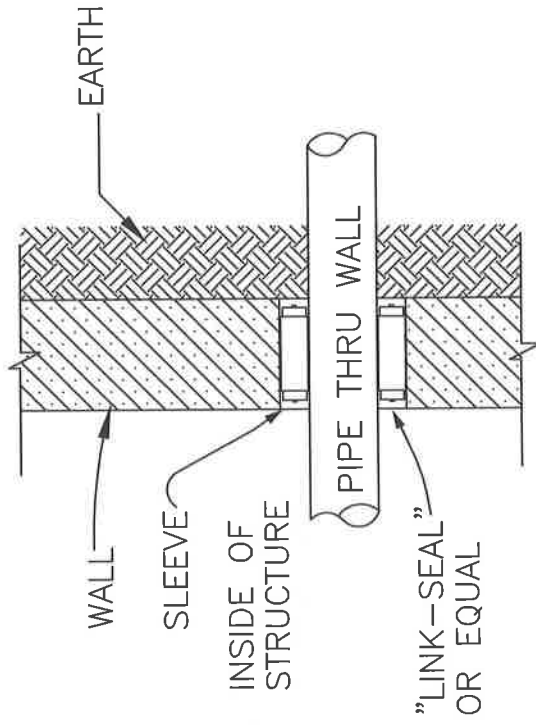


CONCRETE LINE MARKER

1/1/09

STANDARD SANITARY SEWER DRAWING NO. PS409-0

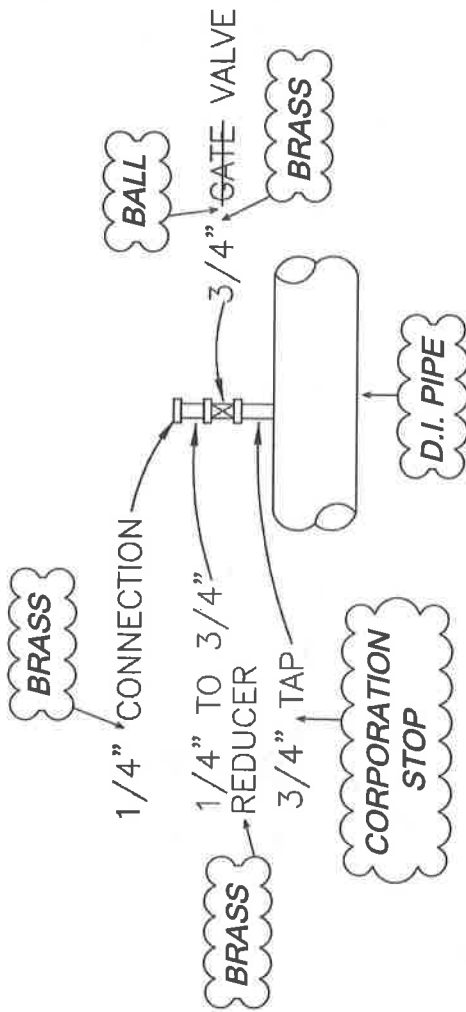
LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT



WALL PENETRATION DETAIL

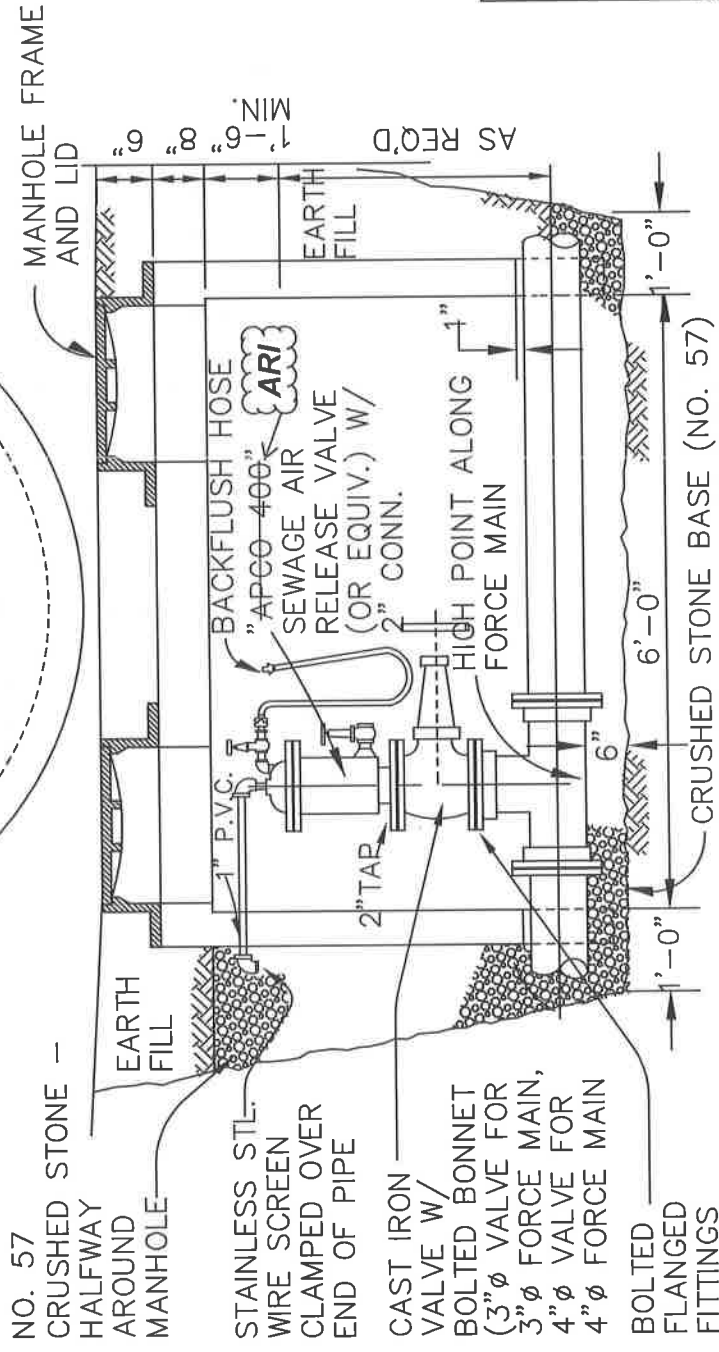
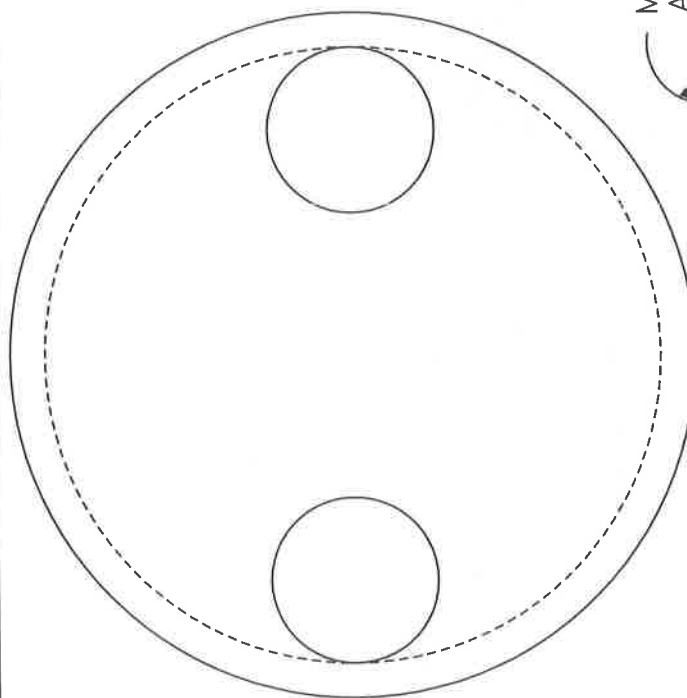
1/1/09

STANDARD SANITARY SEWER DRAWING NO. PS410-0



GAUGE TAP DETAIL

1/1/08



NO. 57  
 CRUSHED STONE --  
 HALFWAY  
 AROUND  
 MANHOLE  
 EARTH  
 FILL  
 STAINLESS STL.  
 WIRE SCREEN  
 CLAMPED OVER  
 END OF PIPE  
 CAST IRON  
 VALVE W/  
 BOLTED BONNET  
 (3" Ø VALVE FOR  
 3" Ø FORCE MAIN,  
 4" Ø VALVE FOR  
 4" Ø FORCE MAIN  
 BOLTED  
 FLANGED  
 FITTINGS

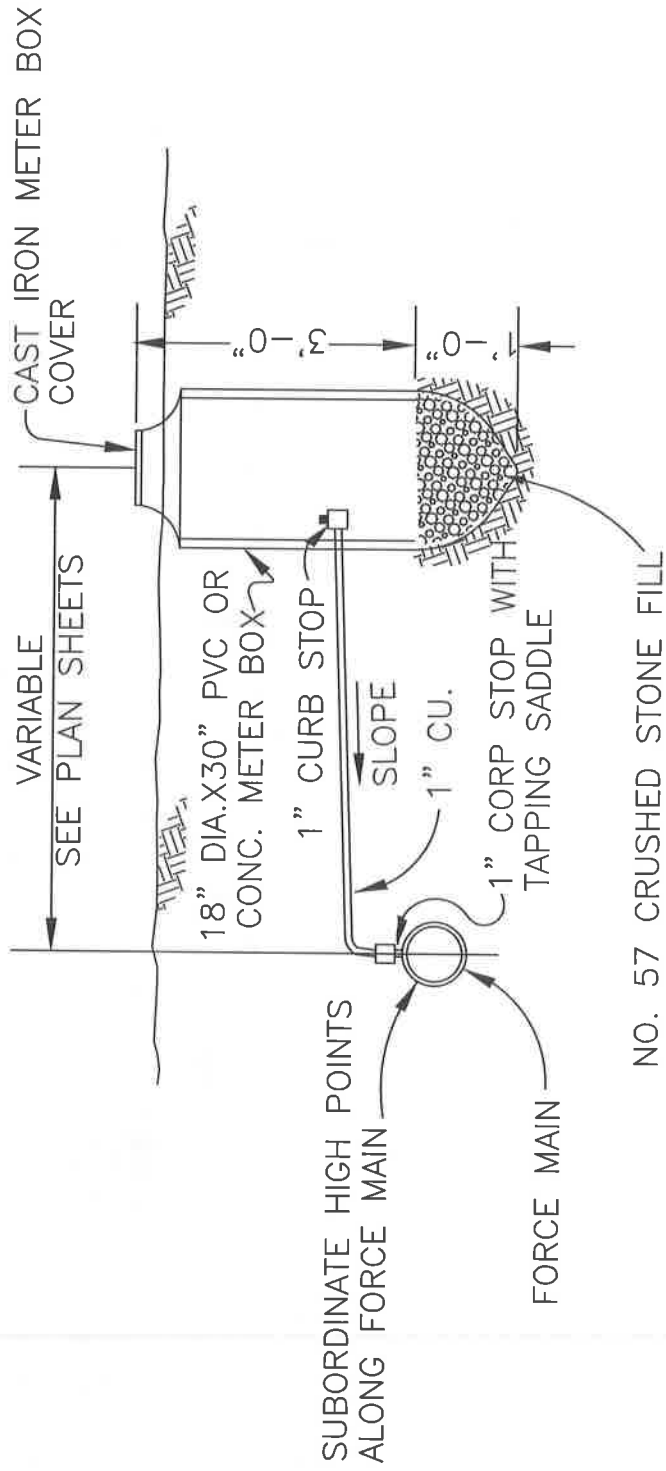
MANHOLE FRAME  
 AND LID  
 AS REQ'D  
 1'-6" MIN.  
 6"  
 8"  
 EARTH  
 FILL  
 1'-0"  
 6'-0"  
 1'-0"

AUTOMATIC AIR  
 RELEASE ASSEMBLY

1/1/09

STANDARD SANITARY SEWER DRAWING NO. PS415-0

CRUSHED STONE BASE (NO. 57)  
 LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT

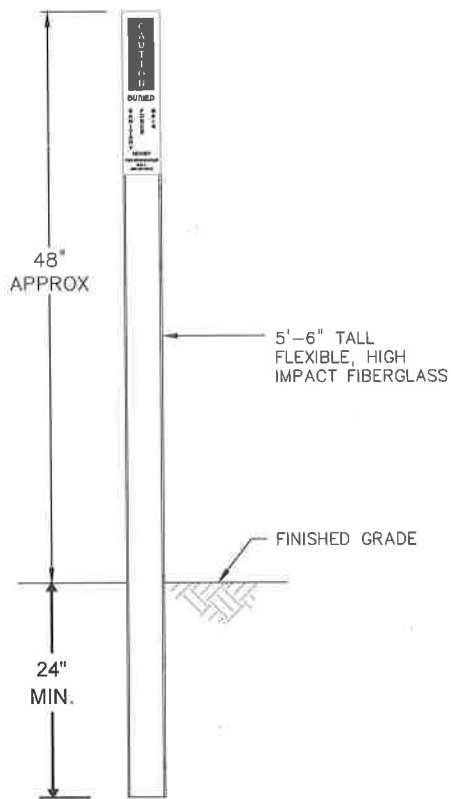


MANUAL AIR RELEASE  
ASSEMBLY

1/1/09

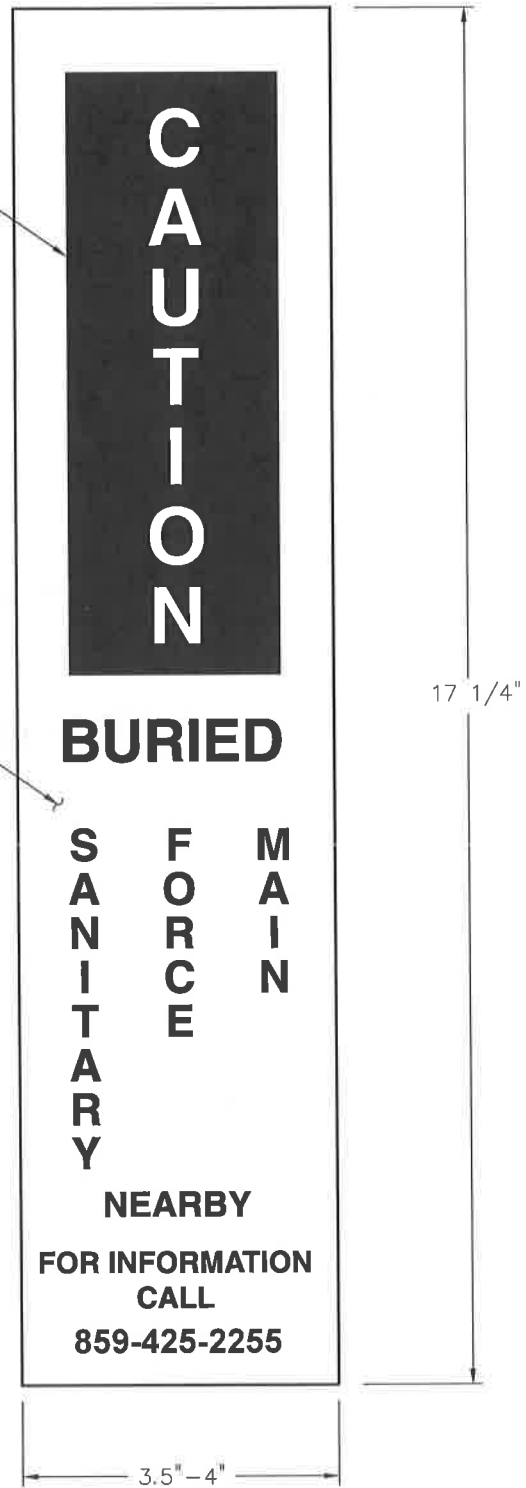
STANDARD SANITARY SEWER DRAWING NO. PS416-0

LEXINGTON - FAYETTE URBAN COUNTY GOVERNMENT



BROWN

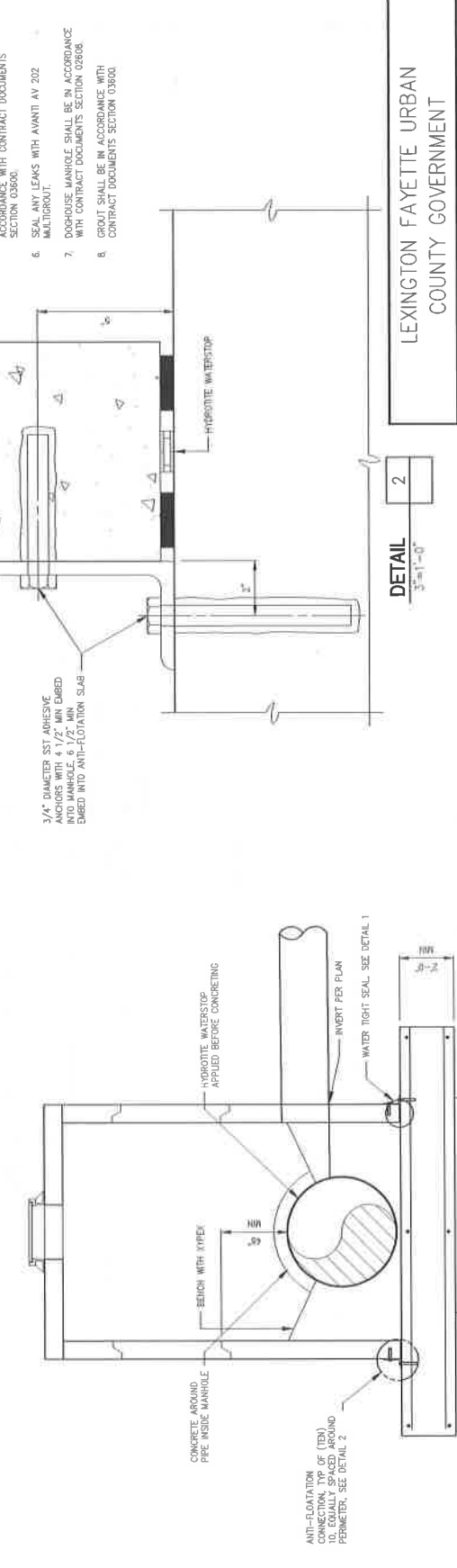
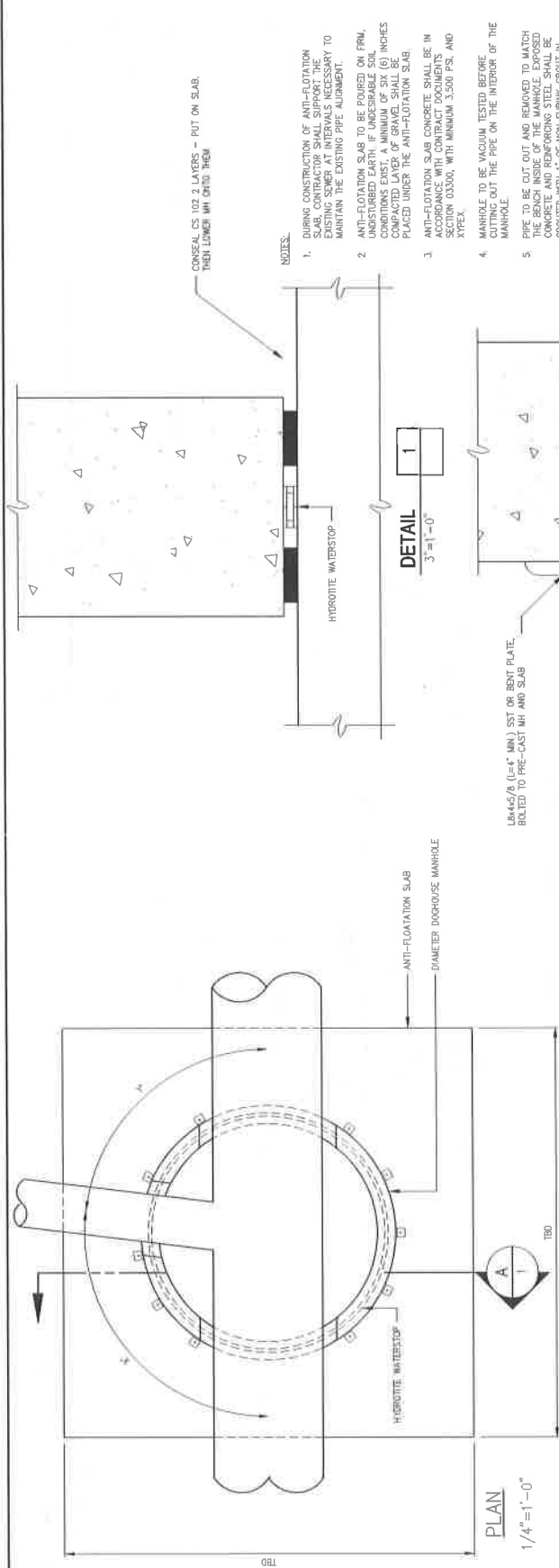
REFLECTIVE WHITE



FIBERGLASS FORCE MAIN  
LINE MARKER

Appendix C

DWQ Standard Drawings



- NOTES:**
1. DURING CONSTRUCTION OF ANTI-FLOATATION SLAB, THE EXISTING SEWER AT INTERVALS NECESSARY TO MAINTAIN THE EXISTING PIPE ALIGNMENT.
  2. ANTI-FLOATATION SLAB TO BE POURED ON FIRM, UNDISTURBED EARTH. IF UNDESIRABLE SOIL CONDITIONS EXIST, A MINIMUM OF SIX (6) INCHES COMPACTED LAYER OF GRAVEL SHALL BE PLACED UNDER THE ANTI-FLOATATION SLAB.
  3. ANTI-FLOATATION SLAB CONCRETE SHALL BE IN ACCORDANCE WITH CONTRACT DOCUMENTS SECTION 03300, WITH MINIMUM 3,500 PSI, AND KYPEX.
  4. MANHOLE TO BE VACUUM TESTED BEFORE CUTTING OUT THE PIPE ON THE INTERIOR OF THE MANHOLE.
  5. PIPE TO BE CUT OUT AND REMOVED TO MATCH THE BENCH INSIDE OF THE MANHOLE. EXPOSED SURFACE OF THE ANTI-FLOATATION SLAB TO BE GROUTED WITH 1" OF NON-SHRINK GROUT IN ACCORDANCE WITH CONTRACT DOCUMENTS SECTION 03600.
  6. SEAL ANY LEAKS WITH AVANTI AV 202 MULTIGROUT.
  7. DOGHOUSE MANHOLE SHALL BE IN ACCORDANCE WITH CONTRACT DOCUMENTS SECTION 02618.
  8. GROUT SHALL BE IN ACCORDANCE WITH CONTRACT DOCUMENTS SECTION 03600.

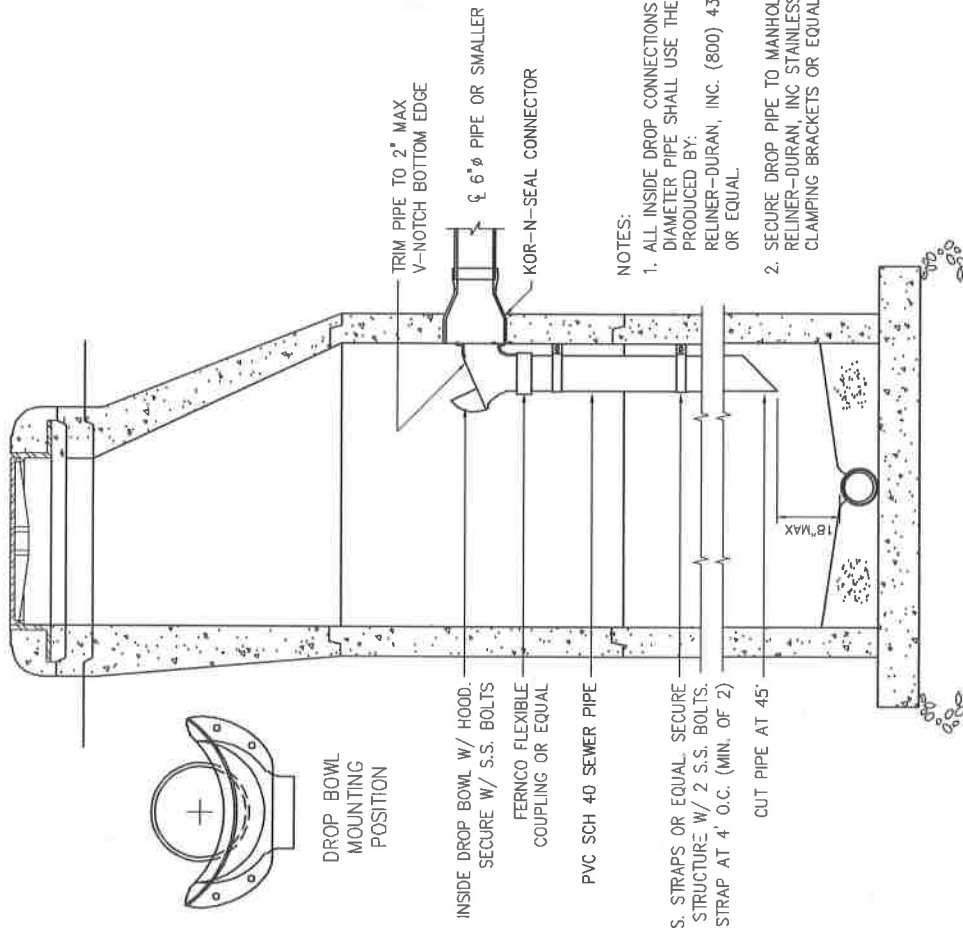
LEXINGTON FAYETTE URBAN  
COUNTY GOVERNMENT

TYPICAL DOGHOUSE MANHOLE  
FOR INTERCEPTOR

PLAN, SECTION AND DETAILS

**HAZEN AND SAWYER**  
Environmental Engineers & Scientists  
444 LEWIS HARGETT CIRCLE, SUITE 260  
LEXINGTON, KY 40503





NOTES:

1. ALL INSIDE DROP CONNECTIONS FOR SMALL DIAMETER PIPE SHALL USE THE DROP BOWL AS PRODUCED BY: RELINER-DURAN, INC. (800) 434-0277 OR EQUAL.
2. SECURE DROP PIPE TO MANHOLE WALL WITH RELINER-DURAN, INC. STAINLESS STEEL ADJUSTABLE CLAMPING BRACKETS OR EQUAL.

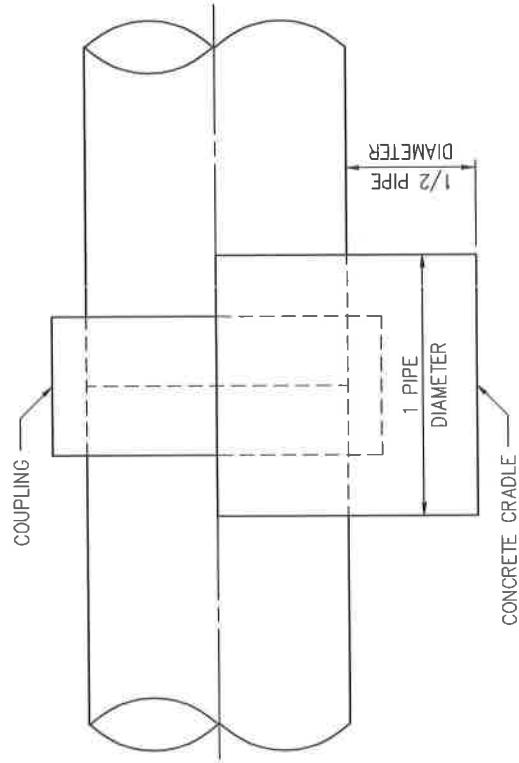
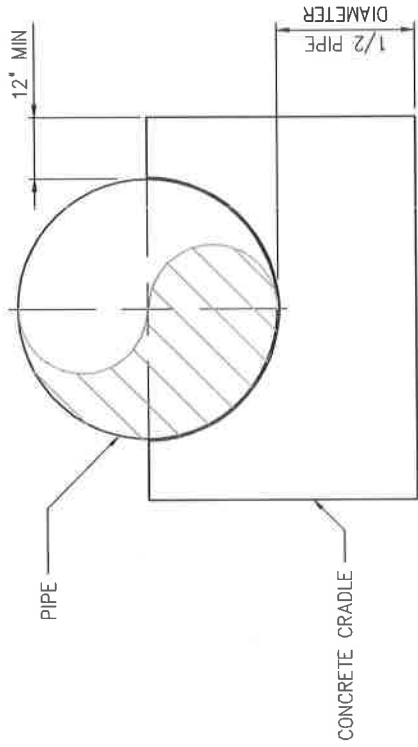
INSIDE DROP CONNECTION  
PIPING 6"  $\phi$  OR LESS

0260109A

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

INSIDE DROP CONNECTION PIPING

**HAZEN AND SAWYER**  
 Environmental Engineers & Scientists  
 444 LEWIS HARGETT CIRCLE, SUITE 260  
 LEXINGTON, KY 40503



**HAZEN AND SAWYER**  
 Environmental Engineers & Scientists  
 444 LEWIS HARGETT CIRCLE, SUITE 260  
 LEXINGTON, KY 40503

LEXINGTON-FAYETTE URBAN COUNTY GOVERNMENT

BURIED CRADLE PIPE SUPPORT

