CITY OF OLATHE

RIGHT-OF-WAY
PERMIT APPLICATION AND SPECIFICATION MANUAL

OLATHE
KANSAS

January 2021

Right-of-Way Permit

An approved right-of-way permit is required for all work performed within City of Olathe right-of-way. All work covered by the approved permit shall be constructed in accordance with the City of Olathe Technical Specifications and Design Criteria for Public Improvement Projects and this manual. No work shall begin until the permit application has been approved, utility locates have been obtained, and notification has been given to both City of Olathe Traffic and Inspection staff at least 48 hours before construction begins (RightofWay48hr@olatheks.org). The contractor shall have available at the work site a copy of the approved right-of-way permit, the approved construction plans, and the approved traffic control plan (if required).

Right-of-Way Permit Application Process

All utility companies and contractors submitting plans for review are required to comply with the following procedures. No utility installation projects may be constructed in the City of Olathe without prior approval of the City Engineer.

1. The normal time for review may be up to seven (7) working days.
2. A right-of-way permit fee will be required prior to approval of the permit unless such fees are waived by the Governing Body.
3. Right-of-way permits are valid for sixty (60) days, after which they automatically become void and must be updated and re-approved by the City Engineer before any construction will be permitted.
4. The City reserves the right to limit the number of active permits issued to a utility company or contractor.
5. The Contractor shall have one (1) copy of the approved permit, the approved construction plans, and the approved traffic control plan (if required) at the job site at all times.
6. A complete set of prints of the project drawings or schematics shall be uploaded to EnerGov for review.
7. The following items shall be included on the plan:
    a. North arrow and scale
    b. Existing and proposed streets with names and widths
    c. Driveway locations with accurate width
    d. Easement and right-of-way information recorded with the County
    e. All existing utilities (type and location)
    f. Proposed utility location showing approximate dimensions in relation to back of curb and right-of-way line

g. Size and number of conduits to be installed

h. Size and location of vaults, handholes and other structures

i. Legend of symbols

j. Minor construction notes indicating the type of excavation under streets and driveways or other permanent structures. Additional information may be required by the City Engineer as necessary.

k. A traffic control plan will be required for all work that includes temporary lane reductions or closures. The traffic control plan shall be approved by the City of Olathe prior to any permit being issued.

For unscheduled emergency maintenance repairs no notification to the City Engineer will be required until service is resumed. Coordination with City of Olathe Traffic staff is required if the emergency repair work will cause temporary lane reductions or closures. Contact Traffic staff at 913-971-5180. On the first working day subsequent to such repairs, the utility company shall notify the City Engineer. At that time, the utility shall make application for the required permit following normal procedures.

Right-of-Way Permit Fees

A right-of-way permit fee of $50 per adjacent parcel is required. Permit fees will double if a contractor is found to have worked or is working in the right-of-way without a permit.

If work requires a street cut, a Street Cut Fee will be imposed. The Street Cut Fee will be calculated by the City Engineer and is equal to the Depreciation Rate (1) X Area Cost per Square Yard for {Streets (2), Overlay (2), and Sealcoat (2)} X Area of Influence. The area of influence is equal to the area of the street cut plus 2.5 feet on each side (expressed in square yards).

DEPRECIATION RATES					
STREET CONSTRUCTION (1)		OVERLAY (1)		SEALCOAT (1)	
Age (years)	Rate	Age (years)	Rate	Age (years)	Rate
0	100%	1	99%	1	99%
1-5	97%	2	97%	2	98%
6-10	93%	3	93%	3	97%
11-15	85%	4	85%	4	96%
16-20	70%	5	80%	5	95%
21-25	55%	6	75%	6	92%
26-30	45%	7	70%	7	88%
31-35	30%	8	65%	8	85%
36-40	20%	9	60%	9	82%
		10	55%	10	80%
		11	50%		
		12	45%		

COST PER SQUARE YARD	
Type	Cost
Asphalt Street Reconstruction (2)	$60.00
Overlays (2)	$10.00
Sealcoats (2)	$3.00

Example:

Street is 13 years old
Overlay is 6 years old
Area of cut = 4 feet x 5 feet
Area of influence = 9 feet x 10 feet = 90 square feet
= 10 square yards

Example							
	Depreciation Rate	X	Cost per SY	X	Area of Influence	=	Excavation Cost
Street	85%		$60.00		10 SY		$510.00
Overlay	75%		$10.00		10 SY		$75.00
					TOTAL COST:		**$585.00**

Traffic Requirements

Staff will review each right-of-way permit application to determine if a traffic control plan will be required. If required, the traffic control plan must be submitted and approved before the right-of-way permit will be issued.

Coordination with Traffic staff is required for all work that includes temporary lane reductions or closures. The contractor must notify Traffic staff a minimum of 48-hours in advance of scheduled temporary lane reductions or closures. Immediate notification is required for unscheduled emergency maintenance operations that include temporary

lane reductions or closures. The contact number is 913-971-5180.

Workers are required to follow all applicable safety regulations, including wearing approved safety apparel at all times.

Utility Locating Requirements

The contractor must obtain utility locates before excavation begins. Contact information is as follows:

Kansas One-Call	811 or 1-800-344-7233
Olathe Utilities (Water and Sewer)	913-971-9311
Olathe Park Maintenance	913-971-9703

The City of Olathe must be notified for the location of City-owned underground water and sanitary sewer utilities. Sanitary sewer lines beyond the main and water service lines beyond the meter are not typically located. The contractor is responsible for determining their location and is responsible for any repairs resulting from damage. Olathe Park Maintenance must be notified for the location of City-owned irrigation systems within the right-of-way and median islands. These contacts must be made separately from Kansas One-Call.

Inspection Requirements

The contractor must notify Inspection staff a minimum of 48-hours before beginning construction. Immediate notification is required for unscheduled emergency maintenance operations that include excavating in the right-of-way. The contact number is 913-971-9045.

The City of Olathe Right-of-Way Inspector will perform inspections on, but not limited to, the following types of construction activities:

1. Any construction that affects City of Olathe infrastructure: streets, sidewalks, storm sewer, water lines, sanitary sewers, street lights, traffic signals, etc.
2. All street cuts and restoration
3. All curb cuts and restoration
4. All sidewalk and driveway replacement
5. Directional boring within the right-of-way
6. Connections to any City-owned facility (storm sewer, sanitary sewer, waterline, etc.)
7. Compliance with traffic control plan, temporary lane reductions, and closures

Pre-placement inspections are required for pavement, pavement restoration, curb and gutter, drive approaches, and sidewalks. A pre-placement inspection must be requested online at least 48 hours in advance (https://energov.olatheks.org/EnerGov_Prod/selfservice/OlatheKSProd#/home).

A copy of concrete and asphaltic concrete material tickets need to be sent to concretetickets@olatheks.org within 24-hours of material placement.

If the contractor has any questions on the above requirements, he should contact Inspection staff prior to any work being conducted.

Utility Relocates for City Projects

The contractor must notify the Utility Coordinator a minimum of 48-hours before beginning construction. The contact number is 913-971-8532 or BBerry@olatheks.org.

The crew(s) should have a copy on site of the ROW permit, utility relocate plans, a copy of the City project plans and any approved traffic control plans.

The contractor should assign qualified personnel to utility relocation projects who are capable of proactively identifying potential conflicts that were overlooked during the design process. They should be able to read and interpret both utility relocation plans and City project plans. The contractor should notify the utility designer and the City Utility Coordinator when unforeseen issues arise resulting in a need to revise the relocation plan or causing delays to the schedule.

Staking may be required by a qualified surveyor.

Bore depths should be marked on the ground along the bore path at each bore rod (approximately 10') and clearly denote the depth in either inches or feet from existing the grade.

Typical clearance (unless otherwise noted) from proposed improvements should be a minimum of two feet when in soil and a minimum of three feet when in rock. Consideration of these clearances should not just include the structure itself but should also include over excavation to install project improvements. For example: when boring under a proposed storm sewer the minimum clearance in soil should be two feet below the proposed flowline plus the storm pipe thickness and gravel embedment thickness.

Abandoned facilities should be removed when possible. When abandoned facilities cannot be removed the contractor and/or utility owner should clearly denote or mark facilities as abandoned.

Upon completion of relocation work as-built mapping should be provided including

depths to the City and their design engineer. As-builts should include measurements to new facilities such as conduit, direct bury cabling, vaults, pedestals, and poles. As-builts do not need to contain information pertaining to cabling and splicing contained within conduits and vaults.

The utility company shall provide updated mapping to the locators as soon as possible upon completion of the relocate work.

SPECIFICATIONS FOR CONSTRUCTION WITHIN CITY RIGHT-OF-WAY

SECTION ONE

I. POLICY APPLICATION

A. GENERAL

1. This policy applies to the location, construction, maintenance, removal, and relocation of all private, public, and cooperatively owned utilities within the public right-of-way under the jurisdiction of the City of Olathe.

2. Such utilities include, but not limited to, lines, facilities, and systems for producing, transmitting, or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, wastewater, stormwater not connected with public drainage, and other similar commodities, including fire and police signal systems and street lighting and traffic control systems, which directly or indirectly service the public or any part thereof.

3. A bond will be required as a part of the right-of-way permit application to guarantee satisfactory performance of the utility work if the work involves street and/or curb cuts and restoration. The bond shall be in the penal sum of Five Thousand Dollars ($5,000.00) on a form approved by the City Attorney. The bond shall be conditioned that the applicant will properly barricade and protect the cut or excavation, and that the applicant will indemnify and save harmless the City of Olathe from any and all loss, damages and expenses arising out of the applicant's work. The bond shall be further conditioned that the applicant will pay to the City of Olathe the cost of refilling and repairing pavement, if it is not properly done by the applicant.

B. REPLACEMENT OF FACILITY

Replacement of existing utility facilities in a new location with the same facilities or facilities of a different type or design is to be considered as a new utility installation requiring a new permit, and all work shall adhere to this policy.

C. CHANGE IN OWNERSHIP

When a utility company changes ownership, the City of Olathe shall be notified in writing of the names and addresses of the new owners.

D. AGREEMENTS

1. Highway Permit Agreements are required when utility facilities are installed, relocated, are moved, or maintained on highway right-of-way along or across existing highways, which are not involved in a construction project. All such permits are approved through the District Engineer of the appropriate Kansas Department of Transportation (KDOT) District Office.

2. On City Connecting Links, a permit must be obtained for work on the right-of-way. Such a permit may be obtained from either KDOT or the City of Olathe. Executed copies of the permit, approved by both KDOT and the City of Olathe, will be distributed to all parties.

3. Franchise ordinances are required for any private company to obtain the right to perform work in the right-of-way. Such franchisees must comply with all regulations set forth in said franchise and in this policy.

II. TRAFFIC CONTROL

Construction and maintenance operations shall be coordinated to minimize delays to traffic. Traffic shall be carried through construction with a minimum of one lane open at all times unless otherwise approved. Access to adjoining residences and businesses will be maintained at all times. The Contractor shall provide a traffic control plan that conforms to the latest version of the Manual on Uniform Traffic Control Devices (MUTCD). The Contractor shall furnish adequate signs, barricades, warning lights, and all other equipment necessary to direct and re-route traffic and shall furnish all flagmen and other personnel necessary to provide the required traffic control. The City of Olathe can require the Contractor, at his expense, to install additional barricades and/or signage at designated areas along the street to provide the necessary traffic control.

All traffic control devices shall be installed at the inception of the work. The traffic control devices shall be properly maintained and/or operated during the time of construction and/or as special conditions arise. If the traffic control and routing does not conform to the MUTCD or an approved traffic control plan, one (1) notice will be given to correct the problem. If the problem is not corrected, the contractor will be required to stop work and reopen the road immediately. Failure of the contractor to satisfactorily address concerns may result in the City of Olathe taking action to temporarily maintain traffic safety. All costs incurred by the City of Olathe will be reimbursed by the contractor.

Notice of any road or lane closures shall be made to the City of Olathe at least forty-eight (48) hours prior to the closure. No road or lane closures will be allowed between the hours of 6:30 a.m. and 8:30 a.m. and 4:00 p.m. and 6:00 p.m. unless otherwise

approved. In addition to all proper traffic control signs, barricades, and channelization devices, arrow panels shall be used on all lane closures of multi-lane streets and detour signage shall be provided for all road closures. The arrow panels shall be placed at the beginning of the taper for the lane being closed and shall remain in place for the duration of the lane closure.

III. LIABILITY

A. The utility owner assumes all risk and liability for accidents that may occur to persons or property from work performed under this permit. Care should be taken to protect public access into construction areas. The contractor shall provide a safe work area, and shall erect and maintain warning signs, barricades, and sufficient safeguards around all projects. Minimum protection measures shall include safety fencing around all excavations left open overnight. Additionally all excavations left unattended shall be fenced during daylight hours.

B. The utility owner shall be responsible for location of underground wiring and shall assume liability for damage to same.

C. Where City-owned facilities are concerned (storm and sanitary sewers, waterlines, fiber optic communications, street light conduit, traffic signal conduit, etc.), the utility owner shall be liable for damage to such and required to repair same at the utility owners' expense.

D. Existing sidewalk, curbing and pavement shall be protected from damage due to excessive loading from construction equipment such as, but not limited to, trucks, equipment trailers, backhoes and all track machinery. Protective measures such as steel plates, earth padding and or wooden timbers which are capable of effectively limiting damaging pressures from being transmitted to these areas shall be employed. All damage including surface blemishes shall be repaired by the contractor in a timely manner at no expense to the City of Olathe.

E. Repairs to damage of Public Improvements shall be performed by the contractor who bonded the public improvement project originally if the project maintenance bond has not expired or if the project is under construction (i.e., a Project Completion Certificate has not been issued). The utility company shall be totally responsible for the cost of all repair work performed by the contractor.

Contractor shall be responsible for damage to private property, facilities, structures and utility lines including, but not limited to, sanitary sewer laterals, water service lines, gas service lines, communication lines, French drains, sump pump discharges, landscaping, trees, crops, and driveways. The cost of any repair work shall be the responsibility of

the contractor.

IV. PRESERVATION, RESTORATION, CLEANUP, AND MAINTENANCE

A. NOTIFICATION

Contractor shall install door hangers or notification yard signs on all properties immediately adjacent to the area where work is being performed. Notification shall occur a minimum of 48 hours prior, but no more than 96 hours in advance of the work. If there is any delay of greater than three days, regardless of the cause of delay, Contractor will be required to reinstall door hangers or notification yard signs.

B. DISTURBED AREAS

1. Areas of public right-of-way disturbed by the installation, maintenance, removal, and relocation of utilities shall be kept to a minimum. The contractor shall take all necessary measures to ensure that mud, dirt, rock, gravel, and all other construction debris are not allowed to erode or be tracked onto public streets or enter the City's storm sewer system. The contractor will be required to immediately remove any such debris and return the street to its normal condition.

2. All excavations will be backfilled within five (5) working days from date of original excavation, or as directed by the City Engineer.

3. All trench backfill shall conform to Section 6000 of the City of Olathe Technical Specification requirements. Disturbed areas shall be returned to normal grade and elevation, and all excess or undesirable material removed by the utility within five (5) days of completion of work.

4. All established areas that are routinely mowed and maintained shall be resodded. Landscaping shall be returned to its original condition free of ruts and debris. Destroyed vegetation shall be replaced by the utility contractor by fertilizing, sodding, or seeding and mulching, as required by the City Engineer and in conformance with the requirements set forth in the City of Olathe Technical Specifications and Design Criteria for Public Improvement Projects. Surface restoration will be completed within three (3) weeks of final excavation activity or as directed by the City Engineer.

5. Adequate protection against erosion shall be provided by the utility in disturbed areas that are susceptible to erosion. Such protection may be in the form of ditch checks, earth dikes, erosion control mats, rip-rap, or other methods that are approved by the City Engineer and do not interfere with street maintenance operations.

C. DRAINAGE FACILITIES

Care shall be taken to avoid disturbing existing drainage facilities. Underground utility facilities shall be back-filled with pervious material and outlets provided for entrapped water. Underdrains shall be provided where necessary.

D. STREET CURBING

Care shall be taken to avoid disturbing subgrade and base under adjacent street curb. Excavations for street crossings shall begin at a point not closer than three (3) feet from back of curb. Undermining of curbing shall not be permitted.

E. CLEANUP

Subject to a final inspection for satisfactory acceptance of work performed in public right-of-way, the utility contractor shall be responsible for restoring all “disturbed areas” as required under subsection B above, removing all unused material or debris from the site of the work area. The surface of the area affected by the work shall be left free of rocks, gravel, broken concrete, concrete washout, asphalt, tree roots, lumber or debris of any kind. Areas must be left in like or better condition than original and in compliance with the City of Olathe Technical Specifications. See Sections 7000 and 7200. Other Sections may apply.

F. EROSION CONTROL

Erosion control measures will be required on all construction sites. They will be required where there is a chance of silt, dirt or mud that could leave the right-of-way or easements and affect adjacent private property or public streets. The City Engineer or his representative will determine these areas. The erosion control measures will be in place prior to any digging or disturbing of the existing ground cover. If they are not in place prior to construction, the construction site will be shut down until the erosion control measures are in place and approved by the City Engineer or his representative. Once the construction project is complete and the site final graded and ready for seed or sod, the contractor will then remove the erosion controls prior to seeding or sodding.

Erosion control measures shall be incompliance with the most current edition of the City of Olathe Technical Specifications. See Section 7300. Other Sections may apply.

G. MAINTENANCE

The contractor shall guarantee all work performed under the right-of-way permit for a

period of one year from final acceptance. The contractor shall be required to make all necessary repairs as directed by the City Engineer. The cost of the repair work shall be the responsibility of the contractor.

SPECIFICATIONS FOR CONSTRUCTION WITHIN CITY RIGHT-OF-WAY

SECTION TWO

I. GENERAL PROVISIONS

This policy applies to all public and private utilities, including, but not limited to, electric power, telephone, telegraph, cable television, fiber optic, water, gas, oil, petroleum products, steam, chemicals, sewage, drainage, irrigation, and similar lines that are to be located, adjusted, or relocated, within the right-of-way under the jurisdiction of the City of Olathe. Such utilities may involve underground, surface, or overhead facilities, either singularly or in combination/co-location.

A. LOCATION

1. Utility installations are to be located to minimize need for later adjustment, to accommodate future street improvements and to permit servicing such lines with minimum interference to street traffic.

2. To the extent feasible and practicable, utility line crossings of street right-of-way are to be installed normal to the street alignment.

3. The horizontal and vertical location of utility lines within the street right-of-way shall conform to the dimensions outlined in the following Section II and III.

II. UTILITIES PARALLELING RIGHT-OF-WAY

A. OVERHEAD INSTALLATIONS

1. Ground-mounted utility installations shall be located in a utility easement, if available, or at the outer limits of the right-of-way, within two (2) feet or less of the right-of-way line, unless otherwise approved by the City Engineer.

2. Poles, guys, anchors, or other appurtenances shall not be located in ditches, at drainage structure openings, or on roadway shoulders. All poles, guys, anchors, or other appurtenances shall be located to minimize interference with maintenance operations of the City of Olathe.

3. Except as otherwise permitted, all excess excavated materials shall be disposed of away from the site of the work. Mounding of excess excavation spoils around and at the base of poles shall not be permitted.

B. UNDERGROUND INSTALLATIONS

1. Underground utility installations shall be located in a utility easement, if available, or at the outer limits of the right-of-way, within two (2) feet or less of the right-of-way line, unless otherwise approved by the City Engineer.

2. Care shall be taken to avoid disturbing subgrade and base under adjacent street curb. Excavations for street crossings shall begin at a point not closer than three (3) feet from back of curb. Undermining of curbing shall not be permitted.

3. Underground facilities within four (4) feet back of curb shall be installed at minimum depth of three (3) feet below top of back of curb.

4. Manhole tops should be set on a ¼" to ½" per foot slope from back of curb or if no curbs, set flush with surrounding grade.

5. Open excavation of driveways or sidewalks and other structures is not encouraged. Any damage to private or public facilities or improvements shall be repaired or replaced in a like or better condition than original and to the City Engineer's satisfaction and in compliance with the most current edition of City of Olathe Technical Specifications. , See Sections 2000, 2100 and 7000. Other Sections may apply.

6. The Contractor shall give 48-hour written notice to local businesses and residents prior to a driveway closing for reason of open excavation and permanent surfacing. The driveway is to be re-opened as soon as possible and the Contractor is to cooperate with the occupant in this matter.

III. UTILITIES CROSSING RIGHT-OF-WAY

A. OVERHEAD INSTALLATIONS

1. Where aerial crossings are required, all poles, guys, anchors, and appurtenances shall be located in a utility easement, if available, or at the outer limits of the right-of-way where practical, preferably within two (2) feet of the right-of-way limits, unless otherwise approved by the City Engineer.

2. Aerial crossings at signalized intersections may not obstruct the view of any traffic signal heads as viewed by vehicles on the roadway.

B. UNDERGROUND INSTALLATIONS

1. Underground utility installations shall be located normal to the street alignment where practical.

2. All utilities crossing through ditches and roadways shall have a minimum of three (3) feet of clearance from bottom of asphalt to top of conduit crossing right-of-way or three (3) feet below ditch grade, whichever shall provide the greatest amount of cover. In fill sections, the natural ground line at the toe of the slope will be considered as ditch grade. However, in no case shall the depth of cover be less than that meeting applicable Industry Safety Requirements.

3. If less than minimum depth is necessary because of existing utilities, water table, or similar reasons, the line shall be rerouted or protected with a casing or concrete slab upon written consent of the City Engineer.

4. Underground installations may be made by open trenching from the right-of-way line to the toe of the fill slope in fill sections and to the toe of the shoulder slope in cut sections. Open trenching shall comply with specifications for Open Excavation as stated below. The remainder will be tunneled, augured, or dry-bored through the roadway grade.

5. Manhole tops should be set on a ¼" to ½" per foot slope from back of curb or if no curbs, set flush with surrounding grade.

6. Utility lines will not be permitted through drainage structures.

C. OPEN EXCAVATION

1. Open excavation shall not be allowed as a method of laying utilities across existing pavement. The City of Olathe will, however, review open excavation of roadways upon request on a per case basis when unusual conditions warrant.

2. When the City Engineer approves open excavation of existing pavement, replacement of the pavement by the Utility Company shall be in compliance with the most current edition of City of Olathe Technical Specifications. See Sections 1300, 2000, 7000, and Standard Detail 70-1. Other sections may apply.

D. ENCASEMENT OF UTILITIES

Generally, casing shall be an oversized load-bearing conduit or duct through which a utility is inserted to protect the roadway from damages and to provide for repair, removal and replacement of the utility without interference to street traffic.

The City Engineer may require encasement of utilities when crossings are made above or below existing or proposed City-owned facilities.

E. HORIZONTAL DIRECTIONAL DRILLING

1. Horizontal Directional Drilling (HDD) is an approved method of boring in new conduits.

2. Care shall be taken to ensure roadways are not be damaged during bores across and under existing roadways. Any displacement or other damage to City infrastructure including but not limited to roadways, curb, sidewalk, storm sewers, waterlines and sanitary sewers should be reported to the City immediately and will be the responsibility of the contractor for all repair and incidental costs.

3. Pilot Hole

    a. Prior to drilling a pilot hole all utilities in the bore path must be potholed. Pothole locations shall be adequately fenced off.

    b. The pothole must be left open and the operator shall observe the drill head safely clear any utilities as they progress along the bore path. Sufficient clearance shall be maintained to avoid damage to other utilities during the reaming process.

    c. The maximum pilot hole size is 6” unless otherwise approved by the City Engineer.

    d. Bore depths should be marked on the ground along the bore path at each bore rod (approximately 10’) and clearly denote the depth in either inches or feet from existing the grade. When marking the depth and is an aesthetic concern the City may waive this requirement. The contractor should maintain field notes and make these available to City staff upon request.

4. Pilot Hole Reaming and Progressive Reaming

    a. The percentage oversize hole the reamer will cut should be determined by qualified personnel considering factors including but not limited to soil types, soil stability, depth, drill mud, etc. Oversizing of each reamer pass shall not exceed 1.5 times the pilot hole or previous reaming diameter.

    b. The final diameter of the bore hole following the reaming process shall not exceed 2” in diameter larger than the carrier pipe or conduit(s).

    c. The maximum diameter for HDD reaming shall not exceed 12” unless approved by the City Engineer.

    d. The carrier pipe and or conduit(s) shall be installed as soon as possible

upon completion of reaming. Care shall be taken as to not compromise the bore hole thus removing excess material and undermining the roadway or other City infrastructure.

e. Cuttings from the remaining process shall be collected and properly disposed of at an approved disposal site.

5. Drill Mud

a. Drill mud used during HDD shall be collected and is not permitted to be left on site. Care shall be taken to ensure drill mud does not enter roadways, streams, storm sewers, or sanitary sewers.

b. Collection, transportation and disposal of drill muds shall be in accordance with government regulations.

F. HORIZONTAL AUGER BORING

1. Horizontal Auger Boring (HAB) also known as the Jack and Bore Method shall be used when installing a steel casing pipe under and existing feature which will not allow for an option of open excavation.

2. Care shall be taken to ensure the existing roadways shall not be damaged during bores across and under existing roadways. The carrier conduit shall be capable of withstanding the static pressure necessary to jack it in to its final position for its full length. All augured material shall be removed from the site as it is excavated. Stock piling of excavated materials on street right-of-way shall not be permitted.

3. Pits for boring, tunneling or jacking normally will not be permitted in the roadway and will not be permitted closer to the roadway than toe of fill in fill sections or toe of shoulder slope in ditch sections or four (4) feet back of curb when allowed on the right-of-way.

4. Casing and pipeline installations shall be accomplished by dry boring, tunneling, jacking, trenching, or other approved methods.

5. All voids caused by boring and jacking shall be filled by pressure grouting. The grout material shall be a sand cement slurry with a minimum of two (2) sacks of cement per cubic yard and a minimum of water to assure satisfactory placement.

6. Bored or tunneled installations shall have a hole diameter which shall not exceed the outside diameter of the utility pipe, cable or casing (including coating) by more than two (2) inches on pipes with an inside diameter six (6) inches or less and a hole diameter not to exceed the outside diameter on pipes with an inside

diameter of greater than six (6) inches unless otherwise allowed by the City Engineer.

G. CASING MATERIAL

The following materials acceptable for use in the casing of utility facilities:

1. Smooth wall casing pipe shall be welded-steel construction and shall be new material with a minimum yield point of 35,000 psi. Minimum casing wall thickness shall be as indicated on the table below:

Casing Diameter, in.	Minimum Wall Thickness, in.	
	Under Railroads (AREA-Part 5)	All Other Uses
<14	0.188	0.188
14	0.219	0.188
16	0.219	0.188
18	0.250	0.250
20	0.281	0.281
22	0.312	0.281
24	0.344	0.281
26	0.375	0.312
28	0.406	0.312
30	0.406	0.312
32	0.438	0.344
34	0.469	0.344
36	0.469	0.344
38	0.500	0.344
40	0.500	0.375
42	0.500	0.375
44	0.560	0.375
46	0.560	0.375
48	0.560	0.375
50	0.625	0.406
52	0.625	0.406

2. Polyvinyl Chloride (PVC) and Chlorinated Polyvinyl Chloride (CPVC) pipe providing it meets the minimum ASTM Specifications and all applicable laws and codes. PVC, types PSP and PSM sewer pipe, ASTM Specifications D 3033 and D 3034, respectively, to be in accordance with the listing below:

Type PSP and PSM Pipe Dimensions

Casing Diameter, in.	Minimum Wall Thickness, in.	
	PSP	PSM
4	0.120	0.120
6	0.253	0.153
8	0.199	0.205
9	0.230	0.230
10	0.249	0.256
12	0.299	0.305

The use of PVC pipe for casing is acceptable up to a maximum diameter of twelve inches.

3. Concrete encasement providing the minimum twenty-eight (28) day compressive strength of concrete used shall be 4,000 psi, and the slump shall not exceed four (4) inches. Material and construction requirements shall conform to the most current edition of the City of Olathe Technical Specifications.