

**Guidelines for
Improvements and Construction Projects Proposed
in the Area of
Metropolitan's Facilities and Rights-of-Way**



July 2018

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Disclaimer

Metropolitan assumes no responsibility for the accuracy of the substructure information herein provided. The user assumes responsibility for verifying substructure locations before excavating and assumes all liability for damage to Metropolitan's facilities as a result of such excavation. Additionally, the user is cautioned to conduct surveys and other field investigations as deemed prudent, to assure that project plans are correct. The appropriate representative from Metropolitan must be contacted at least two working days, before any work activity in proximity to Metropolitan's facilities.

It generally takes 30 days to review project plans and provide written responses. Metropolitan reserves the right to modify requirements based on case-specific issues and regulatory developments.

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1.0 GENERAL INFORMATION

Note: Underground Service Alert at 811 must be notified at least two working days before excavating in proximity to Metropolitan's facilities.

1.1 Introduction

These guidelines provide minimum design and construction requirements for any utilities, facilities, developments, and improvements, or any other projects or activities, proposed in or near Metropolitan Water District of Southern California (Metropolitan) facilities and rights-of-way. Additional conditions and stipulations may also be required depending on project and site specific conditions. Any adverse impacts to Metropolitan's conveyance system, as determined by Metropolitan, will need to be mitigated to its satisfaction.

All improvements and activities must be designed so as to allow for removal or relocation at builder or developer expense, as set forth in the paramount rights provisions of Section 20.0. Metropolitan shall not be responsible for repair or replacement of improvements, landscaping or vegetation in the event Metropolitan exercises its paramount rights powers.

1.2 Submittal and Review of Project Plans/Utilities and Maps

Metropolitan requires project plans/utilities be submitted for all proposed activities that may impact Metropolitan's facilities or rights-of-way. Project plans shall include copies of all pertinent utilities, sewer line, storm drain, street improvement, grading, site development, landscaping, irrigation and other plans, all tract and parcel maps, and all necessary state and federal environmental documentation. Metropolitan will review the project plans and provide written approval, as it pertains to Metropolitan's facilities and rights-of-way. Written approval from Metropolitan must be obtained, prior to the start of any activity or construction in the area of Metropolitan's facilities or rights-of-way. Once complete project plans and supporting documents are submitted to Metropolitan, it generally takes 30 days to review and to prepare a detailed written response. Complex engineering plans that have the potential for significant impacts on Metropolitan's facilities or rights-of-way may require a longer review time.

Project plans, maps, or any other information should be submitted to Metropolitan's Substructures Team at the following mailing address:

**Attn: Substructures Team
The Metropolitan Water District of Southern California
700 North Alameda St.
Los Angeles, CA 90012**

**General Mailing Address: P.O. Box 54153
Los Angeles, CA 90054-0153**

Email: EngineeringSubstructures@mwdh2o.com

For additional information, or to request prints of detailed drawings for Metropolitan's facilities and rights-of-way, please contact Metropolitan's Substructures Team at 213-217-7663 or EngineeringSubstructures@mwdh2o.com.

1.3 **Identification of Metropolitan's Facilities and Rights-of-Way**

Metropolitan's facilities and rights-of-way must be fully shown and identified as Metropolitan's, with official recording data, on the following:

- A. All applicable plans
- B. All applicable tract and parcel maps

Metropolitan's rights-of-ways and existing survey monuments must be tied dimensionally to the tract or parcel boundaries. Metropolitan's Records of Survey must be referenced on the tract and parcel maps with the appropriate Book and Page.

2.0 **General Requirements**

2.1 **Vehicular Access**

Metropolitan must have vehicular access along its rights-of-way at all times for routine inspection, patrolling, operations, and maintenance of its facilities and construction activities. All proposed improvements and activities must be designed so as to accommodate such vehicular access.

2.2 **Fences**

Fences installed across Metropolitan's rights-of-way must include a 16-foot-wide gate to accommodate vehicular access by Metropolitan. Additionally, gates may be required at other specified locations to prevent unauthorized entry into Metropolitan's rights-of-way.

All gates must accommodate a Metropolitan lock or Knox-Box with override switch to allow Metropolitan unrestricted access. There should be a minimum 20-foot setback for gates from the street at the driveway approach. The setback is necessary to allow Metropolitan vehicles to safely pull off the road prior to opening the gate.

2.3 **Driveways and Ramps**

Construction of 16-foot-wide commercial-type driveway approaches is required on both sides of all streets that cross Metropolitan's rights-of-way. Access ramps, if necessary, must be a minimum of 16 feet wide.

There should be a minimum 20-foot setback for gates from the street at the driveway approach. Grades of ramps and access roads must not exceed 10 percent; if the slope of an access ramp or road must exceed 10 percent due to topography, then the ramp or road must be paved.

2.4 **Walks, Bike Paths, and Trails**

All walkways, bike paths, and trails along Metropolitan's rights-of-way must be a minimum 12-foot wide and have a 50-foot or greater radius on all horizontal curves if also used as Metropolitan's access roads. Metropolitan's access routes, including all walks and drainage facilities crossing the access routes, must be constructed to American Association of State Highway and Transportation Officials (AASHTO) H-20 loading standards (see Figure 1). Additional requirements will be placed on equestrian trails to protect the water quality of Metropolitan's pipelines and facilities.

2.5 Clear Zones

A 20-foot-wide clear zone is required to be maintained around Metropolitan's manholes and other above-ground facilities to accommodate vehicular access and maintenance. The clear zone should slope away from Metropolitan's facilities on a grade not to exceed 2 percent.

2.6 Slopes

Cut or fill slopes proposed within Metropolitan's rights-of-way must not exceed 10 percent. The proposed grade must not worsen the existing condition. This restriction is required to facilitate Metropolitan use of construction and maintenance equipment and allow uninhibited access to above-ground and below-ground facilities.

2.7 Structures

Construction of structures of any type is not allowed within the limits of Metropolitan's rights-of-way to avoid interference with the operation and maintenance of Metropolitan's facilities and possible construction of future facilities.

Footings and roof eaves of any proposed buildings adjacent to Metropolitan's rights-of-way must meet the following criteria:

- A. Footings and roof eaves must not encroach onto Metropolitan's rights-of-way.
- B. Footings must not impose any additional loading on Metropolitan's facilities.
- C. Roof eaves must not overhang onto Metropolitan's rights-of-way.

Detailed plans of footings and roof eaves adjacent to Metropolitan's rights-of-way must be submitted for Metropolitan's review and written approval, as pertains to Metropolitan's facilities.

2.8 Protection of Metropolitan Facilities

Metropolitan facilities within its rights-of-way, including pipelines, structures, manholes, survey monuments, etc., must be protected from damage by the project proponent or property owner, at no expense to Metropolitan. The exact location, description and method of protection must be shown on the project plans.

2.9 Potholing of Metropolitan Pipelines

Metropolitan's pipelines must be potholed in advance, if the vertical clearance between a proposed utility and Metropolitan's pipeline is indicated to be 4 feet or less. A Metropolitan representative must be present during the potholing operation and will assist in locating the pipeline. Notice is required, a minimum of three working days, prior to any potholing activity.

2.10 Jacked Casings or Tunnels

A. General Requirements

Utility crossings installed by jacking, or in a jacked casing or tunnel under/over a Metropolitan pipeline, must have at least 3 feet of vertical clearance between the outside diameter of the pipelines and the jacked pipe, casing, or tunnel. The actual

cover over Metropolitan's pipeline shall be determined by potholing, under Metropolitan's supervision.

Utilities installed in a jacked casing or tunnel must have the annular space between the utility and the jacked casing or tunnel filled with grout. Provisions must be made for grouting any voids around the exterior of the jacked pipe, casing, or tunnel.

B. Jacking or Tunneling Procedures

Detailed jacking, tunneling, or directional boring procedures must be submitted to Metropolitan for review and approval. The procedures must cover all aspects of operation, including, but not limited to, dewatering, ground control, alignment control, and grouting pressure. The submittal must also include procedures to be used to control sloughing, running, or wet ground, if encountered. A minimum 10-foot clearance must be maintained between the face of the tunneling or receiving pits and outside edges of Metropolitan's facility.

C. Shoring

Detailed drawings of shoring for jacking or receiving pits must be submitted to Metropolitan for review and written-approval. (See Section 10 for shoring requirements).

D. Temporary Support

Temporary support of Metropolitan's pipelines may be required when a utility crosses under a Metropolitan pipeline and is installed by means of an open trench. Plans for temporary support must be reviewed and approved in writing by Metropolitan. (See Section 11, Supports of Metropolitan Facilities).

3.0 Landscaping

3.1 Plans

All landscape plans must show the location and limits of Metropolitan's right-of-way and the location and size of Metropolitan's pipeline and related facilities therein. All landscaping and vegetation shall be subject to removal without notice, as may be required by Metropolitan for ongoing maintenance, access, repair, and construction activities. Metropolitan will not be financially responsible for the removal of any landscaping and vegetation.

3.2 Drought-Tolerant Native and California Friendly Plants

Metropolitan recommends use of drought-tolerant native and California Friendly® plants (excluding sensitive plants) on proposed projects. For more information regarding California Friendly® plants refer to www.bewaterwise.com.

3.3 Trees

Trees are generally prohibited within Metropolitan's rights-of-way as they restrict Metropolitan's ability to operate, maintain and/or install new pipeline(s) located within these rights-of-way. Metropolitan will not be financially responsible for the removal and replacement of any existing trees should they interfere with access and any current or future Metropolitan project located within the right-of-way.

3.4 Other Vegetation

Shrubs, bushes, vines, and groundcover are generally allowed within Metropolitan's rights-of-way. Larger shrubs are not allowed on Metropolitan fee properties; however, they may be allowed within its easements if planted no closer than 15 feet from the outside edges of existing or future Metropolitan facilities. Only groundcover is allowed to be planted directly over Metropolitan pipeline, turf blocks or similar is recommended to accommodate our utility vehicle access. Metropolitan will not be financially responsible for the removal and replacement of the vegetation should it interfere with access and any current or future Metropolitan project.

3.5 Irrigation

Irrigation systems are acceptable within Metropolitan's rights-of-way, provided valves and controllers are located near the edges of the right-of-way and do not interfere with Metropolitan vehicular access. A shutoff valve should also be located along the edge of the right-of-way that will allow the shutdown of the system within the right-of-way should Metropolitan need to do any excavation. No pooling or saturation of water above Metropolitan's pipeline and right-of-way is allowed. Additional restrictions apply to non-potable water such as Recycled Water and are covered on Table 3 of Page 20.

3.6 Metropolitan Vehicular Access

Landscape plans must show Metropolitan vehicular access to Metropolitan's facilities and rights-of-way and must be maintained by the property owner or manager or homeowners association at all times. Walkways, bike paths, and trails within Metropolitan's rights-of-way may be used as Metropolitan access routes. (See Section 2.4, Walks, Bike Paths, and Trails).

4.0 General Utilities

Note: For non-potable piping like sewer, hazardous fluid, storm drain, disinfected tertiary recycled water and recycled water irrigation see Table 1 through Table 3.

4.1 Utility Structures

Permanent utility structures (e.g., manholes, power poles, pull boxes, electrical vaults, etc.) are not allowed within Metropolitan's rights-of-way. Metropolitan requests that all permanent utility structures within public streets be placed as far from its pipelines and facilities as practical, but not closer than 5 feet from the outside edges of Metropolitan facilities.

Note: Non-potable utility pipelines are an exception to the 5-foot minimum clearance. Non-potable utility pipelines should have 10 feet of separation.

4.2 Utility Crossings

Metropolitan requests a minimum of 1 foot of vertical clearance between Metropolitan's pipeline and any utility crossing the pipeline. Utility lines crossing Metropolitan's pipelines must be as perpendicular to the pipeline as possible. Cross-section drawings, showing proposed locations and elevations of utility lines and locations of Metropolitan's pipelines and limits of rights-of-way, must be submitted with utility plans, for all

crossings. Metropolitan's pipeline must be potholed under Metropolitan's supervision at the crossings (See Section 2.9).

4.3 Longitudinal Utilities

Installation of longitudinal utilities is generally not allowed along Metropolitan's rights-of-way. Within public streets, Metropolitan requests that all utilities parallel to Metropolitan's pipelines and appurtenant structures (facilities) be located as far from the facilities as possible, with a minimum clearance of 5 feet from the outside edges of the pipeline.

Note: Non-potable utility pipelines are an exception to the 5-foot minimum clearance. Non-potable utility pipelines should have 10 feet of separation (for more information See Table 1 on Page 18).

4.4 Underground Electrical Lines

Underground electrical conduits (110 volts or greater) which cross a Metropolitan's pipeline must have a minimum of 1 foot of vertical clearance between Metropolitan's pipeline and the electrical lines. Longitudinal electrical lines, including pull boxes and vaults, in public streets should have a minimum separation of 5 feet from the edge of a Metropolitan pipeline or structures.

4.5 Fiber Optic Lines

Fiber optic lines installed by directional boring require a minimum of 3 feet of vertical clearance when boring is over Metropolitan's pipelines and a minimum of 5 feet of vertical clearance when boring is under Metropolitan's pipelines. Longitudinal fiber optic lines, including pull boxes, in public streets should have a minimum separation of 5 feet from the edge of a Metropolitan pipelines or structures. Potholing must be performed, under Metropolitan's supervision, to verify the vertical clearances are maintained.

4.6 Overhead Electrical and Telephone Lines

Overhead electrical and telephone lines, where they cross Metropolitan's rights-of-way, must have a minimum 35 feet of clearance, as measured from the ground to the lowest point of the overhead line. Overhead electrical lines poles must be located at least 30 feet laterally from the edges of Metropolitan's facilities or outside Metropolitan's right-of-way, whichever is greater.

Longitudinal overhead electrical and or telephone lines in public streets should have a minimum separation of 10 feet from the edge of a Metropolitan pipelines or structures where possible.

4.7 Sewage Disposal Systems

Sewage disposal systems, including leach lines and septic tanks, must be a minimum of 100 feet from the outside limits of Metropolitan's rights-of-way or the edge of its facilities, whichever is greater. If soil conditions are poor, or other adverse site-specific conditions exist, a minimum distance of 150 feet is required. They must also comply with local and state health code requirements as they relate to sewage disposal systems in proximity to major drinking water supply pipelines.

4.8 Underground Tanks

Underground tanks containing hazardous materials must be a minimum of 100 feet from the outside limits of Metropolitan's rights-of-way or edge of its facilities, whichever is greater. In addition, groundwater flow should be considered with the placement of underground tanks down-gradient of Metropolitan's facilities.

5.0 Specific Utilities: Non-Potable Utility Pipelines

In addition to Metropolitan's general requirements, installation of non-potable utility pipelines (e.g., storm drains, sewers, and hazardous fluids pipelines) in Metropolitan's rights-of-way and public street rights-of-way must also conform to the State Water Resources Control Board's Division of Drinking Water (DDW) regulation (Waterworks Standards) and guidance for separation of water mains and non-potable pipelines and to applicable local county health code requirements. Written approval is required from DDW for the implementation of alternatives to the Waterworks Standards and, effective December 14, 2017, requests for alternatives to the Waterworks Standards must include information consistent with: DDW's [Waterworks Standards Main Separation Alternative Request Checklist](#).

In addition to the following general guidelines, further review of the proposed project must be evaluated by Metropolitan and requirements may vary based on site specific conditions.

- A. Sanitary Sewer and Hazardous Fluids (General Guideline See Table 1 on Page 18)
- B. Storm Drain and Recycled Water (General Guideline See Table 2 on Page 19)
- C. Irrigation with Recycled Water (General Guideline See Table 3 on Page 20)
- D. Metropolitan generally does not allow Irrigation with recycled water to be applied directly above its treated water pipelines
- E. Metropolitan requests copies of project correspondence with regulating agencies (e.g., Regional Water Quality Control Board, DDW); regarding the application of recycled water for all projects located on Metropolitan's rights-of-way

6.0 Cathodic Protection/Electrolysis Test Stations

6.1 Metropolitan Cathodic Protection

Metropolitan's existing cathodic protection facilities in the vicinity of any proposed work must be identified prior to any grading or excavation. The exact location, description, and type of protection must be shown on all project plans. Please contact Metropolitan for the location of its cathodic protection stations.

6.2 Review of Cathodic Protection Systems

Metropolitan must review any proposed installation of impressed-current cathodic protection systems on pipelines crossing or paralleling Metropolitan's pipelines to determine any potential conflicts with Metropolitan's existing cathodic protection system.

7.0 Drainage

7.1 Drainage Changes Affecting Metropolitan Rights-of-Way

Changes to existing drainage that could affect Metropolitan's rights-of-way require Metropolitan's approval. The project proponent must provide acceptable solutions to ensure Metropolitan's rights-of-way are not negatively affected by changes in the drainage conditions. Plans showing the changes, with a copy of a supporting hydrology report and hydraulic calculations, must be submitted to Metropolitan for review and approval. Long term maintenance of any proposed drainage facilities must be the responsibility of the project proponent, City, County, homeowner's association, etc., with a clear understanding of where this responsibility lies. If drainage must be discharged across Metropolitan's rights-of-way, it must be carried across by closed conduit or lined open channel and must be shown on the plans.

7.2 Metropolitan's Blowoff and Pumpwell Structures

Any changes to the existing local watercourse systems will need to be designed to accommodate Metropolitan's blowoff and pumpwell structures, which periodically convey discharged water from Metropolitan's blowoff and pumping well structures during pipeline dewatering. The project proponents' plans should include details of how these discharges are accommodated within the proposed development and must be submitted to Metropolitan for review and approval. Any blowoff discharge lines impacted must be modified accordingly at the expense of the project proponent.

8.0 Grading and Settlement

8.1 Changes in Cover over Metropolitan Pipelines

The existing cover over Metropolitan's pipelines must be maintained unless Metropolitan determines that proposed changes in grade and cover do not pose a hazard to the integrity of the pipeline or an impediment to its maintenance capability. Load and settlement or rebound due to change in cover over a Metropolitan pipeline or ground in the area of Metropolitan's rights-of-way will be factors considered by Metropolitan during project review.

In general, the minimum cover over a Metropolitan pipeline is 4 feet and the maximum cover varies per different pipeline. Any changes to the existing grade may require that Metropolitan's pipeline be potholed under Metropolitan's supervision to verify the existing cover.

8.2 Settlement

Any changes to the existing topography in the area of Metropolitan's pipeline or right-of-way that result in significant settlement or lateral displacement of Metropolitan's pipelines are not acceptable. Metropolitan may require submittal of a soils report showing the predicted settlement of the pipeline at 10-foot intervals for review. The data must be carried past the point of zero change in each direction and the actual size and varying depth of the fill must be considered when determining the settlement. Possible settlement due to soil collapse, rebound and lateral displacement must also be included.

In general, the typical maximum allowed deflection for Metropolitan's pipelines must not exceed a deflection of 1/4-inch for every 100 feet of pipe length. Metropolitan may require additional information per its Geotechnical Guidelines. Please contact Metropolitan's Substructures Team for a copy of the Geotechnical Guidelines.

9.0 Construction Equipment

9.1 Review of Proposed Equipment

Use of equipment across or adjacent to Metropolitan's facilities is subject to prior review and written approval by Metropolitan. Excavation, backfill, and other work in the vicinity of Metropolitan's facilities must be performed only by methods and with equipment approved by Metropolitan. A list of all equipment to be used must be submitted to Metropolitan a minimum of 30 days before the start of work.

- A. For equipment operating within paved public roadways, equipment that imposes loads not greater than that of an AASHTO H-20 vehicle (see Figure 1 on Page 21) may operate across or adjacent to Metropolitan's pipelines provided the equipment operates in non-vibratory mode and the road remains continuously paved.
- B. For equipment operating within unpaved public roadways, when the total cover over Metropolitan's pipeline is 10 feet or greater, equipment imposing loads no greater than those imposed by an AASHTO H-20 vehicle may operate over or adjacent to the pipeline provided the equipment is operated in non-vibratory mode. For crossings, vehicle path shall be maintained in a smooth condition, with no breaks in grade for 3 vehicle lengths on each side of the pipeline.

9.2 Equipment Restrictions

In general, no equipment may be used closer than 20 feet from all Metropolitan above-ground structures. The area around the structures should be flagged to prevent equipment encroaching into this zone.

9.3 Vibratory Compaction Equipment

Vibratory compaction equipment may not be used in vibratory mode within 20 feet of the edge of Metropolitan's pipelines.

9.4 Equipment Descriptions

The following information/specifications for each piece of equipment should be included on the list:

- A. A description of the equipment, including the type, manufacturer, model year, and model number. For example, wheel tractor-scraper, 1990 Caterpillar 627E.
- B. The empty and loaded total weight and the corresponding weight distribution. If equipment will be used empty only, it should be clearly stated.
- C. The wheel base (for each axle), tread width (for each axle), and tire footprint (width and length) or the track ground contact (width and length), and track gauge (center to center of track).

10.0 Excavations Close to Metropolitan Facilities

10.1 Shoring Design Submittal

Excavation that impacts Metropolitan's facilities requires that the contractor submit an engineered shoring design to Metropolitan for review and acceptance a minimum of 30 days before the scheduled start of excavation. Excavation may not begin until the shoring design is accepted in writing by Metropolitan.

Shoring design submittals must include all required trenches, pits, and tunnel or jacking operations and related calculations. Before starting the shoring design, the design engineer should consult with Metropolitan regarding Metropolitan's requirements, particularly as to any special procedures that may be required.

10.2 Shoring Design Requirements

Shoring design submittals must be stamped and signed by a California registered civil or structural engineer. The following requirements apply:

- A. The submitted shoring must provide appropriate support for soil adjacent to and under Metropolitan's facilities.
- B. Shoring submittals must include detailed procedures for the installation and removal of the shoring.
- C. Design calculations must follow the Title 8, Chapter 4, Article 6 of the California Code of Regulations (CCR) guidelines. Accepted methods of analysis must be used.
- D. Loads must be in accordance with the CCR guidelines or a soils report by a geotechnical consultant.
- E. All members must be secured to prevent sliding, falling, or kickouts.

Metropolitan's pipelines must be located by potholing under Metropolitan's supervision before the beginning construction. Use of driven piles within 20 feet of the centerline of Metropolitan's pipeline is not allowed. Piles installed in drilled holes must have a minimum 2-foot clearance between Metropolitan's pipeline and the edge of the drilled hole, and a minimum of 1-foot clearance between any part of the shoring and Metropolitan's pipeline.

11.0 Support of Metropolitan Facilities

11.1 Support Design Submittal

If temporary support of a Metropolitan facility is required, the contractor shall submit a support design plan to Metropolitan for review and approval a minimum of 30 days before the scheduled start of work. Work may not begin until the support design is approved in writing by Metropolitan. Before starting design, the design engineer should consult with Metropolitan regarding Metropolitan's requirements.

11.2 Support Design Requirements

Support design submittals must be prepared, stamped, and signed by a California registered civil or structural engineer. The following requirements apply:

- A. Support drawings must include detailed procedures for the installation and removal of the support system.
- B. Design calculations must follow accepted practices, and accepted methods of analysis must be used.
- C. Support designs must show uniform support of Metropolitan's facilities with minimal deflection.
- D. The total weight of the facility must be transferred to the support system before supporting soil is fully excavated.
- E. All members must be secured to prevent sliding, falling, or kickouts.

12.0 Backfill

12.1 Metropolitan Pipeline Not Supported

In areas where a portion of Metropolitan pipeline is not supported during construction, the backfill under and to an elevation of 6 inches above the top of the pipeline must be one-sack minimum cement sand slurry. To prevent adhesion of the slurry to Metropolitan's pipeline, a minimum 6-mil-thick layer of polyethylene sheeting or similar approved sheeting must be placed between the concrete support and the pipeline.

12.2 Metropolitan Pipeline Partially Exposed

In areas where a Metropolitan pipeline is partially exposed during construction, the backfill must be a minimum of 6 inches above the top of the pipeline with sand compacted to minimum 90 percent compaction.

12.3 Metropolitan Cut and Cover Conduit on Colorado River Aqueduct (CRA)

In areas where a Metropolitan cut and cover conduit is exposed, the following guidelines apply:

- A. No vehicle or equipment shall operate over or cross the conduit when the cover is less than 3 feet.
- B. Track-type dozer with a gross vehicle weight of 12,000 lbs or less may be used over the conduit when the cover is a minimum of 3 feet.
- C. Wheeled vehicles with a gross vehicle weight of 8,000 lbs or less may operate over the conduit when the cover is a minimum of 4 feet.
- D. Tracked dozer or wheeled vehicle should be used to push material over the conduit from the side.
- E. Tracked dozer or wheeled vehicle should gradually increase cover on one side of the conduit and then cross the conduit and increase cover on the other side of the conduit. The cover should be increased on one side of the conduit until a maximum of 2 feet of fill has been placed. The cover over the conduit is not allowed to be more than 2 feet higher on one side of the conduit than on the other side.
- F. The cover should be gradually increased over the conduit until the grade elevations have been restored.

13.0 Piles

13.1 Impacts on Metropolitan Pipelines

Pile support for structures could impose lateral, vertical and seismic loads on Metropolitan's pipelines. Since the installation of piles could also cause settlement of Metropolitan pipelines, a settlement and/or lateral deformation study may be required for pile installations within 50 feet of Metropolitan's pipelines. Metropolitan may require additional information per its Geo-technical Guidelines for pile installation. Please contact Metropolitan's Substructures Team for a copy of the Geotechnical Guidelines.

13.2 Permanent Cast-in-place Piles

Permanent cast-in-place piles must be constructed so that down drag forces of the pile do not act on Metropolitan's pipeline. The pile must be designed so that down drag forces are not developed from the ground surface to springline of Metropolitan's pipeline.

Permanent cast-in-place piles shall not be placed closer than 5 feet from the edge of Metropolitan's pipeline. Metropolitan may require additional information per its Geo-technical Guidelines for pile installation. Please contact Metropolitan's Substructures Team for a copy of the Geotechnical Guidelines.

14.0 Protective Slabs for Road Crossings Over Metropolitan Pipelines

Protective slabs must be permanent cast-in-place concrete protective slabs configured in accordance with Drawing SK-1 (See Figure 2 on Page 22).

The moments and shear for the protective slab may be derived from the American Association of State Highway and Transportation Officials (AASHTO). The following requirements apply:

- A. The concrete must be designed to meet the requirements of AASHTO
- B. Load and impact factors must be in accordance with AASHTO. Accepted methods of analysis must be used.
- C. The protective slab design must be stamped and signed by a California registered civil or structural engineer and submitted to Metropolitan with supporting calculations for review and approval.

Existing protective slabs that need to be lengthened can be lengthened without modification, provided the cover and other loading have not been increased.

15.0 Blasting

At least 90 days prior to the start of any drilling for rock excavation blasting, or any blasting in the vicinity of Metropolitan's facilities, a site-specific blasting plan must be submitted to Metropolitan for review and approval. The plan must consist of, but not be limited to, hole diameters, timing sequences, explosive weights, peak particle velocities (PPV) at Metropolitan pipelines/structures, and their distances to blast locations. The PPV must be estimated based on a site-specific power law equation. The power law equation provides the peak particle velocity versus the scaled distance and must be calibrated based on measured values at the site.

16.0 Metropolitan Plan Review Costs, Construction Costs and Billing

16.1 Plan Review Costs

Metropolitan plan reviews requiring 8 labor hours or less are generally performed at no cost to the project proponent. Metropolitan plan reviews requiring more than 8 labor hours must be paid by the project proponent, unless the project proponent has superior rights at the project area. The plan review will include a written response detailing Metropolitan's comments, requirements, and/or approval.

A deposit of funds in the amount of the estimated cost and a signed letter agreement will be required from the project proponent before Metropolitan begins or continues a detailed engineering plan review that exceeds 8 labor hours.

16.2 Cost of Modification of Facilities Performed by Metropolitan

Cost of modification work conducted by Metropolitan will be borne by the project proponent, when Metropolitan has paramount/prior rights at the subject location.

Metropolitan will transmit a cost estimate for the modification work to be performed (when it has paramount/prior rights) and will require that a deposit, in the amount of the estimate, be received before the work will be performed.

16.3 Final Billing

Final billing will be based on the actual costs incurred, including engineering plan review, inspection, materials, construction, and administrative overhead charges calculated in accordance with Metropolitan's standard accounting practices. If the total cost is less than the deposit, a refund will be made; however, if the cost exceeds the deposit, an invoice for the additional amount will be forwarded for payment.

17.0 Street Vacations and Reservation of Easements for Metropolitan

A reservation of an easement is required when all or a portion of a public street where Metropolitan facilities are located is to be vacated. The easement must be equal to the street width being vacated or a minimum 40 feet. The reservation must identify Metropolitan as a "public entity" and not a "public utility," prior to recordation of the vacation or tract map. The reservation of an easement must be submitted to Metropolitan for review prior to final approval.

18.0 Metropolitan Land Use Guidelines

If you are interested in obtaining permission to use Metropolitan land (temporary or long term), a Land Use Form must be completed and submitted to Metropolitan for review and consideration. A nonrefundable processing fee is required to cover Metropolitan's costs for reviewing your request. Land Use Request Forms can be found at:

http://mwdh2o.com/PDF_Doing_Your_Business/4.7.1_Land_Use_Request_form_revised.pdf

The request should be emailed to RealEstateServices@mwdh2o.com, or contact the Real Property Development and Management (RPDM) Group at (213) 217-7750.

After the initial application form has been submitted, Metropolitan may require the following in order to process your request:

- A. A map indicating the location(s) where access is needed, and the location & size (height, width and depth) of any invasive subsurface activity (boreholes, trenches, etc.).
- B. The California Environmental Quality Act (CEQA) document(s) or studies that have been prepared for the project (e.g., initial study, notice of exemption, Environmental Impact Report (EIR), Mitigated Negative Declaration (MND), etc.).
- C. A copy of an ACORD insurance certification naming Metropolitan as an additional insured, or a current copy of a statement of self-insurance.
- D. Confirmation of the legal name of the person(s) or entity(ies) that are to be named as the permittee(s) in the entry permit.
- E. Confirmation of the purpose of the land use.
- F. The name of the person(s) with the authority to sign the documents and any specific signature title block requirements for that person or any other persons required to sign the document (i.e., legal counsel, Board Secretary/Clerk, etc.).
- G. A description of any vehicles that will have access to the property. The exact make or model information is not necessary; however, the general vehicle type, expected maximum dimensions (height, length, width), and a specific maximum weight must be provided.

Land use applications and proposed use of the property must be compatible with Metropolitan's present and/or future use of the property. Any preliminary review of your request by Metropolitan shall not be construed as a promise to grant any property rights for the use of Metropolitan's property.

19.0 Compliance with Environmental Laws and Regulations

As a public agency, Metropolitan is required to comply with all applicable environmental laws and regulations related to the activities it carries out or approves. Consequently, project plans, maps, and other information must be reviewed to determine Metropolitan's obligations pursuant to state and federal environmental laws and regulations, including, but not limited to:

- A. California Environmental Quality Act (CEQA) (Public Resources Code 21000-21177) and the State CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 1500-15387)
- B. Federal Endangered Species Act (ESA) of 1973, 16 U.S.C. §§ 1531, et seq.
- C. California Fish and Game Code Sections 2050-2069 (California ESA)
- D. California Fish and Game Code Section 1602
- E. California Fish and Game Code Sections 3511, 4700, 5050 and 5515 (California fully protected species)
- F. Federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. §§ 703-712
- G. Federal Clean Water Act (including but not limited to Sections 404 and 401) 33 U.S.C. §§ 1342, 1344)

- H. Porter Cologne Water Quality Control Act of 1969, California Water Code §§ 13000-14076.
- I. Title 22, California Code of Regulations, Chapter 16 (California Waterworks Standards), Section 64572 (Water Main Separation)

Metropolitan may require the project applicant to pay for any environmental review, compliance and/or mitigation costs incurred to satisfy such legal obligations.

20.0 Paramount Rights / Metropolitan's Rights within Existing Rights-of-Way

Facilities constructed within Metropolitan's rights-of-way shall be subject to the paramount right of Metropolitan to use its rights-of-way for the purpose for which they were acquired. If at any time Metropolitan or its assigns should, in the exercise of their rights, find it necessary to remove or relocate any facilities from its rights-of-way, such removal and replacement or relocation shall be at the expense of the owner of the facility.

21.0 Disclaimer and Information Accuracy

Metropolitan assumes no responsibility for the accuracy of the substructure information herein provided. The user assumes responsibility for verifying substructure locations before excavating and assumes all liability for damage to Metropolitan's facilities as a result of such excavation. Additionally, the user is cautioned to conduct surveys and other field investigations as you may deem prudent, to assure that your project plans are correct. The relevant representative from Metropolitan must be called at least two working days, before any work activity in proximity to Metropolitan's facilities.

It generally takes 30 days to review project plans and provide written responses. Metropolitan reserves the right to modify requirements based on case-specific issues and regulatory developments.

Table 1: General Guidelines for Pipeline Separation between Metropolitan’s Pipeline¹ and Sanitary Sewer² or Hazardous Fluid Pipeline³

<p><u>Pipeline Crossings</u></p>	<p>Metropolitan requires that sanitary sewer and hazardous fluid pipelines that cross Metropolitan’s pipelines have special pipe construction (no joints) and secondary containment⁴. This is required for the full width of Metropolitan’s rights-of-way or within 10 feet tangent to the outer edges of Metropolitan’s pipeline within public streets. Additionally, sanitary sewer and hazardous fluid pipelines crossing Metropolitan’s pipelines must be perpendicular and maintain a minimum 1-foot vertical clearance between the top and the bottom of Metropolitan’s pipeline and the pipe casing.</p> <p>These requirements apply to all sanitary sewer crossings regardless if the sanitary sewer main is located below or above Metropolitan’s pipeline.</p>
<p><u>Parallel Pipeline</u></p>	<p>Metropolitan generally does not permit the installation of longitudinal pipelines along its rights-of-way. Within public streets, Metropolitan requires that all parallel sanitary sewer, hazardous fluid pipelines and/or non-potable utilities be located a minimum of 10 feet from the outside edges of Metropolitan’s pipelines. When 10-foot horizontal separation criteria cannot be met, longitudinal pipelines require special pipe construction (no joints) and secondary containment⁴.</p>
<p><u>Sewer Manhole</u></p>	<p>Sanitary sewer manholes are not allowed within Metropolitan’s rights-of-way. Within public streets, Metropolitan requests manholes parallel to its pipeline be located a minimum of 10 feet from the outside edges of its pipelines. When 10 foot horizontal separation criteria cannot be met, the structure must have secondary containment⁵.</p>

Notes:

¹ Separation distances are measured from the outer edges of each pipe.

² Sanitary sewer requirements apply to all recycled water treated to less than disinfected tertiary recycled water (disinfected secondary recycled water or less). Recycled water definitions are included in Title 22, California Code of Regulations, Chapter 3 (Water Recycling Criteria), Section 60301.

³ Hazardous fluids include e.g., oil, fuels, chemicals, industrial wastes, wastewater sludge, etc.

⁴ Secondary Containment for Pipeline - Secondary containment consists of a continuous pipeline sleeve (no joints). Examples acceptable to Metropolitan include welded steel pipe with grout in annular space and cathodic protection (unless coated with non-conductive material) and High Density Polyethylene (HDPE) pipe with fusion-welded joints.

⁵ Secondary Containment for Structures – Secondary containment consists of external HDPE liner or other approved method.

Table 2: General Guidelines for Pipeline Separation between Metropolitan’s Pipeline¹ and Storm Drain and/or Disinfected Tertiary Recycled Water²

<p><u>Pipeline Crossings</u></p>	<p>Metropolitan requires crossing pipelines to be special pipe construction (no joints) or have secondary containment³ within 10-feet tangent to the outer edges of Metropolitan’s pipeline. Additionally, pipelines crossing Metropolitan’s pipelines must be perpendicular and maintain a minimum 1-foot vertical clearance.</p>
<p><u>Parallel Pipeline</u></p>	<p>Metropolitan generally does not permit the installation of longitudinal pipelines along its rights-of-way. Within public streets, Metropolitan requests that all parallel pipelines be located a minimum of 10 feet from the outside edges of Metropolitan’s pipelines. When 10-foot horizontal separation criteria cannot be met, special pipe construction (no joints) or secondary containment³ are required.</p>
<p><u>Storm Drain Manhole</u></p>	<p>Permanent utility structures (e.g., manhole, catch basin, inlets) are not allowed within Metropolitan’s rights-of-way. Within public streets, Metropolitan requests all structures parallel to its pipeline be located a minimum of 10 feet from the outside edges of its pipelines. When 10 foot horizontal separation criteria cannot be met, the structure must have secondary containment⁴.</p>

Notes:

¹ Separation distances are measured from the outer edges of each pipe.

² Disinfected tertiary recycled water as defined in Title 22, California Code of Regulations, Chapter 3 (Water Recycling Criteria), Section 60301.

³ Secondary Containment for Pipeline - Secondary containment consists of a continuous pipeline sleeve (no joints). Examples acceptable to Metropolitan include welded steel pipe with grout in annular space and cathodic protection (unless coated with non-conductive material) and High Density Polyethylene (HDPE) pipe with fusion-welded joints.

⁴ Secondary Containment for Structures – Secondary containment consists of external HDPE liner or other approved method.

Table 3: General Guidelines for Pipeline Separation¹ between Metropolitan’s Pipeline and Recycled Water^{2,4} Irrigations

<p>Pressurized recycled irrigation mainlines</p>	<ul style="list-style-type: none"> • Crossings - must be perpendicular and maintain a minimum 1-foot vertical clearance. Crossing pressurized recycled irrigation mainlines must be special pipe construction (no joints) or have secondary containment³ within 10-feet tangent to the outer edges of Metropolitan’s pipeline. • Longitudinal - must maintain a minimum 10-foot horizontal separation and route along the perimeter of Metropolitan’s rights-of-way where possible.
<p>Intermittently Energized Recycled Water Irrigation System Components</p>	<ul style="list-style-type: none"> • Crossings - must be perpendicular and maintain a minimum 1-foot vertical clearance. Crossing irrigation laterals within 5-feet tangent to the outer edges of Metropolitan’s pipeline must be special pipe construction (no joints) or have secondary containment³. • Longitudinal – must maintain a minimum 5-foot horizontal separation between all intermittently energized recycled water irrigation system components (e.g. irrigation lateral lines, control valves, rotors) and the outer edges of Metropolitan’s pipeline. Longitudinal irrigation laterals within 5-feet tangent to the outer edges of Metropolitan’s pipeline must be special pipe construction (no joints) or have secondary containment³.
<p>Irrigation Structures</p>	<p>Irrigation structures such as meters, pumps, control valves, etc. must be located outside of Metropolitan’s rights-of-way.</p>
<p>Irrigation spray rotors near Metropolitan’s aboveground facilities</p>	<p>Irrigation spray rotors must be located a minimum of 20-foot from any Metropolitan above ground structures with the spray direction away from these structures. These rotors should be routinely maintained and adjusted as necessary to ensure no over-spray into 20-foot clear zones.</p>
<p>Irrigations near open canals and aqueducts</p>	<p>Irrigation with recycled water near open canals and aqueducts will require a setback distance to be determined based on site-specific conditions. Runoff of recycled water must be contained within an approved use area and not impact Metropolitan facilities. Appropriate setbacks must also be in place to prevent overspray of recycled water impacting Metropolitan’s facilities.</p>

Notes:

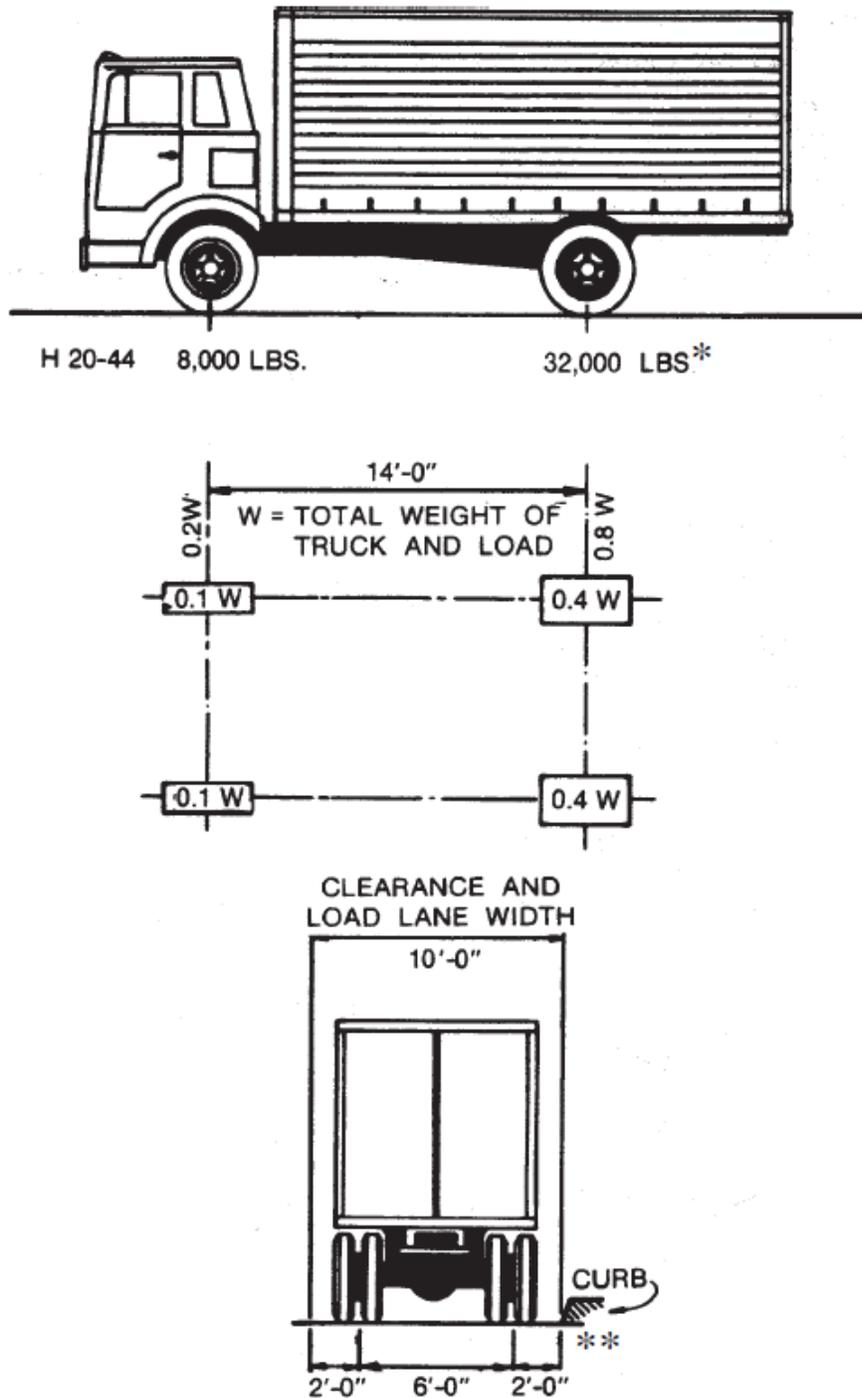
¹ Separation distances are measured from the outer edges of each pipe.

² Requirements for recycled water irrigation apply to all levels of treatment of recycled water for non-potable uses. Recycled water definitions are included in Title 22, California Code of Regulations, Chapter 3 (Water Recycling Criteria), Section 60301.

³ Secondary Containment for Pipeline - Secondary containment consists of a continuous pipeline sleeve (no joints). Examples acceptable to Metropolitan include welded steel pipe with grout in annular space and cathodic protection (unless coated with non-conductive material) and High Density Polyethylene (HDPE) pipe with fusion-welded joints.

⁴ Irrigation with recycled water shall not be applied directly above Metropolitan’s treated water pipelines.

Figure 1: AASHTO H-20 Loading



Note: The H loadings consist of a two-axle truck or the corresponding lane loadings as illustrated above. The H loadings are designated "H" followed by a number indicating the gross weight in tons of the standard truck.

Figure 2: Drawing SK-1

