

Attachment A

Best Management Practices (BMP) for Westlake Relief Drain Rehab Unit 5 - Ferndale to Obama

Cultural Resources

The cultural resources evaluation results¹ indicate that the site is sensitive for cultural resources. The following Best Management Practices (BMPs) shall be added to the Project specifications to ensure compliance with the *Standard Specifications for Public Works Construction* (“Greenbook”).

BMP-CUL-1 Inadvertent Discovery

In the event unanticipated historical, archeological, paleontological, or Native American resources are encountered, the “Greenbook”, Section 6-6.2, (Greenbook, 2021) states: “If discovery is made of items of archaeological or paleontological interest, the Contractor shall immediately cease excavation in the area of discovery and shall not continue until ordered by the Engineer.” Therefore, during Ground Disturbance Activities² if any evidence of archaeological, cultural, or paleontological resources are found, all work within the vicinity of the find shall stop until a Qualified Archaeologist³ can assess the finds and make recommendations. No excavation of any finds should be attempted by Project personnel unless directed by a qualified archaeologist. Construction activities may continue in other areas. If the discovery proves significant under CEQA (Section 15064.5f; Public Resources Code or PRC 21082), additional work such as testing, or data recovery may be warranted.

BMP-CUL-2 Human Remains

The discovery of human remains is always a possibility during ground disturbances; State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the Los Angeles County Coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. If human remains are discovered, the Los Angeles County Coroner must be notified of the find immediately. If the human remains are determined to be prehistoric, the coroner will notify the Native American Heritage Commission,

¹ City of Los Angeles Bureau of Engineering, Rincon Consultants, Inc. 2025 *Cultural Resources Assessment for Westlake Relief Drain (WRD) Rehab Unit 5–Ferndale to Obama*.

² Ground Disturbance Activities. Any construction-related earthmoving of sediments and earthwork activity including, but not limited to, excavating, digging, trenching, plowing, drilling, tunneling, quarrying, grading, leveling, removing peat, clearing, driving posts, augering, backfilling, blasting, stripping topsoil or a similar activity at a Project site.

³ Qualified Archaeologist. A professional archaeologist who meets the Secretary of the Interior’s Archeology and Historic Preservation Professional Qualification Standards and is eligible for listing on the Register of Professional Archaeologists or the Society for American Archaeology; holds a graduate degree in archaeology or a related field; and has a minimum of five years of experience completing and supervising field work in archaeological contexts similar to the Project site.

which will determine and notify a Most Likely Descendent (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

BMP-ARC-1 Archeological Worker Environmental Awareness Program

The Project site is located in a sensitive area for archaeological resources. An Archaeological Worker Environmental Awareness Program (WEAP) shall be implemented prior to the start of construction. A Qualified Archaeologist or Archaeological Monitor⁴ shall conduct the training for construction personnel regarding archaeological resources. The training should include an overview of potential archaeological, tribal cultural, and paleontological resources that could be encountered during Ground Disturbance Activities, contact information and procedures for inadvertent finds, and penalties for unauthorized artifact and/or fossil collecting or intentional disturbance. The WEAP training can be in the form of a video or PowerPoint presentation or printed literature (handouts) that can be given to new workers and contractors to avoid the necessity of continuous training over the course of the Project. A copy of the WEAP training materials will be provided to the City of Los Angeles (City) Bureau of Engineering (BOE). It is assumed that the training will occur only within on-site construction hours. A training log documenting all on site construction personnel that have received the WEAP training shall be developed and provided to the BOE.

BMP-ARC-2 Archeological Assessment, Monitoring, and Reporting

Archaeological monitoring shall be conducted during Ground Disturbance Activities at Access Pits 1 and 2. Monitoring efforts may be adjusted (increase, decrease, or discontinue monitoring frequency) by the Qualified Archaeologist based on the observed potential for construction activities to encounter archaeological deposits.

In the event of an archaeological resource discovery by construction personnel or by the Archaeological Monitor, all work in the immediate vicinity of the find shall cease and a Qualified Archaeologist shall be contacted to evaluate the find before restarting work in the area. If it is determined that the archaeological resource(s) is(are) scientifically significant, the archaeological monitor shall complete the Archaeological Assessment.

During all Ground Disturbance Activities (including all Access Pits and other excavation areas), if a potential archaeological resource is uncovered during earthwork or construction by construction personnel, all work shall cease within a

⁴ Archaeological Monitor. A designated archaeologist working under the direction of the Qualified Archaeologist who has a minimum of a bachelor's or equivalent degree in archaeology, anthropology, paleontology, or another closely related field and no less than one year of experience conducting archaeological monitoring and/or excavation in similar regional archaeological contexts.

minimum distance of 50 feet from the find until a Qualified Archaeologist has been retained to evaluate the find in accordance with the National Register of Historic Places and the California Register of Historical Resources criteria and the BOE (see above) shall be notified of the inadvertent discovery. The Qualified Archaeologist may adjust this avoidance area, ensuring appropriate temporary protection measures of the find are taken while also considering ongoing construction needs in the surrounding area. Temporary staking and delineation of the avoidance area shall be installed around the find in order to avoid any disturbance from construction equipment. Ground Disturbance Activities may continue unimpeded on other portions of the site outside the specified radius. Any potential archaeological resource or associated materials that are uncovered shall not be moved or collected by anyone other than an Archaeological Monitor or Qualified Archaeologist unless the materials have been determined to be non-unique archaeological resources, as defined in the Public Resources Code Section 21083.1(h), by the Qualified Archaeologist. The Qualified Archaeologist shall determine if the resources are unique archaeological resources as defined in the Public Resources Code Section 21083.2(g). Consistent with the Public Resources Code Section 21083.2, the handling, treatment, preservation, and recordation of unique archaeological resources should occur as follows:

- The find should be preserved in place or left in an undisturbed state unless the Project would damage the resource.
- When preserving in place or leaving in an undisturbed state is not possible, excavation and recovery of the find for scientific study should occur unless testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, and this determination is documented by a Qualified Archaeologist.

Ground Disturbance Activities in the area where resource(s) were found may recommence once the identified resources are properly assessed and processed by a Qualified Archaeologist. Continued monitoring efforts may be warranted after inadvertent discovery and may be adjusted (increase, decrease, or discontinue monitoring frequency) by the Qualified Archaeologist based on the observed potential for construction activities to encounter archaeological deposits.

A report that describes the resource(s) and its disposition, as well as the assessment methodology, shall be prepared by the Qualified Archaeologist according to current professional standards and maintained for at least five (5) years after the certificate of occupancy is issued, if applicable. If appropriate, the report should also contain the Qualified Archaeologist's recommendations for the preservation, conservation, and curation of the resource at a suitable repository, such as the Natural History Museum of Los Angeles County (NHMLA), with which the City must comply. Within 60 days following the completion of monitoring and all associated work, the Qualified Archeologist shall submit the

appropriate report to BOE Environmental Management Division (EMD) and to the South Central Coastal Information Center (SCCIC) at the California State University, Fullerton and the report(s) shall include all state and local requirements. Reports submitted to the SCCIC shall be formatted and completed in accordance with the California Historic Resources Inventory System (CHRIS) document submittal standards.

BMP-TCR-1 Treatment of Tribal Cultural Resources

The BOE shall retain a representative from a California Native American tribe (Qualified Tribal Monitor) that is traditionally and culturally affiliated with the geographic area of the Project and that has entered into consultation with the BOE. Tribal monitoring shall be conducted during Ground Disturbance Activities at Access Pits 1 and 2.

If a potential tribal cultural resource is uncovered during earthwork or construction, all Ground Disturbance Activities within 50 feet of the find shall cease until the BOE, in coordination with the Qualified Tribal Monitor and Qualified Archaeologist, determines the resource a tribal cultural resource pursuant to Public Resources Code (PRC) Section 21074. The BOE shall provide any affected tribe a reasonable period of time, not less than five (5) business days from the date of discovery, to conduct a site visit and make recommendations to the BOE regarding the monitoring of future Ground Disturbance Activities and the treatment and disposition of any discovered tribal cultural resources.

Consistent with the PRC Section 21084.3, the handling, treatment, preservation, recordation, and disposition of tribal cultural resources shall occur as follows:

The find shall be preserved in place and avoided to the extent feasible. If avoidance is determined by the BOE to be infeasible, treatment shall be developed and implemented, in consultation with the Qualified Tribal Monitor, that takes into account the tribal cultural values and meaning of the resource and may include protecting the cultural character and integrity, traditional use, and confidentiality of the resource.

Tribal cultural resources that are also archaeological resources and may qualify as historical resources or unique archaeological resources shall also be treated under BMP-ARC-2 and under the direction of the Qualified Archaeologist in coordination with BOE and the Qualified Tribal Monitor. The BOE shall review and approve any monitoring or mitigation plans prior to implementation.

Ground Disturbance Activities in the area where resource(s) were found may recommence once the identified resources are treated. Documentation describing treatment and the methods and results of any analysis should be prepared by the Qualified Archaeologist for review by the BOE and Qualified Tribal Monitor and shall be submitted to appropriate records repositories,

including the SCCIC and/or Native American Heritage Commission.

BMP-PAL-1 Retain a Qualified Paleontologist

The BOE or its Contractor shall retain a Qualified Paleontologist⁵, who meets or exceeds the qualification standards defined by the Society of Vertebrate Paleontology (SVP) for a Qualified Paleontologist (SVP 2010). The Qualified Paleontologist shall carry out all regulatory compliance measures and protocols related to paleontological resources. The Qualified Paleontologist shall obtain a curatorial arrangement with a qualified repository (e.g., Natural History Museum of Los Angeles County [NHMLA]) prior to construction in the event of significant paleontological resource discoveries during construction.

BMP-PAL-2 Paleontological Resources WEAP

The Qualified Paleontologist should develop a Worker Environmental Awareness Program (WEAP) training to educate the construction crew on the legal requirements for preserving fossil resources, as well as the procedures to follow in the event of fossil discovery. This training program should be given to the crew before ground-disturbing work commences and should include handouts to be given to new workers as needed.

BMP-PAL-3 Monitor for Paleontological Resources

Full-time paleontological monitoring shall occur during ground-disturbing activities that impact previously undisturbed sediments at depths of five (5) feet below ground surface (bgs) or greater that have high paleontological sensitivity, including late Pleistocene young alluvium (Qya2) and late Pleistocene old shallow marine deposits on wave-cut surface (Qom). Monitoring shall not be required when ground-disturbing activities are less than five (5) feet bgs, or when impacting only previously disturbed sediments and/or recent artificial fill (af) regardless of depth. Monitoring shall be conducted by a qualified Paleontological Monitor who meets the standards of the SVP and who should be supervised by the Qualified Paleontologist. The Qualified Paleontologist may periodically inspect construction activities to adjust the level of monitoring in response to subsurface conditions. Monitoring efforts can be increased, reduced, or ceased entirely if determined adequate by the Qualified Paleontologist. Paleontological monitoring should include inspection of exposed sedimentary units during active excavations within sensitive geologic sediments. The monitor shall have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, should the fossils be determined significant,

⁵ Qualified Paleontologist. A paleontologist who meets the Society of Vertebrate Paleontology standards for a Principal Investigator or Project Paleontologist; has demonstrated competence in field techniques, preparation, identification, curation, and reporting and/or a graduate degree in paleontology or geology or a publication record in peer reviewed journals; at least two years professional experience with administration and project management experience; proficiency in recognizing fossils in the field and determining their significance; expertise in local geology, stratigraphy, and biostratigraphy; and experience collecting vertebrate fossils in the field.

professionally and efficiently recover the fossil specimens and collect associated data. The monitor should record pertinent geologic data and collect appropriate sediment samples from any fossil localities. Recovered fossils shall be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological repository (e.g., NHMLA).

BMP-PAL-4 Prepare a Paleontological Resources Monitoring Report

Upon conclusion of ground disturbing activities, the Qualified Paleontologist overseeing paleontological monitoring shall prepare a final monitoring report that documents the paleontological monitoring efforts for the Project and describes any paleontological resources discoveries observed and/or recorded during the life of the Project. If paleontological resources are curated, the final monitoring report and any associated data pertinent to the curated specimen(s) shall be submitted to the designated repository. A copy of the final monitoring report shall be filed with the BOE.

Construction Noise

If noise evaluation results indicate sensitive receptors adjacent to the Project alignment or construction activities resulting in noise levels exceeding acceptable levels as defined in Los Angeles Municipal Code Section 112.50, the following Best Management Practices (BMPs) shall be added to the Project specifications to ensure compliance with LAMC Noise Regulations.

RCM-NOI-1 Permitted Time for Construction

The proposed Project shall comply with the Los Angeles Municipal Code (LAMC) Section 41.40 (Ordinance No. 158,587) which requires that no person shall, between the hours of 9:00 P.M. and 7:00 A.M. of the following day, perform any construction or repair work of any kind upon, or any excavating for, any building or structure, where any of the foregoing entails the use of any power driven drill, riveting machine excavator or any other machine, tool, device or equipment which makes loud noises to the disturbance of persons occupying sleeping quarters in any dwelling hotel or apartment or other place of residence. In addition, the operation, repair or servicing of construction equipment and the job-site delivering of construction materials in such areas shall be prohibited during the hours herein specified unless any person who performs the construction, repair or excavation work involved pursuant to the express written permission of the Board of Police Commissioners through its Executive Director. Construction activity shall not be permitted on any Sunday or national holiday. Nighttime construction activities require a variance approved by the City of Los Angeles Police Commission.

RCM-NOI-2 Maximum Noise Level of Construction Machinery

The proposed Project shall comply with the Los Angeles Municipal Code (LAMC) Chapter XI *Noise Regulation* (Ordinance No. 144,331) and any subsequent

ordinances. To maintain compliance with LAMC Section 112.05 (Ordinance No. 161,574), the Project must adhere to specific noise regulations for construction machinery. In residential zones of the City, or within 500 feet of such zones, no person shall operate or cause to be operated any powered equipment or powered hand tool that produces a maximum noise level exceeding 75 A-weighted decibels (dbA) at a distance of 50 feet. This restriction applies between the hours of 7:00 a.m. and 10:00 p.m. Said noise limitations shall not apply where compliance therewith is technically infeasible. Technical infeasibility shall mean that said noise limitations cannot be complied with despite the use of mufflers, shields, sound barriers and/or other noise reduction devices or techniques during the operation of the equipment. The burden of proving that compliance is technically infeasible shall be upon the person or persons charged with a violation of LAMC Section 112.05.

RCM-NOI-3 Construction Noticing and Reporting

The proposed Project shall comply with the City of Los Angeles Building Regulations Ordinance No. 178,048 (LAMC Section 91.106.4.8), which requires a construction site notice to be provided that includes the following information: job site address, permit number, name and phone number of the contractor and owner or owner's agent, hours of construction allowed by code or any discretionary approval for each site, and City telephone numbers where violations can be reported. The notice shall be posted and maintained at the construction of each site prior to the start of construction and displayed in a location that is readily visible to the public.

BMP-NOI-1 Noise-generating Equipment

Noise-generating equipment operated at the Project site shall be equipped with the most effective and technologically feasible noise control devices, such as mufflers, lagging (enclosures for exhaust pipes), and/or motor enclosures. All equipment shall be properly maintained to avoid the generation of additional noise due to worn or improperly maintained parts.

BMP-NOI-2 Noise - Haul Route

The contractor shall route construction-related truck traffic away from noise-sensitive areas and reduce construction vehicle speeds. Prior to commencement of construction, the City shall establish approved truck haul routes that avoid or minimize, to the extent feasible, unnecessary truck travel on local roadways through residential neighborhoods or adjacent to schools and prioritize travel on collector and arterial streets.

BMP-NOI-3 Construction Noise Control Plan

To ensure compliance with the City of Los Angeles Noise Regulations, the construction contractor(s) must prepare and submit a Construction Noise Control Plan to the City's Department of Public Works, Bureau of Engineering, or its

designee. This plan requires approval before Project construction begins. The Construction Noise Control Plan should detail the specific noise reduction measures to be implemented during construction to achieve sound reduction in accordance with the City of Los Angeles Noise Regulations. These specified measures must be incorporated into the construction plans and executed by the construction contractor(s) throughout the construction period. Potential noise reduction methods, devices, or techniques include, but are not limited to, the following:

1. Construction of temporary noise barriers* installed between construction equipment and noise sensitive receptors;
2. Use of low-noise-generating construction techniques and equipment such as concrete saws instead of jack hammers;
3. All equipment, fixed or mobile, should be operated with closed engine doors and should be equipped with properly operating and maintained mufflers consistent with manufacturers' standards and inspected regularly to ensure proper functioning;
4. Maintenance of mufflers and ancillary noise abatement equipment;
5. Use of vibration pile drivers and other techniques that result in less noise than impact pile drivers;
6. Scheduling high noise producing activities during periods that are least sensitive;
7. Whenever feasible, construction activities should be scheduled to avoid operating several pieces of heavy equipment simultaneously;
8. All heavy-duty stationary construction equipment should be placed so that emitted noise is directed away from the nearest sensitive receptors where feasible;
9. Routing construction related truck traffic away from noise-sensitive areas;
10. Reducing construction vehicle speeds;
11. Locate stationary noise-generating equipment such as air compressors or portable power generators as far as possible from neighboring sensitive land uses;
12. Unnecessary idling of internal combustion engines should be prohibited.

If any of the methods, devices, or techniques above are used during construction, then construction noise monitoring should be implemented to determine if additional reductions are necessary. The Contractor shall field verify compliance with the requirements of the Construction Noise Control Plan weekly during construction and maintain a compliance log with written notes and photographs documenting how the requirements are being implemented and submit logs to the Bureau of Engineering.

*A potential means to achieve 15 dbA noise reduction at 50 feet is installation of 10-foot-high temporary sound barriers/blankets between construction equipment

and the noise-sensitive receptors. The barriers should be at least 1.5 pounds per square foot with no gaps from the ground to the top of the barrier. As an alternative, if sound blankets are preferred, barriers should be constructed with solid material with a density of at least one pound per square foot with no gaps from the ground to the top of the barrier and be lined on the construction side with acoustical blanket, curtain or equivalent absorptive material rated sound transmission class (STC) 32 or higher.

BMP-VIS-1 Nighttime Lighting

The contractor shall avoid the use of nighttime lighting, or, if unavoidable, nighttime lighting shall be directed downward, on-site, and away from surrounding land uses.

Tree Protection

The following Best Management Practices (BMPs) shall be added to the Project specifications to ensure compliance with Los Angeles Municipal Code (LAMC) 62.162, the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503, 3503.5 and 3513.

BMP-BIO-1 Compliance with Migratory Bird Treaty Act (MBTA)

In compliance with the conditions set forth in the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503, 3503.5 and 3513. If construction activities would take place outside of the nesting bird season (typically February 1 to August 31) to the extent feasible and efforts would be made to schedule construction activities between September 1 and January 31 to avoid the nesting bird season.

BMP-BIO-2 Pre-construction Nesting Bird Survey

In compliance with the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code, sections 3503, 3503.5, and 3513 for all construction activities conducted during the nesting bird season (typically February 1 to August 31), trees shall be surveyed by a qualified biologist to determine the presence or absence of nesting birds and active nests in and around the project area. Trees that may be impacted by construction (e.g., noise, lighting, trimming, removal) shall be thoroughly surveyed within three (3) days prior to any vegetation removal and construction activity. During the nesting bird season, the Project site shall be re-surveyed if there is a delay or lapse in construction activities of more than five days after the initial survey. The pre-construction nesting bird surveys shall be documented (i.e., log or report) shall be signed by a qualified biologist and submitted to the BOE project manager and BOE Environmental Management Division (EMD) at the conclusion of the survey.

BMP-BIO-3 Nesting Bird Protection

If active nests are detected during the pre-construction survey, the area shall be

flagged, and a minimum 250-foot (500-foot for raptors) non-disturbance buffer shall be established consisting of orange flagging/fencing (or similar). Any modification to this buffer shall be determined by the project's qualified biologist and/or in consultation with U.S. Fish and Wildlife and California Department of Fish and Wildlife, as applicable. The non-disturbance buffer shall be avoided until the nesting cycle has been completed and the monitoring biologist determines that the nest has fledged or failed. The Pre-construction Nesting Bird Survey, buffer establishment, monitoring, and outcomes shall be documented and signed by the qualified biologist prior to submittal to the BOE project manager and BOE Environmental Management Division (EMD) at the conclusion of the monitoring.

BMP-PCT-2 Tree Protection Zone (TPZ)

The Tree Protection Zone (TPZ) is a calculated area around a tree trunk where barriers like fences, flagging, caution tape, and/or cones would be installed to protect the tree's crown, branches, soil and root structure from contact with construction equipment, materials, and activities, and hazardous waste. The TPZ shall be calculated for trees at or within 10 feet of any Project construction activity including staging/work areas.

Prohibited Activities within the TPZ, include:

- No construction activities whatsoever unless approved and instructed by a qualified arborist;
- No staging areas;
- No portable toilets, stockpiling, storage of any construction equipment, material, debris, erosion and sediment controls, soil or excavated materials;
- No dumping of hazardous material including but not limited to, paint, petroleum products, concrete or stucco mix, concrete washout, dirty water, urine, or any material that may be harmful to tree health;
- No use of the TPZ as a drainage area;
- No foot or equipment traffic during all construction activities;
- No vehicular access routes or parking;
- No objects of any kind attached to tree trunks;
- No use of trees in service to a construction project in any way, including but not limited to anchorage, as a temporary power pole, signpost, or any other similar function; and
- No drainage change, grade change, soil change or soil disturbance.

Calculating the Tree Protection Zone (TPZ)

The TPZ is calculated by dividing the tree circumference (in inches), at a height of 4 and one half feet, by π (approximately 3.14) to determine the diameter at breast height (DBH) of the tree.⁶ The diameter (in inches), is then multiplied by 18 inches and divided by 12 to determine the distance (radius) in feet to place

⁶ Tree diameters can also be obtained at <https://losangelesca.treekeepersoftware.com>.

protective fencing away from the tree's trunk⁷ (see example calculation).

Calculating the Tree Protection Zone (TPZ) - Single Trunk Tree

Trunk circumference = 12 inches (measured at breast height)

Trunk Diameter at Breast Height (DBH) = 12 inches ÷ 3.14 = approximately 4 inches DBH

Multiplied by 18 inches = 18 inches x 4 inches = 72 inches

Radius Measured Out from Trunk: 72 inches/12 inches = 6-foot radius
(This distance represents the radius in feet from the tree trunk where protective fencing should be installed.)

TPZ = The space enclosed around the tree trunk by barriers like fences, flagging, caution tape, and/or cones to block access.

In this example, barriers like fences, flagging, caution tape, and/or cones would create a TPZ with a 6-foot radius around the tree.

Calculating a Tree Protection Zone (TPZ) for a Multi- trunk Tree

Circumference of multi-trunk tree with three stems = Stems measuring 4 inches, 5 inches, 6 inches (measured at breast height): 4+ 5+ 6 =15 inches (measured at breast height).

Trunk Diameter at Breast Height (DBH): 15 inches ÷ 3.14 = approximately 5 inches DBH

Multiplied by 18 inches: 18 inches x 5 inches = 90 inches

Radius measured out from trunks: = 90 inches/12 inches = 7.5-foot radius
(This distance represents the radius in feet from the tree trunk where protective fencing should be installed.) TPZ = space enclosed around the tree trunk by barriers like fences, flagging, caution tape, and/or cones to block access.

In this example, barriers like fences, flagging, caution tape, and/or cones would be placed at a 7.5-foot radius around the tree, creating a TPZ.

Below-grade Construction Activities in the TPZ

In instances where below-grade construction activities would occur within a TPZ, such activities shall not encroach on the Structural Root Zone (SRZ) of a tree, see below. The SRZ shall remain clearly marked/flagged at all times during construction activities.

Structural Root Zone (SRZ)

The Structural Root Zone (SRZ) occurs within the TPZ and is critical for tree stability. Disruption to a tree's SRZ will increase instability and may result in catastrophic tree failure. No construction activity whatsoever shall occur within the SRZ.

⁷ Except Palm trees: TPZ = enclose palm tree at five (5) feet from the base of the trunk.

Calculating the SRZ

The Structural Root Zone (SRZ) occurs within the TPZ and is critical for tree stability. Disruption to the SRZ may result in catastrophic tree failure. No construction activity whatsoever shall occur within the SRZ.

The SRZ is calculated by dividing tree circumference (in inches), at a height of 4 and one half feet, by π (approximately 3.14) to determine the diameter at breast height (DBH) of the tree.⁸ The diameter (in inches), is then multiplied by 0.9 feet and divided by 12 to determine the distance (radius) in feet to place protective fencing away from the tree's trunk⁹ (see example calculation).

Calculating the SRZ

Trunk circumference = 12 inches (measured at breast height)

Trunk Diameter at Breast Height (DBH) = 12 inches \div 3.14 = 4 inches

DBH

Structural Root Zone Diameter = 4 inches \times 0.9 = 3.6-foot diameter

Radius Measured Out from Trunk = 3.6/2 = 2-foot radius (In this example, barriers like fences, flagging, caution tape, and/or cones would be placed on the ground/concrete/pavement (within the TPZ) around the tree at an approximate 2-foot radius to form the SRZ).

BMP-PCT-3 Tree Trimming

All tree trimming/pruning in the public right-of-way requires a permit to trim/prune tree branches away from structures, buildings and streets (as per Los Angeles Municipal Code 62.162). A Qualified Arborist may assist in the permitting process. Trees shall be trimmed/pruned to promote good structure where the least amount or percentage of foliage or crown will be removed to meet objectives.¹⁰

To the extent feasible, work areas should be located in areas where tree trimming will not be required for construction equipment, activities or materials.

If, at any time during the Project, tree branches require cabling or bracing to provide mechanical support, a Qualified Arborist may be consulted. Tree trimming shall be performed in accordance with American National Standards Institute (ANSI) A300 Part 1: *Tree, Shrub, and Other Woody Plant Management—Standard Practices (Pruning)*,¹¹ and ANSI A300 Part 3: *Tree, Shrub, and Other Woody Plant Management—Standard Practices (Supplemental Support Systems)*.

⁸ Tree diameters can also be obtained at <https://losangelesca.treekeepersoftware.com>.

⁹ Except Palm trees: TPZ = enclose palm tree at five (5) feet from the base of the trunk.

¹⁰ Permits can be obtained through Bureau of Street Services (StreetsLA): <https://streets.lacity.gov/services/permits>.

¹¹ American National Standards Institute (ANSI): *ANSI A300 for Tree Care Operations—Tree, Shrub, and Other Woody Plant Management—Standard Practices*.

BMP-PCT-4 Tree Root Pruning

To the extent feasible, root pruning should be avoided. All root pruning requires a permit (as per Los Angeles Municipal Code 62.162). A Qualified Arborist may assist in the permitting process. A Qualified Arborist shall be consulted for root pruning on private property. All root pruning shall be performed in accordance with American National Standards Institute (ANSI) A300 Part 8: *Root Management*.

BMP-PCT-5 Tree Removal

Street trees are highly valued by the City of Los Angeles. However, in some cases, tree removal may be necessary on a project site. All tree removals in the public right-of-way require a permit (as per Los Angeles Municipal Code 62.162). A Qualified Arborist may assist in the permitting process for the removal of trees. Where removal of a tree extends into the branches and roots of trees that are to remain in place, and/or should stumps need to be removed where the roots are entangled with the roots of trees that are to remain in place, a Qualified Arborist shall provide documented instructions in accordance with American National Standards Institute (ANSI) A300, to the contractor and project manager as requirements for the work to be performed.