

## TREE PROTECTION SPECIFICATIONS

### MATERIALS

- FABRIC: 4 FOOT HIGH ORANGE PLASTIC FENCING AS SHOWN ON THE PLANS AND SHALL BE WOVEN WITH 2 INCH MESH OPENINGS SUCH THAT IN A VERTICAL DIMENSION OF 23 INCHES ALONG THE DIAGONALS OF THE OPENINGS THERE SHALL BE AT LEAST 7 MESHES.
- POSTS: POSTS SHALL BE A MINIMUM OF 72 INCHES LONG AND STEEL T-SHAPED WITH A MINIMUM WEIGHT OF 1.3 POUNDS PER LINEAR FOOT.
- TIE WIRE: WIRE FOR ATTACHING THE FABRIC TO THE T-POSTS SHALL BE NOT LESS THAN NO. 12 GAUGE GALVANIZED WIRE.
- USED MATERIALS: PREVIOUSLY-USED MATERIALS, MEETING THE ABOVE REQUIREMENTS AND WHEN APPROVED BY THE OWNER, MAY BE USED.

### CONSTRUCTION METHODS

ALL TREES AND SHRUBS (SHOWN TO REMAIN) WITHIN THE PROXIMITY OF THE CONSTRUCTION SITE SHALL BE PROTECTED PRIOR TO BEGINNING ANY DEVELOPMENT ACTIVITY.

EMPLOY THE SERVICES OF AN ISA (INTERNATIONAL SOCIETY OF ARBORICULTURE) CERTIFIED ARBORIST (AND OBTAIN ALL REQUIRED PERMITS) TO PRUNE THE EXISTING TREES FOR CLEANING, RAISING AND THINNING. ENSURE ALL TREES RECEIVE A COMMERCIAL-GRADE ROOT STIMULATOR APPLICATION AFTER PRUNING.

PROTECTIVE FENCING SHALL BE ERECTED OUTSIDE THE DRIFLINE AT LOCATIONS SHOWN IN THE PLANS OR AS DIRECTED BY THE LANDSCAPE CONSULTANT AND/OR CITY ARBORIST OR IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AT THE DRIP LINE OF TREES (ROOT PROTECTION ZONE, RPZ) AND/OR LANDSCAPE PLANT MATERIAL INCLUDING NATURAL AREAS. FENCING SHALL BE MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING SITE CONSTRUCTION.

PROTECTIVE FENCE LOCATIONS IN CLOSE PROXIMITY TO STREET INTERSECTIONS OR DRIVES SHALL ADHERE TO THE APPLICABLE JURISDICTION'S SIGHT DISTANCE CRITERIA.

THE PROTECTIVE FENCING SHALL BE ERECTED BEFORE SITE WORK COMMENCES AND SHALL REMAIN IN PLACE DURING THE ENTIRE CONSTRUCTION PHASE.

THE INSTALLATION POSTS WILL BE PLACED EVERY 6 FEET AROUND THE DRIP LINE OR RPZ AND EMBEDDED TO 18 INCHES DEEP. FABRIC ATTACHMENT SHALL BE ATTACHED TO THE INSTALLATION POSTS BY THE USE OF SUFFICIENT WIRE TIES TO SECURELY FASTEN THE FABRIC TO THE T-POSTS TO HOLD THE FABRIC IN A STABLE AND UPRIGHT POSITION.

- DO NOT CLEAR, FILL OR GRADE IN THE RPZ OF ANY TREE.
- DO NOT STORE, STOCKPILE OR DUMP ANY JOB MATERIAL, SOIL OR RUBBISH UNDER THE SPREAD OF THE TREE BRANCHES.
- DO NOT PARK OR STORE ANY EQUIPMENT OR SUPPLIES UNDER THE SPREAD OF THE TREE BRANCHES.
- DO NOT SET UP ANY CONSTRUCTION OPERATIONS UNDER THE SPREAD OF THE TREE BRANCHES (EX. PIPE CUTTING AND THREADING, MORTAR MIXING, PAINTING OR LUMBER CUTTING).
- DO NOT NAIL OR ATTACH TEMPORARY SIGNS METERS, SWITCHES, WIRES, BRACING OR ANY OTHER ITEM TO THE TREES.
- DO NOT PERMIT RUNOFF FROM WASTE MATERIALS INCLUDING SOLVENTS, CONCRETE WASHOUTS, ASPHALT TACK COATS (MC-30 OIL), ETC. TO ENTER THE RPZ. BARRIERS ARE TO BE PROVIDED TO PREVENT SUCH RUNOFF SUBSTANCES FROM ENTERING THE RPZ WHENEVER POSSIBLE, INCLUDING IN AN AREA WHERE RAIN OR SURFACE WATER COULD CARRY SUCH MATERIALS TO THE ROOT SYSTEM OF THE TREE.

ROUTE UNDERGROUND UTILITIES TO AVOID THE RPZ. IF DIGGING IS UNAVOIDABLE, BORE UNDER THE ROOTS, OR HAND DIG TO AVOID SEVERING THEM.

THE CONTRACTOR SHOULD AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATION OCCURS NEAR EXISTING TREES. EXCAVATION IN THE VICINITY OF TREES SHALL PROCEED WITH CAUTION.

REMOVE ALL TREES, SHRUBS OR BUSHES TO BE CLEARED FROM PROTECTED ROOT ZONE AREAS BY HAND.

TREES DAMAGED OR LOST DUE TO CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE MITIGATED AT THE CONTRACTOR'S EXPENSE AND TO THE PROJECT OWNER'S SATISFACTION.

ANY TREE REMOVAL SHALL BE APPROVED BY THE OWNER PRIOR TO ITS REMOVAL.

COVER EXPOSED ROOTS AT THE END OF EACH DAY WITH SOIL, MULCH OR WET BURLAP.

IN CRITICAL ROOT ZONE AREAS THAT CANNOT BE PROTECTED DURING CONSTRUCTION AND WHERE HEAVY TRAFFIC IS ANTICIPATED, COVER THESE AREAS WITH EIGHT INCHES OF ORGANIC MULCH TO MINIMIZE SOIL COMPACTION. THIS EIGHT INCH DEPTH OF MULCH SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

WATER ALL TREES, MOST HEAVILY IMPACTED BY CONSTRUCTION ACTIVITIES, DEEPLY ONCE A WEEK DURING PERIODS OF HOT DRY WEATHER. SPRAY TREE CROWNS WITH WATER PERIODICALLY TO REDUCE DUST ACCUMULATION ON THE LEAVES.

WHEN INSTALLING CONCRETE ADJACENT TO THE ROOT ZONE OF A TREE, USE A PLASTIC VAPOR BARRIER BEHIND THE CONCRETE TO PROHIBIT LEACHING OF LIME INTO THE SOIL.

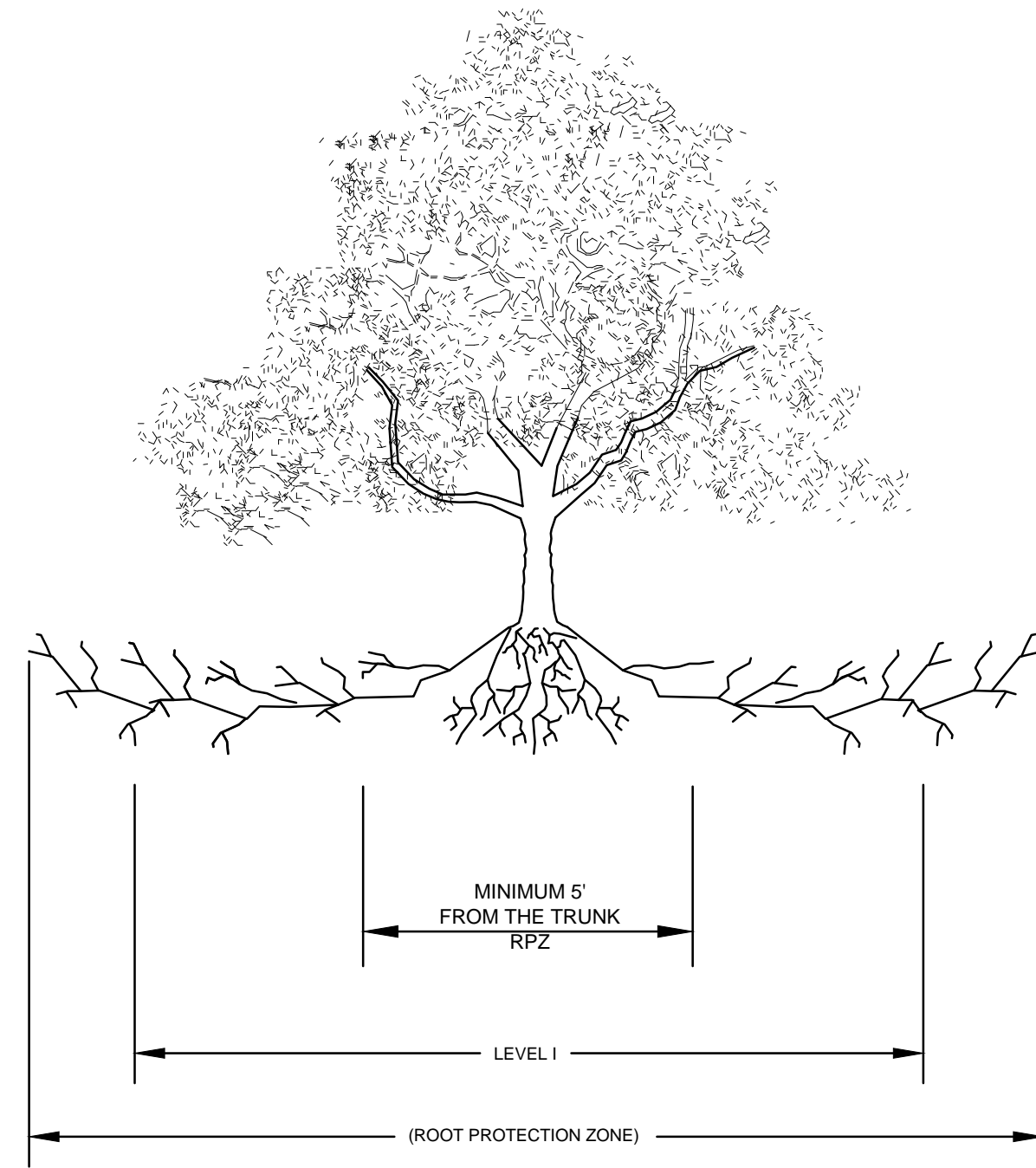
WHEN AN EXCAVATION OR EMBANKMENT IS PLACED WITHIN THE DRIFLINE OF ANY TREE GREATER THAN EIGHT INCHES IN DIAMETER, A TREE WELL SHALL BE CONSTRUCTED TO PROTECT THE TREE AS INDICATED, WHEN THE CUT OR FILL EXCEEDS EIGHT INCHES.

WHERE PAVING OR FILLING IS NECESSARY WITHIN THE DRIFLINE OF ANY TREE EIGHT INCHES OR GREATER, A PERMEABLE PAVEMENT AND AERATION SYSTEM MUST BE INSTALLED.

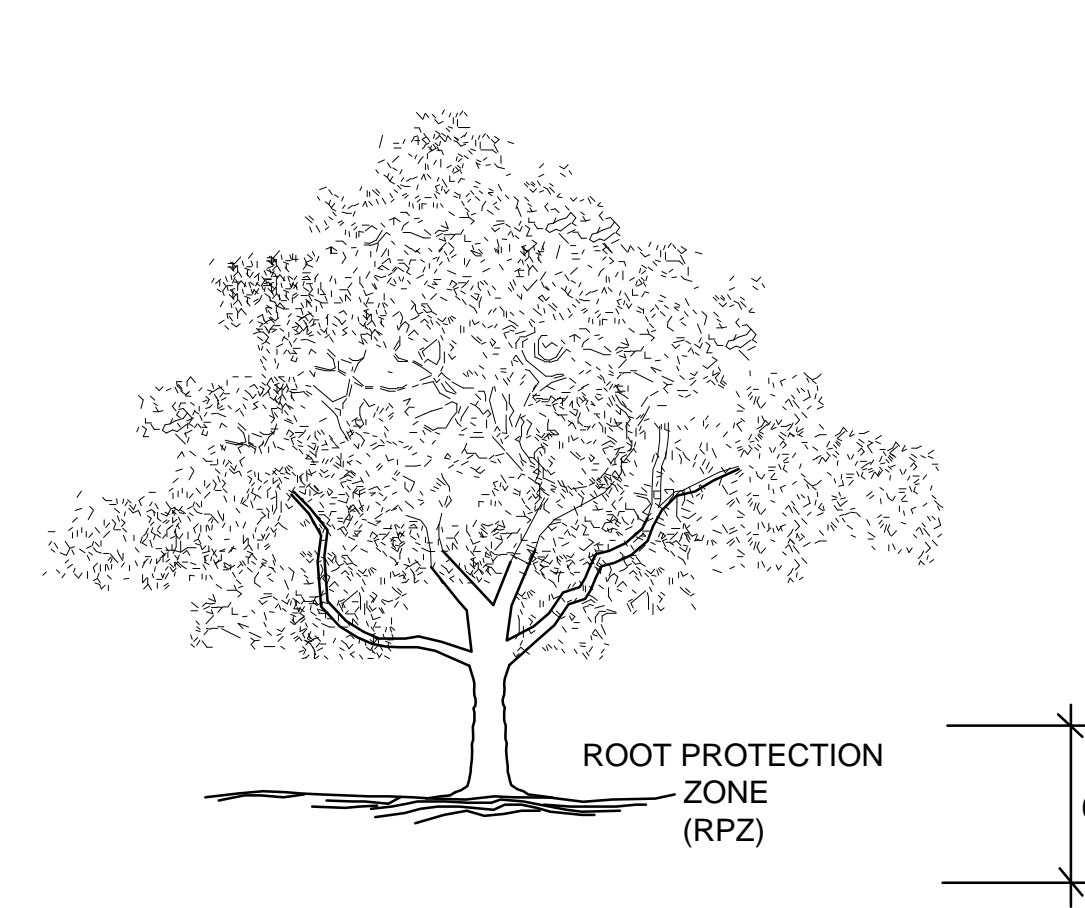
CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL TREE PROTECTION FENCING WHEN ALL THREATS TO THE EXISTING TREES FROM CONSTRUCTION-RELATED ACTIVITIES HAVE BEEN REMOVED.

## TREE PROTECTION REQUIREMENTS

- A ROOT PROTECTION ZONE WILL BE ESTABLISHED AROUND EACH TREE OR ANY VEGETATION TO BE PRESERVED. THE ROOT PROTECTION ZONE SHALL BE AN AREA DEFINED BY THE RADIUS EXTENDING OUTWARD FROM THE TRUNK OF THE TREE A DISTANCE OF ONE (1) LINEAR FOOT FOR EACH INCH DIAMETER INCH AT BREAST HEIGHT (4.5) OF THE TREE. EXAMPLE: A 10-INCH DIAMETER TREE WILL HAVE A 10 FOOT RADIUS ROOT PROTECTION ZONE.
- NO WORK SHALL BEGIN WERE TREE PROTECTION FENCING HAS NOT BEEN COMPLETED AND APPROVED. TREE PROTECTION FENCING SHALL BE INSTALLED, MAINTAINED AND REPAIRED BY THE CONTRACTOR DURING CONSTRUCTION. THE FENCING WILL BE A MINIMUM OF 4' HEIGHT.
- ALL ROOTS LARGER THAN ONE-INCH IN DIAMETER ARE TO BE CUT CLEANLY. FOR OAKS ONLY, ALL WOUNDS SHALL BE PAINTED WITH WOUND SEALER WITHIN 30 MINUTES.
- EXPOSED ROOTS SHALL BE COVERED AT THE END OF THE WORK DAY USING TECHNIQUES SUCH AS COVERING WITH SOIL, MULCH OR WET BURLAP.
- NO EQUIPMENT, VEHICLES OR MATERIALS SHALL BE OPERATED OR STORED WITHIN THE ROOT PROTECTION ZONE. NO CLEAN-OUT AREAS WILL BE CONSTRUCTED SO THAT THE MATERIAL WILL BE IN OR MIGRATE TO THE ROOT PROTECTION ZONE.
- NO GRADE CHANGE MORE THAN 3" IS ALLOWED WITHIN THE ROOT PROTECTION ZONE.
- ROOTS OR BRANCHES IN CONFLICT WITH CONSTRUCTION SHALL BE CUT CLEANLY ACCORDING TO PROPER PRUNING METHODS. ALL WOUNDS SHALL BE PAINTED WITHIN 30 MINUTES TO PREVENT OAK WILT INFECTION (OAK TREES ONLY).
- ANY TREE REMOVAL SHALL BE APPROVED BY THE LOCAL JURISDICTION'S ARBORIST.
- TREES WHICH ARE DAMAGED OR LOST DUE TO THE CONTRACTOR'S NEGLIGENCE DURING CONSTRUCTION SHALL BE REPLACED WITH TREE QUANTITIES AND SIZES ACCEPTABLE TO THE LOCAL JURISDICTION.
- TREES MUST BE MAINTAINED IN GOOD HEALTH THROUGHOUT THE CONSTRUCTION PROCESS. MAINTENANCE MAY INCLUDE WATERING THE ROOT PROTECTION ZONE AND/OR WASHING FOLIAGE.
- NO WIRES, NAILS OR OTHER MATERIALS MAY BE ATTACHED TO PROTECTED TREES.
- THE ROOT PROTECTION ZONE SHALL BE PRESERVED AT NATURAL GRADE. NO CUTTING, FILLING, TRENCHING, ROOT DISTURBANCE, SOIL DISTURBANCE, OR CONSTRUCTION SHALL OCCUR CLOSER TO THE TRUNK THAN ONE-HALF (1/2) THE ROOT PROTECTION ZONE RADIUS EXCEPT IN PARKING AREAS, WHERE APPROVED ALTERNATIVE MATERIALS AND METHODS MAY BE USED AND CONSTRUCTION MAY OCCUR AS CLOSE AS FIVE (5) FEET FROM THE ROOT FLARES ON ONE SIDE OF THE TREE. NATIVE UNDERSTORY VEGETATION WITHIN THE ROOT PROTECTION ZONE SHALL BE PRESERVED, HOWEVER THE REQUIREMENT DOES NOT APPLY TO ROOT PROTECTION ZONE AREAS THAT HAVE BEEN LANDSCAPED. THE ROOT PROTECTION ZONE MAY BE SHIFTED AND CLUSTERED AS LONG AS THERE IS NO CONSTRUCTION CLOSER TO THE TRUNK THAN ONE-HALF (1/2) THE ROOT PROTECTION ZONE RADIUS. THE CONSTRUCTION OF SIDEWALKS SHALL BE ALLOWED IN THE ROOT PROTECTION ZONE, AS LONG AS EXCAVATION DOES NOT EXCEED THREE (3) INCHES.
- DURING CONSTRUCTION ACTIVITY ON SITE, AT LEAST A SIX-INCH LAYER OF A COARSE MULCH SHALL BE PLACED AND MAINTAINED OVER THE ROOT PROTECTION ZONE. THE IMPERVIOUS COVER MAY ENCR OACH WITHIN THE ROOT PROTECTION ZONE IF SAID ENCR OACHMENT IS APPROVED BY THE ARBORIST.



**A** TREE PROTECTION FENCE - ELEVATION  
SCALE: NOT TO SCALE



6" MULCH INSIDE RPZ

### NOTES:

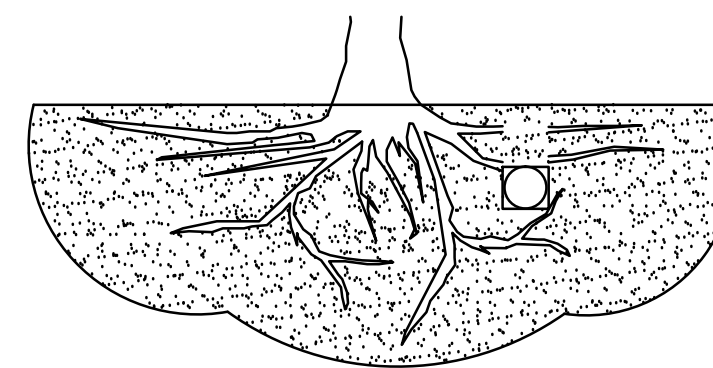
- THE FENCING LOCATION SHOWN ABOVE IS DIAGRAMATIC ONLY AND WILL CONFORM TO THE DRIP LINE AND BE LIMITED TO PROJECT BOUNDARY. WHERE MULTIPLE ADJACENT TREES WILL BE ENCLOSED BY FENCING, THE FENCING SHALL BE CONTINUOUS AROUND ALL TREES.
- FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

**B** TREE PROTECTION FENCE  
SCALE: NOT TO SCALE

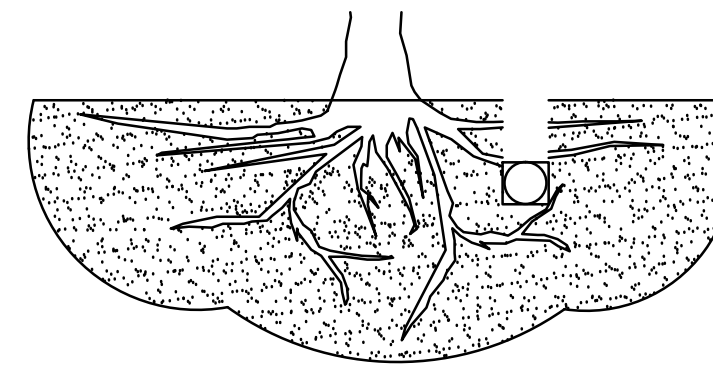
TREES THAT ARE MARKED TO BE PRESERVED ON A SITE PLAN AND FOR WHICH UTILITIES MUST PASS THROUGH THEIR ROOT PROTECTION ZONES MAY REQUIRE TUNNELING AS OPPOSED TO OPEN TRENCHES. THE DECISION TO TUNNEL WILL BE DETERMINED ON A CASE BY CASE BASIS BY THE ENGINEER.

TUNNELS SHALL BE DUG THROUGH THE ROOT PROTECTION ZONE IN ORDER TO MINIMIZE ROOT DAMAGE.

12" MIN & 48" MAX DEPTH

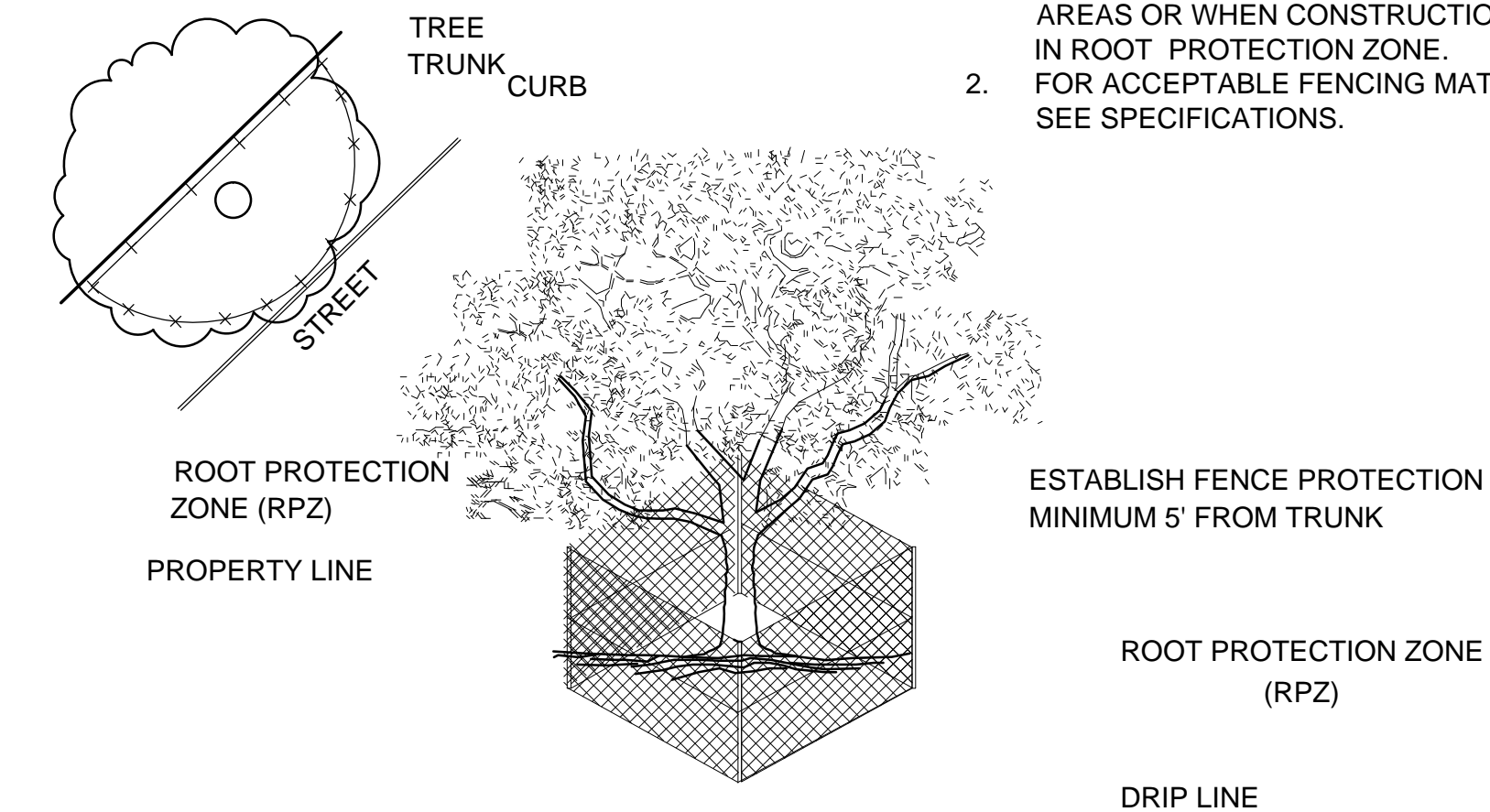


TUNNEL TO MINIMIZE ROOT DAMAGE (TOP) AS OPPOSED TO SURFACE-DUG TRENCHES IN ROOT PROTECTION ZONE WHEN THE 5' MINIMUM DISTANCE FROM TRUNK CAN NOT BE ACHIEVED.



OPEN TRENCHING MAY BE USED IF EXPOSED TREE ROOTS DO NOT EXCEED 3" OR ROOTS CAN BE BENT BACK.

**D** BORING THROUGH ROOT PROTECTION ZONE  
SCALE: NOT TO SCALE

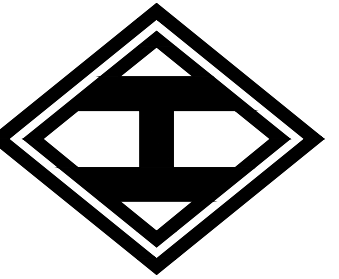


6" MULCH INSIDE RPZ  
IF BARE DIRT

8" MULCH OUTSIDE RPZ  
AND UNDER DRIP LINE AS MINIMAL  
PROTECTION FOR ROOTS FROM  
CONSTRUCTION ACTIVITIES

**C** TREE PROTECTION FENCE - LEVEL 2  
SCALE: NOT TO SCALE

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DATE: 09/28/2018

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SHEET NO:  
TS-2

TREE SURVEY