

MLK DRIVE TRAIL SPECIFICATIONS AND SPECIAL PROVISIONS

The work to be done under the scheduled items for this project shall comply with the requirements of the corresponding numerical Sections of the edition of Publication 408 shown below, including all addenda of the following Standard Specifications or as per specific requirements shown on the plans or special provisions:

- Pennsylvania Department of Transportation Standard Highway Specifications (Pub 408/2016), October 4, 2019.

Within Publication 408, wherever references are made to the Commonwealth, the Department or its employees, for the purpose of this contract it shall mean the **Philadelphia Parks and Recreation Department** and its corresponding employees, unless otherwise superseded by Law.

Special provisions, or modifications to the standard PennDOT specifications, are listed in the following pages.

SPECIAL PROVISIONS

ITEM 0802-0001 - TOPSOIL FURNISHED AND PLACED

This item shall comply with Sections 801, 802 and 803 of the Standard Highway Specification, with the following replacement:

Under 802.2 MATERIAL, replace the imported topsoil specification with the following:

- Topsoil to be imported to the project site shall be a sandy loam topsoil (as defined in USDA Soil Texture Classification) and be fertile, friable, well-drained, pH range of 6.0 to 6.5, free of subsoil, toxic substances harmful to plant growth, without clay lumps, stones, roots or debris. The imported topsoil shall have a mechanical analysis as follows:
 1. Sand: 35 percent to 40 percent.
 2. Clay: 15 percent to 20 percent.
 3. Organic Matter: 2.5 percent.
 4. Silt: Balance

ITEM 0810-0052 - SELECTIVE TREE REMOVAL

This item shall comply with Section 810 of the Standard Highway Specification, with the following additions:

- Prior to the start of tree removal activities, contractor is to mark with ribbon all trees to be removed and confirm in the field with Designer.
- Remove stumps or grind to a minimum depth of 12".

**ITEM 4901-0001, MAINTENANCE AND PROTECTION OF TRAFFIC DURING CONSTRUCTION,
LUMP SUM**

In accordance with Section 901 and as follows:

901.1 DESCRIPTION

Revise as follows:

This work consists of the maintenance and protection of traffic for all traveled roadways and trails within the construction area in accordance with PDT Publication 213, Section 901 of PDT 408, the drawings, the pavement marking handbooks and these special provisions.

This work includes providing for temporary pavement markings, temporary roadway lighting, temporary signals, lane striping, pedestrian walkways, flashers, flashing arrow boards, traffic cones, flaggers, delineators, barricades, temporary signs and all materials, equipment and labor necessary for the acceptable maintenance and protection of traffic as indicated on the drawings, or directed by the Engineer.

901.3 CONSTRUCTION

Add the following:

The contractor shall coordinate with the Philadelphia Streets Department for any temporary lane closures for construction staging. All closures shall comply with the conditions of this special provision. Philadelphia Parks and Recreation (PPR) will close the MLK Trail to all bicycle and pedestrian traffic. Signage will be developed by PPR to relay bicycle and pedestrian detours around the project site. While PPR will develop the wording and the format of the detour signage, the contractor will be responsible for the fabrication and posting of the signs according to PPR direction.

Pursue the work in a logical and expeditious manner with minimal period of disruption. In order to fulfill the intent of this requirement, coordinate activities with all other contractors and public utility companies operating in the area.

Provide for emergency, City sanitation, and delivery vehicle traffic through the work areas.

The following restrictions are to be implemented:

All travel lanes shall be open to traffic during the following hours: 6:00 AM to 9:00 AM and 3:00 PM to 6:00 PM. All jack-hammering operations cease at 5:00 PM unless authorized by the Engineer.

For all operations, do not block any cross street travel lanes during the hours of 6:00 a.m. to 9:00 a.m. and 3:00 p.m. to 6:00 p.m., Monday through Friday.

Maintain at least one lane of traffic (minimum of 12' wide) for each direction of moving traffic at all times for all streets. Open all existing travel lanes to traffic during non-working hours. Maximum vertical drop-off due to these operations is 1 ½".

Flaggers are required during shoulder and roadway repair operations.

In the event it becomes necessary to close a travel lane, it is to be done in accordance with 'Lane Closure Transition Requirement' from the Philadelphia Streets Department.

Jackhammer: Operations that require the use of a jackhammer, such as manhole and valve box resetting and pavement adjustments, are restricted to the period from 9:30 AM to 3:30 PM. The Contractor may be given the opportunity to perform jackhammer operations during other hours, only with the specific permission of the Engineer. This is considered on a location-specific basis. During these operations, maintain traffic as specified above.

The time elapsed between the start of excavation and the placement of the surface material for the new curb ramps within a particular corner of an intersection is not to exceed 7 calendar days for plain concrete quadrants and 10 working days for quadrants with exposed Aggregate, brick or other special paving.

Work may be suspended or work hours modified in the event there is an incident on I-95 or I-76 where the interstate highways are shut down for an indefinite period of time.

Do not perform any travel lane restrictions or perform any activities which impede traffic during the following periods:

Friday 6:00 A.M. through Monday 9:00 A.M. (Easter Weekend)

Friday 6:00 A.M. through Tuesday 9:00 A.M. (Memorial Day Weekend)

July 4, 6:00 A.M. through July 7, 9:00 A.M. (Independence Day Holiday)

Friday 6:00 A.M. through Tuesday 9:00 A.M. (Labor Day Weekend)

Wednesday 6:00 A.M. through Monday 9:00 A.M. (Thanksgiving Weekend)

December 23, 6:00 A.M. through December 26, 9:00 A.M. (Christmas Holiday)

December 30, 6:00 A.M. through January 4, 9:00 A.M. (New Year's Holiday)

Maintain access to adjacent properties at all times.

Provide "New Traffic Pattern Ahead" signs in advance of work areas where the existing traffic patterns are changed during construction.

Coordinate the construction activities with all other contractors operating in this area, whether under contract to the City of Philadelphia or public utility companies.

Designate an individual or individuals as the Maintenance of Traffic Engineer who is to be responsible for the maintenance of traffic items. The name, address, and phone number(s) where the Maintenance of Traffic Engineer can be reached at all times must be furnished to the Engineer.

The work is to be pursued in a logical expeditious manner which minimizes the time period for local access "under construction" to the community.

TRAFFIC CONTROL PLAN

Submit a Traffic Control Plan, Construction Schedule and Sequence of Curb Ramp Construction to the Engineer at the Pre-construction Meeting. The Engineer has ten (10) calendar days to accept or reject the Traffic Control Plan. Changes to the Traffic Control Plan must be submitted 20 calendar days prior to the start of the affected work. The Engineer has ten (10) calendar days to accept or reject the proposed changes.

In case a detour is determined to be necessary, provide a detour plan for review and approval by the City.

SEQUENCE OF CONSTRUCTION

Philadelphia Parks and Recreation will provide a list of special events within Fairmount Park and MLK Drive, where all construction equipment shall be removed from the street, parking lot(s), or adjacent park areas.

All construction is to be coordinated with special events. Special events list is subject to change; therefore the contractor is responsible to obtain the most recent list. Questions concerning this list shall be directed to the Right-of-Way Unit at 215-686-5500.

All work during the City's Holiday moratorium from November through January need to be approved by City's ROW Unit. Coordinate and obtain approval for all construction activities during this period from City's ROW Unit (Contact # 215-686-5500).

Notify City's Right of Way Unit at 215-686-5500, in writing ten (10) calendar days prior to implementing or changing traffic control phasing or details. Send notification by fax to (215) 686-5067 and by mail. Letters are sent to: City of Philadelphia, Right of way Unit, MSB, 1401 JFK Blvd., 9th Flr., Rm. 980, Philadelphia, PA 19102-1685.

RESTRICTIONS

When working adjacent to PECO Facilities, please follow the PECO minimum clearance requirements.

ADA Ramps:

A maximum of one corner per an intersection is to be closed for construction at any time unless an alternative sequence of ramp construction is approved by the City. If an alternative sequence of ramp construction is used, provide MPT in accordance with MUTCD. All Sequence of Construction, Temporary Pedestrian Access Route (TPAR) Plan, and Maintenance and Protection during curb ramp construction are to be in accordance with MUTCD and with the specification named 'MPT for Curb Ramp Construction' and is to be approved by City.

CERTIFICATION OF FLAGGERS

Flaggers must have successfully completed a PennDOT approved flagger training course within the last 3 years. Each flagger must carry a valid card containing the flagger name and signature, training source, and the date of course completion. A roster containing this information for all flaggers must be submitted to the Engineer prior to the start of flagging operations.

For information on the approved sources of training, contact Mr. Brian Fraley of the APC (Associated Pennsylvania Constructors) at (717) 238-2513.

WORKER SAFETY APPAREL

All workers comply with regulations set forth in Title 23 Code of Federal Regulations (CFR) part 634 effective 11-24-08, in regards to worker safety apparel.

Worker safety apparel are in accordance with Federal Highway Administration, DOT , Part 634, Worker Visibility.

901.4 MEASUREMENT AND PAYMENT

Add the following:

This item includes the cost of all necessary protective devices as specified in Publication 213 or as directed by the Engineer, and temporary sidewalk paving, temporary lane striping, temporary lighting and signalization facilities, curbs, approved ADA compliant barricades, flashers, flashing arrow boards, traffic cones, flaggers, delineators, and temporary signing and all materials, equipment and labor as necessary to provide a safe and efficient movement of traffic as herein specified and indicated on the drawings and any additional cost for complying with the sequence of construction as specified.

Replace in kind all signs or posts damaged during removal or reinstallation at no additional cost to the Department of Parks & Recreation (PPR).

ITEM 9000-1000, PAINT EXISTING STEEL RAILING, LINEAR FOOT

1 DESCRIPTION

This work is the cleaning and painting of existing metal railing using a three-coat system, including an organic zinc-rich primer. This work includes abrasive blasting/paint removal, waste disposal, soluble salt/chloride remediation, and application of the three-coat paint system.

2 MATERIAL

All materials shall be in accordance with the specified sections of the Pennsylvania Department of Transportation Standard Specifications and the contract specifications.

(a) Refer to Section 1070.2.

Color shall match existing fence paint color as described in the plans.

3 CONSTRUCTION

(a) Refer to Section 1070.3. The following paragraphs may be excluded:

1. 1070.3(c)9
2. 1070.3(d)7
3. 1070.3(d)8

4 MEASUREMENT & PAYMENT

Payment for cleaning and painting the fence shall be by the linear foot of fence, measured horizontally, and shall include all horizontal and vertical rails, base plates, and any other metal pieces associated with the railing.

ITEM 9000-1001, STEEL RAILING REPAIR, LINEAR FOOT

1 DESCRIPTION

This work is the removal of existing steel hand rail sections and the replacement of those sections with steel tubing of the same size.

2 MATERIAL

All materials shall be in accordance with the specified sections of the Pennsylvania Department of Transportation Standard Specifications and the contract specifications.

(a) Refer to Section 1022.2.

Painting of the railings shall be per Item 9000-1000.

3 CONSTRUCTION

Railings to be repaired shall be reviewed with Philadelphia Parks and Recreation personnel in the field prior to work. Contractor shall cut clean lines at repair limits with a chop saw or similar device.

Refer to Section 1022.3 for new railing installation. Welds shall be grinded smooth to ensure a seamless looking repair.

4 MEASUREMENT & PAYMENT

Payment for repairing the fence shall be by the linear foot of fence, measured horizontally, and shall include all horizontal and vertical rails, base plates, and any other metal pieces associated with the railing that need repair.

ITEM 9000-1002 – TREE TRIMMING ALONG TRAIL, LUMP SUM

DESCRIPTION – This work includes the trimming of existing tree branches as indicated.

CONSTRUCTION – As shown on the detail and as follows:

a. Prior to tree trimming, contractor must schedule a site visit with Tom Witmer with the City of Philadelphia Parks and Recreation Department (215-683-0216) to review proposed tree trimming. Schedule this visit at least two weeks prior to anticipated work.

Trim living branches, and dead or dying limbs and branches growing within the dimensional limits along the trail only as noted on the plans. Trim branches to the branch collar as shown on the Standard Drawing RC-92M.

Provide skilled workers to perform cutting and trimming, according to accepted arboricultural practices. Use acceptable tools and methods to perform the work. Do not use climbing spurs or spikes.

Treat work-related injuries to remaining trees and shrubs, regardless of species, according to accepted arboricultural practices at no additional cost to the City.

b. Surrender Material. Trees and branches resulting from the removal and/or trimming operation must be disposed of by the contractor. Coordinate with Philadelphia Parks and Recreation in the event that the City will accept tree and branch debris for mulching operations. Transport wood chips to approved stockpile areas that will not interfere with construction operations, obstruct drainage, or cause water pollution.

c. Maintenance. Until the project is completed, properly maintain selective tree removal and trimming, including retreatment of sucker growth, the removal of wind-thrown trees and plants or parts of plants, which die from any cause.

MEASUREMENT AND PAYMENT– Lump Sum

ITEM 9000-1003 - CONCRETE POST AND SPLIT RAIL FENCE, LINEAR FOOT

DESCRIPTION – This work includes the installation of concrete post and split rail fencing along sections of the proposed trail shoulder.

MATERIAL -

- Class AA Cement Concrete – Section 704
- Cedar Rails as indicated

CONSTRUCTION – As shown on the detail and as follows:

Before erection ensure the excavated hole has been protected from rain and drainage to avoid ground settling around the post location.

All cedar rails are to be inspected prior to installation to ensure all rails are in good working order and have not structural deficiencies such as wood rot and cracks.

Provide shop drawings for proposed precast fence posts prior to fabrication.

MEASUREMENT AND PAYMENT– Linear Foot

ITEM 9000-1004 –12" WIDE POLYMER DIRECTIONAL INDICATOR TILE, EACH

1 DESCRIPTION

This section specifies furnishing and installing Polymer Detectable Directional Bar Tiles where indicated.

2 MATERIAL

Paver Block:

- a) The Access Tile Directional Wayfinding Tile, Replaceable Cast in Place, 12"x12", manufactured by ACCESS® TILE, 241 Main Street, Suite 100, Buffalo, NY 14203, Phone: 888-679-4022, accesstile.com/wayfinding/
- b) Color: Yellow conforming to Federal Yellow Color No. 33538. Color shall be homogeneous throughout the tile.

3 CONSTRUCTION

Submittals –

- a) Product Data: Submit manufacturer's literature describing products, installation procedures and routine maintenance.
- b) Shop drawings are required for products specified showing fabrication details, composite structural system, tile surface profile, fastener and anchor locations, plans of tile placement including joints, and material to be used as well as outlining installation materials and procedure.
- c) Maintenance Instructions: Submit copies of manufacturer's specified installation and maintenance practices for each type of Detectable Directional Bar Tile and accessories as required.

Examination - Verify Site Conditions. General contractor shall inspect and certify in writing to installer that site conditions meet the following prior to installation of tile.

- a) Remove organic, unstable or unconsolidated material from the site.
- b) Verify conformance of subgrade preparation and elevations to specified requirements
- c) Verify subbase and base conformance to specified requirements. Do not use setting bed material to correct deficiencies in base course surface.
- d) Verify written density test results for soil sub grade and sub base course.
- e) Verify type, location and elevations of edge restraints, utility structures and drainage inlets.
- f) Verify that the concrete subbase course is ready to support bedding material, pavers and imposed loads.
- g) Do not proceed with bedding course or paver installation until satisfactory sub grade soils are verified by contractor.

- h) Verify that the area is free from standing water and certified by general contractor as meeting material, installation and grade specifications.

Site conditions -

- a) Environmental Conditions and Protection: Maintain minimum temperature of 40°F in spaces to receive Replaceable Cast In Place Detectable Directional Bar Tiles for at least 24 hours prior to installation, during installation, and for not less than 24 hours after installation.
- b) The use of water for work, cleaning or dust control, etc. shall be contained and controlled and shall not be allowed to come into contact with the general public. Provide barricades or screens to protect the general public.

Installation –

- a) During Replaceable Cast in Place Detectable Directional Bar Tile installation procedures, ensure adequate safety guidelines are in place and that they are in accordance with the applicable industry and government standards.
- b) Prior to placement of the Replaceable Cast in Place Detectable Directional Bar Tile system, review manufacturer's instructions and contract drawings with the Contractor prior to the construction and refer any and all discrepancies to Project Engineer.
- c) The specifications and related materials shall be in strict accordance with the contract documents and the guidelines set by their respective manufacturers. Not recommended for asphalt applications.
- d) The physical characteristics of the concrete shall be consistent with the contract specifications while maintaining a slump range of 4-7 to permit solid placement of the Replaceable Cast in Place Detectable Directional Bar Tile system. An overly wet mix will cause the tile to float. Under these conditions, suitable weights such as sandbags are specific to the installation of the Replaceable Cast in Place Detectable Directional Bar Tile system.
- e) The concrete pouring and finishing operations require typical mason's tools, however, a 4' long level with electronic slope readout, and sandbags are specific to the installation of the Replaceable Cast In Place Detectable Directional Bar Tile system.
- f) The factory-installed plastic sheeting must remain in place during the entire installation process to prevent the splashing of concrete onto the finished surface of the tile.
- g) When preparing to set the tile, it is important that no concrete be removed in the area to accept the tile. It is imperative that the installation technique eliminates any air voids under the tile. Gaps in the tile perimeter allow air to escape during the installation process.
- h) The concrete shall be poured and finished true and smooth to the required dimensions and slope prior to the tile placement. Immediately after finishing concrete, the electronic level should be used to check that the required slope is achieved. The tile shall be placed true and square in accordance with the contract drawings. The Replaceable Cast In Place Detectable Directional Bar Tiles shall be tamped (or vibrated) into the fresh concrete to ensure that the field level of the tile is flush to the adjacent concrete surface. The embedment process should not be accomplished by stepping on the tile as this may cause uneven setting which can result in air voids under the tile surface. The contract drawings indicate that the tile field level (base of truncated dome) is flush to adjacent surfaces to permit proper water drainage and eliminate tripping hazards between adjacent finishes.

- i) Immediately after placement, the tile elevation is to be checked to adjacent concrete. The elevation and slope should be set consistent with contract drawings to permit water drainage. Ensure that the field surface of the tile is flush with the surrounding concrete so that water ponding is not possible.
- j) While concrete is workable, a 1/8" radius edging tool shall be used to create a finished edge of concrete, then a steel trowel shall be used to finish the concrete around the tile's perimeter, flush to the field level of the tile.
- k) During and after the tile installation and the concrete curing stage, it is imperative that there is no walking, leaning or external force placed on the tile that may rock the tile causing a void between the underside of tile and concrete.
- l) Following tile placement, review installation tolerances to contract drawings and adjust tile before the concrete sets. Suitable weights may be required to be placed on each tile as necessary to ensure solid contact of the underside of tile to concrete.
- m) Following the concrete curing stage, protective plastic wrap is to be removed from the tile surface by cutting the plastic with a sharp knife, tight to the concrete/tile interface. If concrete bled under the plastic, a soft brass wire brush will clean the residue without damage to the tile surface. Tiles must be cut at concrete expansion joints.

Replacing Tiles, Protecting and Maintenance-

- a) Protect tiles against damage during construction period to comply with Tactile Tile manufacturers' specification.
- b) Protect tiles against damage from rolling loads following installation by covering with plywood or hardwood.
- c) Replace tiles by method specified by tactile manufacturer.
- d) Comply with manufacturer's maintenance manual for cleaning and maintaining tile surface. It is recommended to perform annual inspections for safety and tile integrity.

4 MEASUREMENT AND PAYMENT – Each

The each unit cost of the directional indicator block shall include all labor and materials needed to install the pavers. Concrete base for the block shall be paid under the appropriate sidewalk bid items.

9000-1005 – REPLACE CENTER GATE POST

DESCRIPTION – This work is for the removal of the current center post at roadway gates and for the furnishing and installing of a new post as shown on the drawings.

MATERIAL -

- Cement Concrete - Class A, Section 704
- Steel Tube and Parts – Section 1105
- Paint – Section 1060, color to match remaining existing gate system
- Reflective Tape – Outdoor rated, white

CONSTRUCTION -

The contractor shall submit shop drawings including plan layout, elevations and details illustrating gate height, location and sizes of posts, rails, footings, hardware items, and any special accessories.

The contractor shall verify areas to receive fencing are completed to final grades and elevations. Ensure existing underground utilities are located and clearly established.

Gate posts and hardware: Set keepers, stops, and sleeves into concrete. Check each post for vertical and top alignment, and maintain in position during placement and finishing operations.

Install gates plumb, level, and secure for full opening without interference.

Attach hardware by means that will prevent unauthorized removal. Adjust hardware for smooth operation.

After installation of new gate post, remove existing center gate post and backfill hole to grade. Existing gate systems shall not be without a center gate post during construction. Contractor is responsible for disposal of the existing gate post and concrete footing.

MEASUREMENT AND PAYMENT – Each, including installation of new steel post and concrete foundation, and removal and disposal of existing post.

ITEM 9000-1006, SEEDING, POUNDS

1 DESCRIPTION

In accordance with Section 804.1.

2 MATERIAL

In accordance with Section 804.2, except for the following:

- Replace Table A with:

Seed Type	Proportion by Weight	Minimum Purity	Minimum Germination
1. Turf-Type Tall Fescue	60%	95%	80%
2. Perennial Rye Grass	30%	95%	85%
3. Kentucky Blue Grass	10%	90%	80%

Seeding Rate: 48 lbs per 1000 square yards

3 CONSTRUCTION

In accordance with Section 804.3 except:

- Install seeding between March 15 to June 1 and August 1 to October 15

4 MEASUREMENT & PAYMENT

In accordance with Section 804.4.

ITEM 9000–1007 – TREE PROTECTION, LINEAR FOOT

1 DESCRIPTION – This work includes general protection of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.

2 MATERIAL

- 1) 4' height tree protection fencing consisting of:
 - a) Posts: 1 ¾" x 1" 13 GA U-Channel steel posts
 - b) Plastic Barrier Fabric Infill: high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties on protection fencing posts.
 - i) Color: High-visibility orange, nonfading.

3 QUALITY CONTROL

- 1) Prior to the start of tree removal activities, contractor to mark with ribbon all trees to be removed and confirm in the field with Designer.
- 2) Inspections: Engage Philadelphia Parks and Recreation in-house arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain.
- 3) If tree roots over 2" are encountered within proposed improvements, notify Philadelphia Parks and Recreation and Designer prior to cutting or disturbing roots in any way.
- 4) If proposed grading impacts existing tree protection zones by more than 2" of fill, notify designer prior to proceeding with work.

4 CONSTRUCTION – As shown on the drawings and as follows:

- 1) Preparation
 - a) Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.
 - b) Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
 - c) Tree Protection Fencing: Set or drive posts into ground to a minimum three (3) foot depth without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Owner.

- d) Maintain protection zones free of weeds and trash.
- e) Maintain all protection zone fencing in good condition as acceptable to Owner and remove when construction operations are complete and equipment has been removed from the site.
- f) Do not remove Tree Protection Fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
- g) Any work within tree protection fencing will need to be authorized by Owner and Designer.

2) Excavation

- a) Excavation within Protection Zones or under existing tree canopy: Where excavation is required within protection zones or under existing tree canopy, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of proposed work. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. If tree roots over 2" are encountered within proposed improvements, notify Philadelphia Parks and Recreation and Designer prior to cutting or disturbing root in any way.
- b) Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.
- c) Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3) Root Pruning

- a) Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows, unless arborist has provided detailed written instructions specific to the trees at this location.
- b) Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
- c) Cut Ends: Coat cut ends of roots more than 1-1/2 inches in diameter with an emulsified asphalt or other coating formulated for use on damaged plant tissues and that is acceptable to arborist.
- d) Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
- e) Cover exposed roots with burlap and water regularly.
- f) Backfill as soon as possible according to the requirements of other sections.

- g) Root Pruning at Edge of Protection Zone: Prune tree roots 12 inches outside of the protection zone by cleanly cutting all roots to the depth of the required excavation.
 - h) Root Pruning within Protection Zone or Under Existing Tree Canopy: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.
- 4) Regrading
- a) Lowering Grade within Protection Zones: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist unless otherwise indicated.
 - b) Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. If tree roots over 2" are encountered within proposed improvements, notify Philadelphia Parks and Recreation and Designer prior to cutting or disturbing root in any way.
 - c) Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone as recommended by arborist, unless otherwise indicated on drawings. Maintain existing grades within the protection zone.
 - d) Temporary Minor Fill within Protection Zones: Where existing grade is 2 inches or less below elevation of finish grade, temporarily fill with specified soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.
- 5) Repair and Replacement
- a) General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Owner.
 - i) Submit details of proposed pruning and repairs.
 - ii) Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
 - iii) Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Owner.
 - b) Trees: Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition or are damaged during construction operations that Owner determines are incapable of restoring to normal growth pattern.
 - i) Replacement Trees: Provide new trees of same size and species as those being replaced for each tree that measures 4 inches or smaller in caliper size.
 - ii) Restitution Planting: Provide new tree(s) of 4-inch caliper size for each tree being replaced that measure more than 4 inches in caliper size. Provide one additional tree for each 4-inch caliper increment above 4". For example, a 6-inch caliper restitution credit would equal two (2) 4-inch caliper trees. Tree shall be planted at same location or elsewhere within the project as indicated by Owner or Designer.
 - iii) Species: As selected by Owner or Owner's Representative.
 - iv) Newly planted trees shall be warranted by the contractor for a period of one year.

5 MEASUREMENT AND PAYMENT– Linear Foot of Tree Protection Fence.

ITEM 9000–1008 – REPAIR OF WOOD SLAT FENCE, LINEAR FOOT

1 DESCRIPTION – This work includes repair of the wood slat fence, which contains missing and broken slats and posts.

2 MATERIAL

- All structural solid wood components shall comply with the American Institute for Timber Construction “Standard for Heavy Timber Construction” AITC 108 as applicable.
- Posts and rails 5” and larger shall be pressure treated southern yellow pine grade 1 or better with a minimum Fb of 1350 psi, and shall conform to AASHTO Standard M 168 of Wood Products. Preservatives and Pressure Treatment Process shall be in accordance with AASHTO Standard M 133 and American Wood-Preservers’ Association (AWPA) standards. Pressure treated timber components shall be Chromated Copper Arsenate (CCA) with minimum retentions of 0.60 lbs/c.f.
- Posts and rails 2”-4” thick shall be pressure treated southern yellow pine grade 1 or better with a minimum Fb of 1250 psi, and shall conform to AASHTO Standard M 168 of Wood Products. Preservatives and Pressure Treatment Process shall be in accordance with AASHTO Standard M 133 and American Wood-Preservers’ Association (AWPA) standards. Pressure treated timber components shall be free of arsenic and shall be Alkaline Copper Quaternary Type D.
- Components in direct contact with the soil shall be use condition UCB-4B, with minimum retentions of 0.6 lbs/cf.
- Other framing and handrail components not in direct contact with the soil shall be use condition UCB-3B, with minimum retentions of 0.15 lbs/cf.
- All timber should be dressed cut S4S (surfaced four sides).
- All fasteners to be in accordance with AASHTO Standard M 253 and shall be appropriate for selected timber and associated treatment methods.
- Concrete used for foundations is to be Class A per Section 704.

3 CONSTRUCTION – Install as indicated, and as follows:

Coordinate with Philadelphia Parks and Recreation Staff to identify sections of fence to be replaced.

Set fencing straight and true, tight and secure, and follow the ground line. Remove obstructions that interfere with the erection of the fence.

Install rails, beams and slats where pieces of existing fence are missing, as indicated in the plans. Existing fence pieces in good repair are to remain.

Nail fence slats to rails, beams and framework accordingly. Bolt attachments between posts, beams, rails and other framework as identified on the plans and details. Upset threads after nuts have been tightened to prevent their removal.

5 MEASUREMENT AND PAYMENT– Linear Foot

ITEM 9000-1009 – WHITE PREFORMED THERMOPLASTIC LEGEND, "BICYCLE ARROW", 6'-0" x 2'-0", EACH

1 DESCRIPTION – This work includes the installation of preformed thermoplastic arrows on new asphalt pavement.

2 MATERIAL – Section 965.2

3 CONSTRUCTION – Section 965.3

5 MEASUREMENT AND PAYMENT– Each price includes one arrow.

ITEM 9000-1010, 8" HDPE FRENCH DRAIN, LINEAR FEET

1 DESCRIPTION

Work includes all excavation, labor, materials, and equipment necessary to install the French drain and appurtenances per the plans.

2 MATERIALS

- a) Perforated HDPE Pipe – Single wall corrugated HDPE pipe to meet ASTM F667. Submit to engineer for approval.
- b) Filter Sock – Wrap HDPE pipe in a Class 1 geotextile as specified in Section 735. Wrap the geotextile completely around the drainage core with the seam along the length of the drain. Fabricate the seam using a non water-soluble adhesive, if adhesive is used.
- c) Fittings: Use HDPE fittings by approved manufacturer that meet ASTM F667.
- d) Cleanouts: Install in-line wye at locations indicated, with vertical riser to a surface cap. Submit to engineer for approval.

3 CONSTRUCTION

As shown on the plans and details and as follows:

- a) Excavation. Excavate as required. Dispose of excavated material per contaminated fill requirements.
- b) Install wrapped HDPE pipe in gravel trench. Backfill with specified depth of gravel. Ensure positive drainage for pipe to outfall.
- c) Tree roots: The health of the existing trees are vital to the park. The contractor shall not cut any tree roots over 6" in diameter. Hand dig and place the pipe under any large roots. Tree roots smaller than 6" should be cut with a clean, oblique cut, and shall only be cut at the trench location, not any closer to the tree.
- d) Backfill trench immediately with geotextile and topsoil to avoid any fines from entering the stone trench.
- e) Allow stone in trench to sufficiently settle, but do not compact by mechanical means or with construction equipment and vehicles, except:
 - a. Where the French drain crosses under a pavement section, compact the stone to allow for a stable base for pavement construction.If required, backfill trench with more topsoil as settlement occurs.

4 MEASUREMENT AND PAYMENT – Linear Foot

The linear foot cost shall include all excavation, pipe, pipe sock, pipe fittings and appurtenances such as tees and caps. #57 stone and geotextile fabric at the perimeter of the trench will be paid for separately by those items.

ITEM 9000-1011, CLEAN EXISTING INLET, EACH

1 DESCRIPTION

Work includes cleaning debris out of existing inlets to return inlet to serviceable use.

3 CONSTRUCTION

At the locations indicated in the plans, contractor shall remove the existing inlet grate or manhole at the top of the structure and clean out all debris and sedimentation by vacuum truck, manual hand digging, or other acceptable means. The contractor will be responsible for any damage that occurs to the inlet, pipe, or trap during cleaning. Contractor shall employ proper lane closure in accordance with the special provisions prior to starting work. All debris and sedimentation that is collected shall be legally disposed of by the contractor.

4 MEASUREMENT AND PAYMENT – Each

ITEM 9000-1012, FILL ABANDONED INLET, EACH

1 DESCRIPTION

Work includes installing fill material in existing inlet to remove from service.

2 MATERIAL

- #57 Stone (Clean washed): Section 703
- Class 4, Type A Geotextile Fabric: Section 735

3 CONSTRUCTION

At the locations indicated in the plans, contractor shall open and dispose of top of inlet. Place geotextile fabric at outfall pipe opening to prevent the escape of backfill. Backfill inlet with #57 stone up to 6" below finished grade. Place geotextile fabric securely on top of stone layer and backfill with topsoil.

4 MEASUREMENT AND PAYMENT – Each

Payment includes #57 stone and geotextile for inlet abandonment.

9000–1013 – COLLAPSIBLE BOLLARD

DESCRIPTION – This work includes the furnishing and installation of collapsible bollards as indicated and as directed.

MATERIAL – As indicated and as follows:

- Pipe Bollard – Steel ASTM A500
- Class A Concrete - Section 704
- Reinforcing – Section 709
- Caulking Compound - Section 705.8
- Joint Backing Material - Section 705.9
- Washer, Nut and Bolts, Section 1105.02 (a) 1.

CONSTRUCTION –

As indicated and as follows:

General –

After each erection and alignment, seal openings between metal surfaces and concrete using a ½" expansion joint. After the concreting and other operations have been completed, thoroughly clean all surfaces. Remove accumulations of oil, grease, dirt or foreign materials using a solvent cleaner.

Submit shop drawings to Engineer for approval.

Submit color samples to the Engineer prior to painting. Bollard shall be powder coated yellow.

MEASUREMENT AND PAYMENT– Each