

License No.: TEL-2019-01

**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION
FORM SMALL CELL LICENSE AGREEMENT**

PARTIES

This Small Cell License Agreement (“License”) is a revocable license issued by the Commonwealth of Massachusetts, acting by and through its Department of Conservation and Recreation (“DCR”), with a principal place of business located at 251 Causeway Street, Boston, Massachusetts 02114, to [NAME OF LICENSEE] (“Licensee”), with a principal place of business located at [ADDRESS], and a mailing address of [MAILING ADDRESS]. DCR and Licensee are each a Party to this License and are collectively referred to herein as the Parties.

PURPOSE

The purpose of this License is to allow the Licensee to install certain Small Wireless Facilities (referred to herein interchangeably as Small Wireless Facilities or Small Cells), Structures, and related equipment at certain Locations within Rights of Way (“ROWS”), as those terms are defined in 302 CMR 19.00, which are on land in the care, custody and control of DCR, as more particularly described below.

AUTHORITY

DCR issues this License pursuant to the authority set forth in G. L. c. 132A, §§ 2D and 7, c. 92, §§ 33 and 37, and DCR’s rules and regulations promulgated under title 302, including in particular 302 CMR 19.00, 304 and 350 of the Massachusetts Code of Regulations, and all other powers enabling and applicable.

1. TERM

The Term of this License shall be a period of ten (10) years, commencing upon the latest date on which this License is fully executed by the parties hereto (the “Commencement Date”) and expiring after a period of ten (10) years.

2. FEES

- a. Licensee shall pay to DCR an annual fee of [\$_____] (the “Annual Fee”), which amount is based on the following:
 - i. \$270 per year for each Small Cell on DCR-owned Structures; and
 - ii. \$100 per year for each Small Cell on Structures owned by the Licensee or by a third party.

- b. Payments of the Annual Fee shall be made as follows: The Annual Fee payment for Year 1 shall be made within thirty days of the Commencement Date, and Annual Fee payments for each subsequent year shall be made no later than thirty days after the start of each subsequent year during the Term of this License up to the first full year after the removal of the Small Cell or Structure, if applicable, and the removal of all related equipment from the ROW.
- c. Checks shall be made payable to the “Commonwealth of Massachusetts” and mailed to the address on any invoice provided to Licensee, or, in the case of no invoice, to: Department of Conservation and Recreation, ATTN: Revenue Director, Re: [LICENSE NUMBER], 251 Causeway Street, Suite 600, Boston, MA 02114.
- d. If Licensee desires to pay by electronic fund transfer (EFT), the payment must include the Licensee’s Vendor Code Number, and an e-mail confirmation of the payment must be sent to the DCR Finance Office/Revenue Unit. To obtain a vendor code, fill out the form at this link: https://massfinance.state.ma.us/VendorWeb/EFT_FORM.pdf and send it together with a 2009 Massachusetts Substitute Form W-9 to the attention of the DCR Revenue Unit at the address set forth above.

3. AUTHORIZED USES

- a. The Licensee is hereby authorized, and hereby agrees, to access and occupy the ROW or structures within the ROW for the purpose of installing Small Wireless Facilities, Structures, and related equipment, at the Locations identified in, and in a manner that fully complies with, Licensee’s Application for same received by DCR on [DATE] and approved by DCR on [DATE], and 302 CMR 19.00. Licensee’s approved Application is attached hereto and incorporated herein as **Exhibit A**.
- b. If Licensee is approved to remove any DCR-owned structure(s), Licensee shall transport and deliver said structure(s) to such site(s) as may be specified by DCR.
- c. Licensee shall identify any existing equipment at any approved Location(s) and contact the owner of said equipment to coordinate any necessary removal and/or re-set of such equipment (e.g., law enforcement cameras, banners and banner holders, planters, signs, etc.).
- d. Licensee shall provide DCR with final as-built plans for all approved and installed Small Wireless Facilities and Structures no later than sixty (60) calendar days after installation is complete.
- e. The Licensee hereby agrees not to make any change, addition, reconfiguration or replacement of a Small Cell or, if applicable, a Structure, or related equipment in any way that increases the size, weight, or wind load of the Small Cell, Structure, or equipment, or which does not otherwise comply with the provisions of this License without the prior written approval of DCR. If a Licensee is found to have any equipment at any Location not authorized by this License, other than equipment installed pursuant to DCR’s written

approval, upon written notice from DCR, the Licensee shall take immediate action to discontinue the non-permitted use and remove any and all associated equipment. Failure to remove such equipment and end the use thereof shall be deemed a material breach of this License and the approval for the Location will automatically and immediately be revoked. Licensee's obligation to pay an Annual Fee shall survive termination of this License in accordance with the provisions of Section 2(b) above.

- f. Any installation, change, addition, reconfiguration, or replacement of a Small Cell or, if applicable, a Structure, or related equipment, approved by DCR pursuant to this Section 3, which require excavation (including for fencing), or the use of mechanized equipment, must comply with the Restoration Specifications and Requirements for DCR Parkways and Sidewalks as set forth in **Exhibit B**, which is attached hereto and incorporated herein by reference. In addition, the Licensee hereby agrees that all plans for such approved installations, changes, additions, reconfigurations or replacements will be reviewed and stamped by licensed professional engineers at Licensee's sole cost and expense. All construction shall be performed in a professional manner by competent, properly insured contractors.
- g. All work to replace damaged or deteriorated shafts of existing DCR street lights or light poles must be performed in accordance with the Light Pole Specifications set forth in **Exhibit C**, which is attached hereto and incorporated herein by reference. For any new Structure that replaces a light pole with an existing shield, the new Structure must have a comparable shield. For any installation of a Small Cell on an existing light pole with an existing shield, the shield must be left intact or a comparable shield must be installed.
- h. Any new Structure that will be placed in an area that is not paved must be placed on a concrete pad, as approved by DCR.
- i. If Licensee does not commence the installation(s) authorized by this License at any approved Location within six (6) months of the date on which this License is signed by DCR, the approval for such installation at such Location shall be revoked. If Licensee timely commences an installation authorized by this License, but does not complete any such installation within twelve (12) months of the date on which this License was signed by DCR, the approval for such installation at such Location shall be revoked, and Licensee shall promptly remove all of its equipment from such Location. In the event approval for any Location is revoked in accordance with this subsection, Licensee may not submit a new Small Cell application to reapply for a License for that Location within six (6) months from the date of revocation or from the date the equipment is fully removed by Licensee, whichever is later. If Licensee does not remove its equipment within thirty (30) calendar days after being requested to do so in writing by DCR, DCR may remove and dispose of the equipment without any liability to Licensee. Licensee will not be eligible for any other Licenses or permits from DCR until restitution is made for the necessary and reasonable costs actually incurred by DCR for such removal and disposal. Such costs shall include, but not be limited to, staff time.
- j. Licensee's name shall appear on every Small Cell or Structure, if applicable, in a font size of between one-half and one inch in height for location identification purposes. No advertising shall be permitted on a Small Cell or Structure.

- k. In no event shall Licensee commence any installation, including any DCR-approved change, addition, reconfiguration or replacement, of a Small Cell or, if applicable, a Structure, or related equipment, prior to the date on which this License is fully executed by both Parties.

4. REQUIRED CERTIFICATES, PERMITS, LICENSES AND OTHER APPROVALS

This License is expressly conditioned upon the Licensee obtaining for each Location all certificates, permits, licenses and other approvals that may be required by any other federal, state and local authority, or any other entity, including, but not limited to, other owners of Structures within the ROW, prior to the commencement of any installation, including any DCR-approved change, addition, reconfiguration or replacement, of a Small Cell or, if applicable, a Structure, or related equipment. If any application for such certificates, permits, licenses or other approvals, including, but not limited to, zoning approval, is rejected, withdrawn, expires, lapses, or is terminated by any governmental authority or by the owner of a Structure upon which the Licensee seeks to attach a Small Cell, Licensee shall immediately notify DCR in writing and the approval for such Location(s) shall be immediately and automatically revoked, and Licensee shall promptly remove its equipment from such Location(s). In the event approval for any Location is revoked in accordance with this Section, Licensee may not submit a new Small Cell application to reapply for a License for that Location within six (6) months from the date of revocation or from the date the equipment is fully removed by Licensee, whichever is later. If Licensee does not remove its equipment within thirty (30) calendar days after being requested to do so in writing by DCR, DCR may remove and dispose of the equipment without incurring any liability to Licensee. Licensee will not be eligible for any other Licenses or permits from DCR until restitution is made for the necessary and reasonable costs actually incurred by DCR for such removal and disposal. Such costs shall include, but not be limited to, staff time.

5. PROPERTY ACCESS AND MAINTENANCE

- a. Subject to the provisions of 302 CMR 19.04(4)(q), the Licensee shall notify the DCR staff listed in Section 23 of this License at least ten (10) business days before the Licensee and its consultants, agents, or contractors access any Location to conduct either routine or non-routine work (i.e., work involving large trucks, cranes, excavation of any sort, major building, etc.). Licensee shall comply with any other reasonable notification arrangements set by DCR staff. The Licensee agrees and acknowledges that neither it nor its consultants, agents, or contractors has authorization to use other structures or equipment not identified in this License that may also be located on nearby DCR property. In the event of an emergency affecting Licensee's Small Cell, Structure, or related equipment, Licensee and its consultants, agents and contractors may access the Location(s) and perform necessary repairs to its equipment and to the Structure, including removal of a damaged Structure, with prior notice to DCR. Licensee shall seek any required approval of permits as soon as practicable in the circumstances. All emergency work shall be conducted in a safe and good workmanlike manner and in accordance with all applicable codes, regulations, and laws.
- b. To the extent that the Licensee's use of DCR property is authorized by this License, the Licensee may have the right to utilize any existing DCR ROWs, access licenses, or easements to gain access to any Location for the limited purpose of performing installation,

maintenance and repairs to its approved Small Wireless Facilities, Structures, and related equipment. The Licensee shall be responsible, at its sole cost and expense, for maintaining and repairing its Small Wireless Facilities, Structures, and related equipment. The Licensee may not make improvements on the land under or leading to any Location without the prior written approval of DCR, which DCR may grant or withhold at its sole discretion.

- c. DCR does not warrant or represent that access to the Location(s) will remain open and passable at all times and seasons of the year. Normal property maintenance by DCR will not include snow plowing or sanding of any access. Access in periods of inclement weather may be arranged through the DCR, at the sole cost and expense of the Licensee.
- d. In addition to the fees set forth in Section 2 above, the Licensee shall pay restitution to DCR for the amount of reasonable and necessary costs actually incurred by DCR for maintenance and repairs which arise solely from work described above in this Section 5.

6. UTILITIES AND TAXES

- a. The Licensee shall not make any claims against DCR for loss of electrical power or other utilities due to damaged power lines or poles regardless of the length of time of the outage as such losses are generally beyond the authority and scope of DCR to rectify. The Licensee shall not obstruct or interfere with electrical or other utility or telecommunications service to DCR or any other permitted user's equipment.
- b. The Licensee shall be solely responsible for the payment of any applicable taxes and utilities arising from or in connection with its authorized activities and uses hereunder. The Licensee hereby agrees to arrange for the installation of and payment for a separate electrical meter for all of its electricity consumed at the Location(s) and to pay all such electricity and utility bills directly to the provider. Upon request of DCR, Licensee shall provide proof of arrangements and payment. Licensee shall provide DCR's Engineering Department with a copy of any new electrical service application documents, utility company plans, and notice of the proposed installation schedule. Upon termination of this License, Licensee shall provide DCR with the account information for such provider.

7. TERMINATION BY LICENSEE

Provided that the Licensee is not in default of any obligations hereunder and has paid all fees and sums due and payable to DCR, the Licensee may terminate this License upon at least sixty (60) days' prior written notice to DCR.

8. TERMINATION BY DCR

- a. This is a revocable license, and, therefore, DCR may terminate this License at any time and for any reason upon written notice to the Licensee.
- b. In addition, and without waiving any other rights granted at law or in equity, DCR shall have the right, but not the obligation, to terminate this License if the Licensee fails or has failed to perform any obligation hereunder or commits a material breach of this License and fails to diligently pursue a cure thereof to its completion within thirty (30) days after receiving

written notice from DCR specifying such failure of performance or default. In the event of the loss of any certificate, permit, license or other approval that may be required for authorized use of any Location by the Licensee, the approval for such Location shall be automatically and immediately revoked, and Licensee shall promptly remove its equipment from such Location in accordance with Section 9 below.

9. REMOVAL UPON TERMINATION

- a. Within sixty (60) calendar days after the termination or expiration of this License, Licensee, at its sole cost and expense, shall remove all Small Cells and related equipment which the Licensee installed. Such removal must occur without damage to property of the Commonwealth, DCR, other licensees or permittees, or any other party. If, after said 60 day period has elapsed, Licensee has not fully removed its equipment, DCR may remove and dispose of the equipment without incurring any liability to Licensee. Licensee will not be eligible for any other Licenses or permits from DCR until restitution is made for the necessary and reasonable costs actually incurred by DCR for such removal and disposal. Such costs shall include, but not be limited to, staff time.
- b. Upon termination or expiration of this License, a Structure installed by Licensee shall be deemed a fixture and shall become the property of DCR unless Licensee is directed by DCR in writing to remove said Structure. If DCR directs Licensee to remove the Structure, Licensee must remove and replace the Structure with a new structure equivalent in design (i.e., style, height, color) and function to the previously existing structure if so directed by DCR. If the replacement structure will be used for lighting, Licensee shall install energy efficient bulbs. If Licensee does not remove its Structure within sixty (60) calendar days after being requested to do so in writing by DCR, DCR may remove and dispose of the Structure without incurring any liability to Licensee. Licensee will not be eligible for any other Licenses or permits from DCR until restitution is made for the necessary and reasonable costs actually incurred by DCR for such removal and disposal. Such costs shall include, but not be limited to, staff time.

10. ASSIGNMENT

- a. The relationship of the Licensee to the Commonwealth of Massachusetts and the DCR is that of licensee to licensor. This License does not convey any rights in real property to the Licensee.
- b. The Licensee shall not assign, give, delegate, sublicense, transfer, encumber or otherwise dispose of any of the rights or duties contained herein to any other entity or person. However, Licensee may assign, sublicense, or transfer the rights and duties contained herein to an affiliate, subsidiary, or successor of Licensee upon prior written notice to DCR. If a Licensee is required by regulating authorities to assign the License, Licensee shall provide prior written notice to DCR. Licensee may assign, sublicense, or transfer the rights and duties contained in this license to an unaffiliated person only after receiving written permission for such assignment, sublicense, or transfer from DCR. Except as set forth herein, DCR shall not be obligated to recognize any right of any entity or person to any

interest in this License or to any rights, equipment, structures, or property of the Licensee at the Location(s) as granted by this License.

- c. If the Licensee is acquired, Licensee shall promptly provide written notice to DCR.

11. NON-EXCLUSIVE AGREEMENT

The terms of this License are not to be construed as authorizing exclusive use of any Location. DCR may permit, license, provide access to or otherwise assign all or a portion of any Location at its sole discretion to other authorized licensees or permittees. However, DCR agrees not to allow any other licensee or permittee to interfere with the uses authorized under this License.

12. NON-INTERFERENCE

- a. The Licensee hereby agrees that it shall not obstruct or interfere with DCR or any other licensee or permittee, including, but not limited to, obstruction or interference with equipment or with the transmission or reception of radio signals, frequency or use of power.
- b. Immediately upon receiving written notice from the DCR that its activities are causing any obstruction or interference, the Licensee hereby agrees to take appropriate action to eliminate the obstruction or interference. If said obstruction or interference cannot be eliminated within ten (10) business days, the Licensee hereby agrees to discontinue use of the equipment which is creating the obstruction or interference.

13. INDEMNIFICATION

- a. Licensee shall assume all risk in connection with any and all activities engaged in by Licensee, its contractors, agents, representatives, employees, permittees, licensees, guests, and invitees at the Location(s) and shall be solely responsible and answerable in damages, and any other equitable remedies, for all accidents or injuries to all persons or property caused by the activities of the Licensee, its contractors, agents, representatives, employees, permittees, licensees, guests, and invitees at the Location(s).
- b. Licensee shall indemnify, defend and hold the Commonwealth, including DCR and its employees, officers, and agents, harmless against all claims relating to or arising out of the use of DCR property and from any claims for personal injury or death or damage to personal property, of whatever kind or nature, arising from the Licensee's activities in the Location(s), including, but not limited to, claims arising from the release or threat of release of oil or hazardous materials, substances or wastes, or assessing, containing, removing, or disposing of the same, in or from the Location(s) or in connection with the Licensee's activities or operation of the Location(s), except to the extent such claims were caused solely by DCR's gross negligence or willful misconduct; claims arising from the intentional, willful, wanton or reckless, negligent, or careless acts or omissions of the Licensee, or by its contractors, agents, representatives, employees, permittees, licensees, guests, and invitees; and claims arising from the Licensee's failure to provide adequate safety or security in the Location(s), except to the extent such claims were caused solely by DCR's gross negligence or willful misconduct.

- c. The Licensee shall not make any claims against the Commonwealth, including DCR, in connection with or arising out of the use of the Location(s) for any injury, loss, or damage to persons, including, but not limited to, bodily injury or death, or damage to property arising out of or in connection with the actions or omissions of any third parties or DCR, or their contractors, agents, representatives, employees, permittees, licensees, guests and invitees, or any claims arising from or in connection with the release or threat of release of oil or hazardous materials, including, without limitation, any claims, including for costs or contribution, in connection with response actions or assessing, containing, removing, or disposing of oil or hazardous materials, substances or wastes, except to the extent such claims were caused solely by DCR's gross negligence or willful misconduct.
- d. The Commonwealth, including DCR, shall not be responsible for the Licensee's property, or the property of the Licensee's contractors, agents, representatives, employees, permittees, licensees, guests, or invitees.
- e. Licensee shall waive any and all claims for compensation for any and all loss or damage sustained by reason of any interference by any public agency or official in the operation of this License.
- f. These indemnification provisions are independent of and shall not in any way be limited by the insurance requirements contained in this License. DCR's approval of insurance contracts required hereunder does not in any way relieve Licensee from liability. The obligations of Licensee under this Section 13 shall survive the expiration or termination of this License.

14. INSURANCE

At its sole cost and expense, the Licensee shall carry insurance at minimum in the types and amounts as described in this section:

- a. Commercial General or Public Liability Insurance. Licensee shall carry appropriate commercial general or public liability insurance which shall include coverage for bodily injury and personal injuries as to third persons based upon the uses and equipment placed on or at the Location(s) in the minimum amount of One Million Dollars (\$1,000,000.00) per occurrence and a minimum of Two Million Dollars (\$2,000,000.00) in the aggregate, or such higher amounts of insurance coverage that are prudent given the risks inherent in the use of the Location(s) or that the DCR shall reasonably require from time to time. This insurance must be primary and non-contributory with respect to the losses for which the Licensee is responsible hereunder. DCR does not carry insurance.
- b. Insurance for Commonwealth Property. The Licensee shall obtain and furnish proof of sufficient property damage (fire, vandalism, structure, etc.) insurance for Commonwealth property, i.e., any Commonwealth-owned Structures, Small Cell, related equipment, or other property at, on or within the Location(s), in at least the minimum amount of Five Hundred Thousand Dollars (\$500,000.00) per occurrence and a minimum of Seven Hundred Fifty Thousand Dollars (\$750,000.00) in the aggregate or such higher amounts of liability insurance coverage that are prudent given the risks inherent in the proposed use of the

Location(s). This insurance must be primary and non-contributory. DCR does not carry insurance.

- c. Fire and Casualty Insurance. The Licensee shall carry fire and casualty or “all risk” liability insurance for its own equipment in amounts that are prudent given the risks inherent in the use of the Location(s). This insurance must be primary and non-contributory. DCR does not carry insurance.
- d. Workers’ Compensation. The Licensee and Licensee’s contractors working on or at the Location(s) shall also provide evidence of sufficient Workers’ Compensation insurance pursuant to Massachusetts General Laws c. 152, § 25A.
- e. Additional insurance. The Licensee should consider obtaining any additional insurance to cover its risks inherent in its activities on and use of the Location(s), including, but not limited to, Professional Services, Motor Vehicle, Construction/Completed Operations, Vandalism, Terrorism, Flood, Wind, Hail, etc.
- f. The Licensee must purchase a notice endorsement such that DCR is provided no less than thirty (30) days’ prior notice of cancellation for non-payment reasons and no less than ten (10) days’ prior notice for cancellation for payment reasons. The Licensee shall also obtain an endorsement for each Location explicitly naming The “Commonwealth of Massachusetts, Department of Conservation and Recreation” as an additional insured on all applicable policies except Workers’ Compensation. Such endorsements shall be evident on any certificates of insurance provided to DCR and may be submitted by e-mail.
- g. The Licensee shall furnish Certificates of Insurance and proof of the required endorsements issued by an insurer or insurers qualified to do business in the Commonwealth (per the Massachusetts Division of Insurance, see: <https://www.mass.gov/lists/massachusetts-licensed-insurance-companies>) with an A.M. Best rating of no less than A, Class VI or higher or an equivalent Standard & Poor’s Rating of AA+/- or higher to the following DCR office upon execution of this License and updated annually each year of the License Term:

Commonwealth of Massachusetts
Department of Conservation and Recreation
ATTN: Engineering Department – Sean Casey
Re: **License No.: TEL-2019-01**
251 Causeway Street, Suite 600, Boston, MA 02114
Fax: 617-626-1351 or 1301; E-Mail: DCRSmallCell@mass.gov

- h. Failure to maintain insurance throughout the Term of this License shall be deemed a material breach of this License.

15. COMPLIANCE WITH LAWS

- a. At its sole cost and expense, the Licensee hereby agrees to comply with and conform to all applicable laws, rules, regulations and ordinances, including all regulations, orders and policies of the DCR. The Licensee hereby agrees not to do anything to cause the DCR to be in violation of any federal, state or local laws, rules, regulations, ordinances, orders and policies.

- b. If the Licensee's activities, singly or in combination with the activities of any other user, violate any local, state or federal public health standard with respect to radiation levels, the Licensee hereby agrees to immediately take appropriate action to remedy the violation, including the termination of its activities. If the Licensee does not take immediate appropriate action, the DCR may take appropriate action to remedy the violation at Licensee's sole cost and expense, including, but not limited to, the suspension of Licensee's activities. Such violation shall be deemed a material breach of this License.

16. CASUALTY

If, at any time during the term of this License, any Location is damaged or destroyed by fire or other incident of any kind or nature not ordinary or extraordinary, foreseen or unforeseen, the DCR shall not be obligated to repair or reconstruct the Location, including any Structure on the Location, and, at the option of DCR or the Licensee, this License may be terminated by either Party upon thirty (30) days' prior written notice to the other Party.

17. SEVERABILITY

If any part of this License is determined to be invalid, illegal, or unenforceable, such determination shall not affect the validity, legality, or enforceability of any other part of this License, and the remaining parts of this License shall be enforced as if such invalid, illegal, or unenforceable part were not contained herein.

18. MERGER CLAUSE

The provisions of this License and any attachments hereto shall collectively constitute the entire License between the Parties. Any prior or contemporaneous oral or written statements that alter, contradict, or are in addition to the terms of this License or any attachments shall be void and without effect.

19. WAIVER

No waiver by either Party at any time of the terms, conditions or covenants of this License shall be deemed a waiver at any time thereafter of the same provision or of any other provision contained herein, or of the strict and prompt performance thereof.

20. ATTORNEYS' FEES

In the event it becomes necessary to enforce the terms of this License in an administrative proceeding or in a court of competent jurisdiction, Licensee shall pay all reasonable attorneys' fees.

21. FORUM

Any actions arising out of this License shall be governed by the laws of Massachusetts without regard to its conflict of laws principles.

22. NOTICES

All notices provided or required by the terms of this License or by 302 CMR 19.00 shall be sent in writing, by hand-delivery or postal mail, with copies to the following representatives of the parties:

To DCR: Department of Conservation and Recreation
Sean Casey, Director
Engineering-Construction Access and Accident Recovery
251 Causeway Street
Suite 600, Boston, MA 02114

With copies to: Department of Conservation and Recreation
Acting Director of Planning and Engineering
251 Causeway Street, Suite 600
Boston, MA 02114

Department of Conservation and Recreation
General Counsel
251 Causeway Street, Suite 600
Boston, MA 02114

Licensee: The contact person for Licensee as identified in Licensee's application attached hereto as Exhibit A.

23. ADDITIONAL DCR CONTACT PERSONS

Massachusetts Emergency Management Agency

In the event of an emergency at any Location or on other nearby DCR property (i.e., downed power lines, etc.), please contact DCR staff before contacting any utility company. If DCR office or field staff cannot be reached, call Dennis Fitzpatrick, DCR MEMA Dispatch at 508-820-1428.

DCR Engineering:

Sean Casey, Director
Engineering-Construction Access and Accident Recovery
Department of Conservation and Recreation
251 Causeway Street, Suite 600, Boston, MA 02114
Tel: 617-626-1444; E-Mail: Sean.Casey@mass.gov

Robert Lowell, Acting Chief Engineer
Department of Conservation and Recreation
251 Causeway Street, Ste. 600, Boston, MA 02114

Tel: 617-626-1340; E-Mail: robert.lowell@mass.gov

Patrice Kish, Acting Director of Planning and Engineering
Department of Conservation and Recreation
251 Causeway St., Ste. 600, Boston, MA 02114
Tel: 617 262-1378; E-Mail: Patrice.kish@mass.gov

24. SIGNATORIES

By signing below, the respective signatories for DCR and Licensee each acknowledge and represent that they have read and agree to the provisions and conditions set forth above and that each is duly authorized to sign on behalf of and bind the respective parties set forth below.

By signing below, the signatory for Licensee further represents and certifies, under the pains and penalties of perjury, that Licensee shall obtain all certificates, permits, licenses and other approvals that may be required by any other federal, state and local authority, or any other entity, including, but not limited to, other owners of Structures within the ROW, prior to the commencement of any installation, including any DCR-approved change, addition, reconfiguration or replacement, of a Small Cell or, if applicable, a Structure, or related equipment.

DEPARTMENT OF CONSERVATION AND RECREATION	[NAME OF LICENSEE]
_____	_____
[Print Name]	Signature
Title: _____	_____
Date: _____	Printed Name

	Title

	Date: _____

EXHIBIT A

**LICENSEE’S APPROVED APPLICATION FOR SMALL CELL FACILITIES, EQUIPMENT AND
STRUCTURES**

[Attach approved application]

EXHIBIT B
RESTORATION SPECIFICATIONS AND REQUIREMENTS FOR
DCR PARKWAYS, PATHS AND SIDEWALKS

Hot-Mix Asphalt (HMA)

DESCRIPTION

All hot-mix asphalt mixes shall conform to MassDOT “Type I” mixes
(Base or SBC-37.5 and SBC-25.0,
Binder or SIC-19.0 and SIC-12.5,
“State Top or SSC 12.5” (w/ ½” aggregate) for Parkway use
& “3/8-inch State Top or SSC-9.5” for Sidewalk use).

Hot-Mix Asphalt Parkway/Parking Lot Pavement Repair: (The thicknesses listed below are **MINIMUMS**). The final thickness **MUST**, at a minimum, match the existing total parkway pavement thickness.

- 1-3/4” MassDOT-Type “I”-“State Top” surface course or SSC-12.5, minimum
- 2” MassDOT- Type “I” binder course or SIC-19.0 and SIC-12.5, minimum
- 4” MassDOT- Type “I” base course or SBC-37.5 and SBC-25.0, minimum

Hot-Mix Asphalt Sidewalk Repair, **WITH DRIVEWAY:**

- 1-1/4” MassDOT-Type “I”-“3/8 State Top” surface course or SSC-9.5, minimum
- 3” MassDOT- Type “I” binder course or SIC-19.0 and SIC-12.5, minimum

Hot-Mix Asphalt Sidewalk Repair, **WITHOUT DRIVEWAY:**

- 1-1/4” MassDOT-Type “I”-“3/8 State Top” surface course or SSC-9.5, minimum
- 2” MassDOT- Type “I” binder course or SIC-19.0 and SIC-12.5, minimum

The work to be done under this item shall consist of furnishing and placing plant mixed bituminous concrete for resurfacing existing roadway pavements, bridge decks and other various locations indicated on the contract Site List, Plans, or as directed by DCR.

MATERIALS

All bituminous concrete shall be in accordance with the 1988 Massachusetts Highway Department Specifications for Highways and Bridges for Class I-1, Bituminous Concrete Pavements and Foundation Bases Sections 420, 460, 700 and M-3 where applicable, including the Supplemental Specifications dated June 6, 2006, and the Standard Special Provisions dated September 18, 2007.

SSC, SIC, SBC mixes shall be approved MassDOT Mix Designs, submitted to the Department prior to paving for the following design levels:

- Level 1- Sidewalks, paths, patching, driveways and playing courts (50 gyrations).
- Level 2 - Secondary Roads and parking lots (75 gyrations).
- Level 3 - High volume, and heavy load roads (100 gyrations).

The Department shall be responsible for testing the temperature, asphalt content and gradation with the Licensee’s Contractor or Supplier responsible for testing the volumetric properties. The Licensee’s Contractor or Supplier shall adjust the mix to correct any out of specified range results as quickly as possible.

The lot of mix tested shall be a split sample, taken at random for each day's production or for each 750 tons. HMA lots will be considered Category C (Minor lot) from Table 450.3 of the 2010 Quality Assurance Specification for Hot Mix Asphalt Pavement.

METHOD OF CONSTRUCTION

Where existing roadway and bridge deck pavement is to be resurfaced, the bituminous concrete shall be placed in one course to the grade and contour approved by DCR and having a thickness of 3.5 to 4.5 times the nominal maximum size stone in the mix being placed.

Cement Concrete Sidewalk, Driveway, Median and Traffic Island

One Course, 6-Inches Thick, with welded-wire mesh

Description

Cement Concrete sidewalk, paths, driveways, median and traffic island shall be constructed at various locations as directed by DCR, to the proposed lines and grades, on a bed of gravel or dense graded crushed stone, at DCR's discretion. The cured thickness shall be a minimum of six inches (6").

The Licensee's attention is called to the fact that the proposed walk may not be continuous, and may replace damaged blocks, or sections, at various locations.

Materials

Cement Concrete shall conform to the requirements of the DCR Standard Specifications for 4,000 psi, air-entrained concrete, enclosed herein. Maximum size of coarse aggregate shall be three-quarters of an inch (3/4") and minimum cement factor shall be 611 pounds per cubic yard.

Welded-Wire Concrete-Reinforcement Fabric: Must comply with ASTM Specifications A185 as revised. The gage of wire and the dimensions shall be 6"x6", 10-gage. Only sheet mesh shall be used. Mesh from rolls shall not be used.

Construction Methods

Where directed by DCR, the existing damaged cement concrete sidewalks, paths, driveways, medians and traffic islands shall be broken up, and legally disposed of off of DCR property by the Licensee. All depressions shall be filled with gravel. Sections where the existing base is crowned or above proposed grade, shall be excavated, reshaped, graded, and the entire area thoroughly rolled or tamped to DCR's satisfaction.

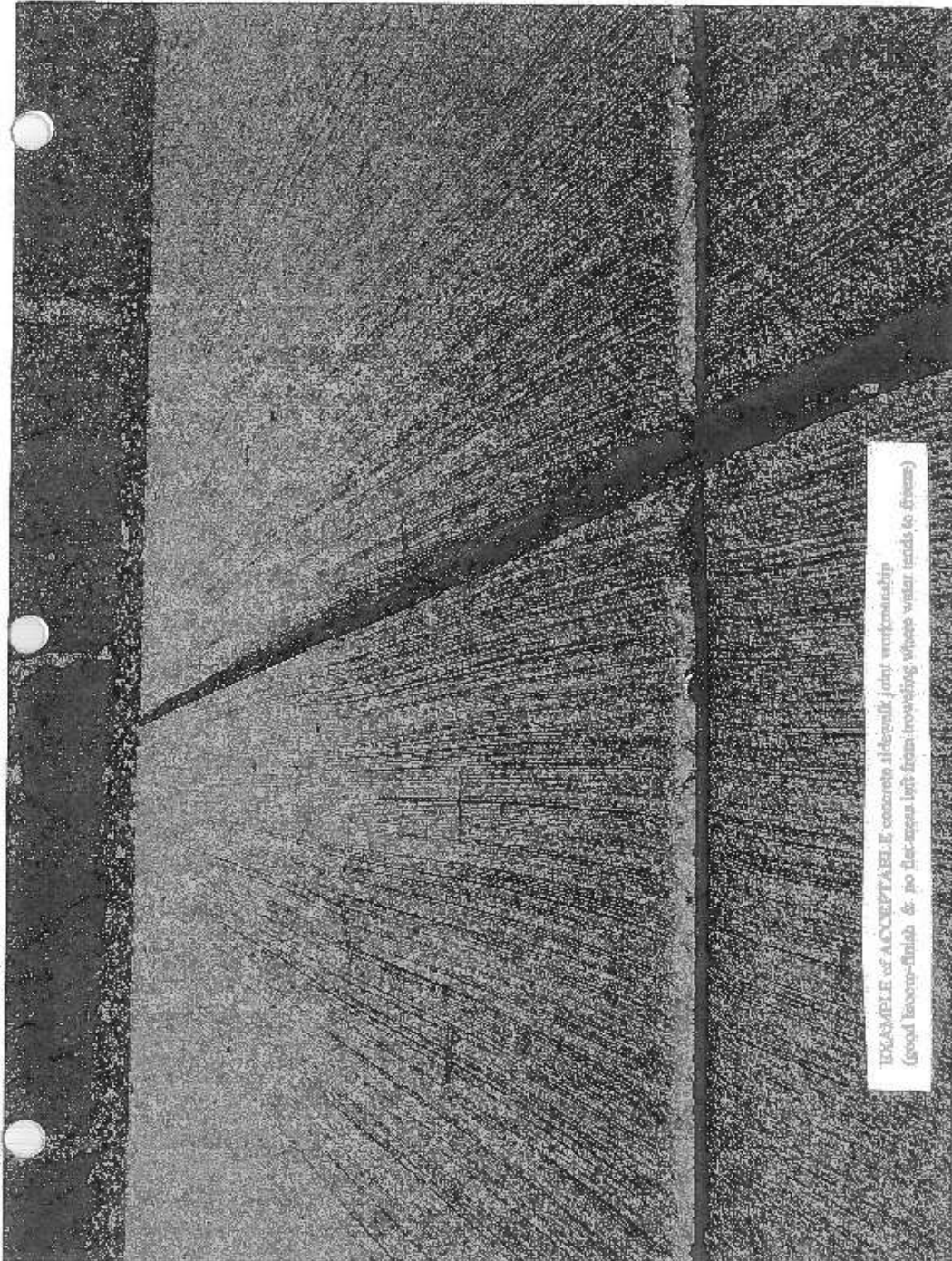
The sub-base shall be thoroughly wetted prior to compaction.

After being thoroughly compacted, the sub-base material shall be six-inches (6") below, and parallel to, the proposed finished grade of sidewalk, driveway, median or traffic island as directed by DCR. Existing sub-base may be re-used at DCR's discretion, if the sub-base is gravel borrow, free of clay, debris or organic/plant matter.

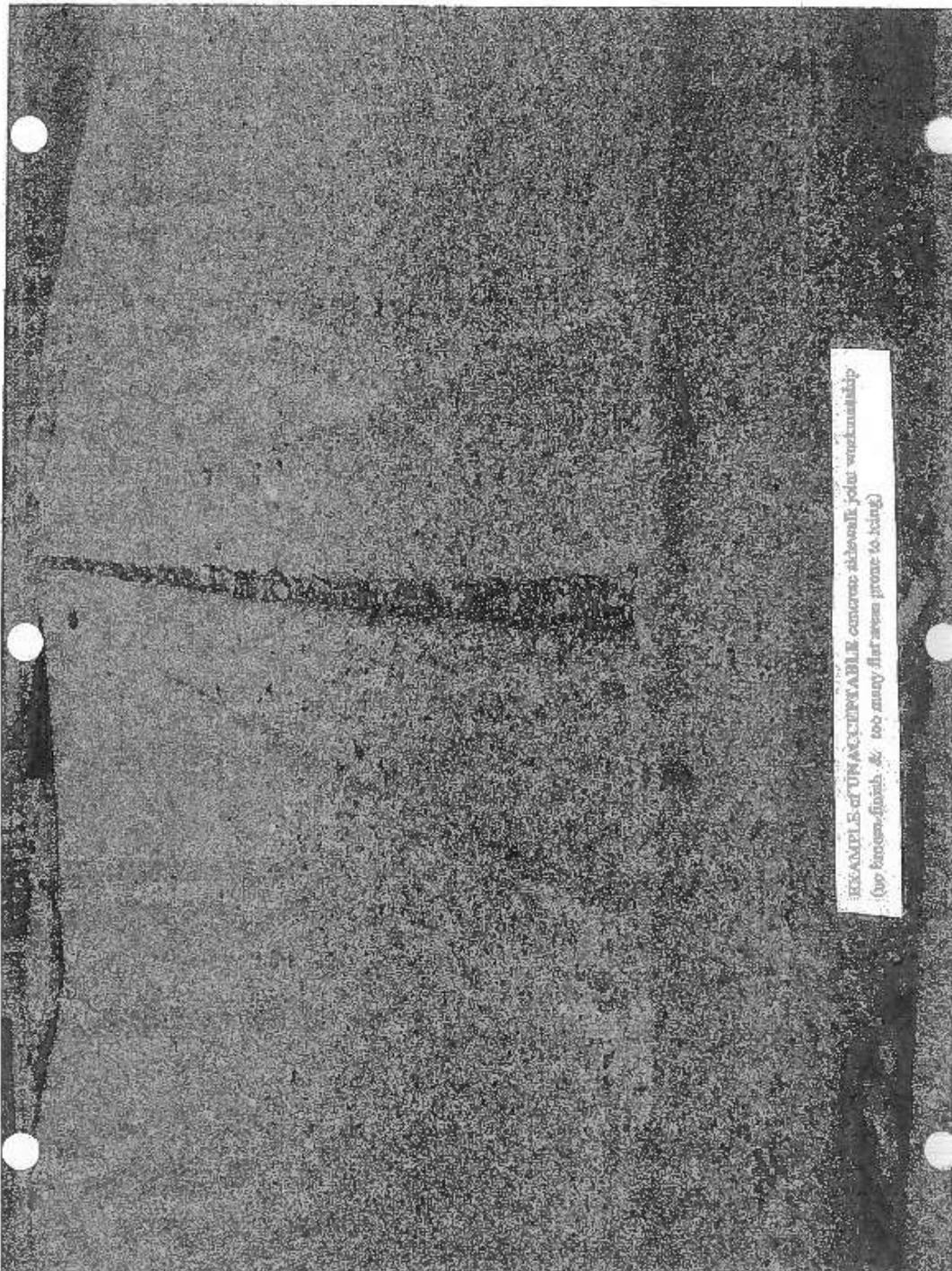
Where excessively large tree-roots interfere with sidewalk construction, the cement concrete shall be "boxed" around the tree trunk for a distance of at least twenty-four(24) inches from the edge of the trunk.

Welded-wire mesh shall sit on cement concrete blocks or red-bricks so that the mesh remains 2” to 3” above top of sub-base material, during cement concrete placement.

Acceptable Finish



Unacceptable Finish





Unacceptable finish

Forms:

Side forms and transverse forms for sidewalk, path, driveway, median and traffic island placement shall be smooth, free from warp, of sufficient strength to resist springing out of shape, of a depth to conform to the thickness of the sidewalk/driveway/median or traffic island, and satisfactory to DCR. All old mortar or dirt shall be completely removed from forms that have been previously used. The forms shall be well-staked, thoroughly braced and set to the established lines with their upper edge conforming to the grade of the finished surface. The forms shall be placed so that the finished surface has adequate drainage (3/16" of an inch maximum cross-slope for sidewalk). Typically, all walks will pitch toward the road-side edge, but depending on site conditions, the opposite may be allowed at DCR's discretion. All forms shall be oiled before placing concrete.

The concrete shall be placed in alternate slabs, thirty-feet (30') in length, except as ordered by DCR. Preformed expansion joint filler material shall be one-half inch (1/2") in thickness. Preformed expansion joint filler shall be placed around existing structures (utility poles, hydrants, etc.) where directed so that future utility work may not require complete sidewalk panel removal.

No finishing shall be performed until any/all water sheen has left the surface, and the concrete has started to stiffen. After any/all water sheen has disappeared, edging, floating, finishing and finally broom-finishing operations shall be performed. The surface of the cement concrete shall be uniformly scored into block units not exceeding thirty-six (36) square feet in area, as directed. Broom-finishing shall occur LAST, so that no flat areas are left on the surface (see attached photos in this specification showing ACCEPTABLE & UNACCEPTABLE finishing techniques)

CONCRETE:

The application of neat cement to surfaces in order to hasten hardening/curing is prohibited. The finishing of concrete shall be performed by experienced and competent concrete finishers, approved by DCR. When complete, the sidewalks shall be kept moist and protected from traffic and weather for at least 3 days. Curing compound approved by DCR may be used.

Controlled Density Fill (CDF) Waiver- (i.e., 6” compacted lifts & the winter settling phase)

For all work in DCR roadways and sidewalks, the Licensee needs to adhere to the following conditions.

In non-trench areas of parkways or sidewalks requiring repairs, MassDOT-“Type C” Gravel (2” max aggregate size) shall be the subgrade material, and it shall be mechanically compacted in six-inch (6”) lifts.

CDF Waiver for Trenches:

Conventional Backfilling Method for work within the hardened surface (parkways, parking lots & sidewalks)

(PLEASE NOTE: This waiver from CDF is only valid if the Licensee receives prior approval of a waiver request from the DCR). Also, if using this CDF waiver, the Licensee agrees to return **after one full winter season** has elapsed to overcut and repave the trench (see “PAVEMENT TRIMMING” above).

The hardened surface of the parkway may be opened for the proposed installation, however, only one-half may be opened at one time, and the flow of traffic must be maintained at all times in accordance with the Traffic Management Plan (TMP).

The use of previously excavated material as backfill is acceptable, providing that the previously excavated material is suitable for sub-base, with **no stones larger than 3” in diameter, and is free of all clay, debris and organic/plant matter.**

If previously excavated material is unacceptable to DCR, then trenches and other excavations shall be back-filled with MassDOT #M1.03.0 – Type “C” (2” max. stone size)) gravel borrow, **in six inch (6”) lifts**. (NOTE: Dense Graded Crushed Stone (DGCS) may be substituted for gravel borrow, if the Licensee uses DCR-approved DGCS. (see attached DCR DGCS spec.). Each layer, if dry, shall be wetted and mechanically compacted. Under the haunches of pipe or conduit, the backfill material must be carefully and thoroughly hand-tamped until the backfilling is level with the top of the pipe or conduit. The remainder of the trench backfilling shall take place to a compacted depth three inches (3”) below the existing surface.

The remainder of the trench backfilling shall take place to a compacted elevation that is four inches (4”) below the existing PARKWAY surface. (2-1/2” below existing SIDEWALK surface.

TEMPORARY PATCH in PARKWAY: The trench will then be **temporarily paved** to a depth of four inches (4”), in two, 2”-deep courses, with “State Dense Binder” (“SIC-19”) asphalt, so that the patch is flush with surrounding pavement.

TEMPORARY PATCH in SIDEWALK: The trench will then be **temporarily paved** to a depth of two and a half (2-1/2”), in one course of “State Dense Binder” (“SIC-19”) asphalt, so that the patch is flush with surrounding pavement.

The applicant shall field-verify compaction using approved methods (e.g. dynamic cone penetrometer, DCP). For longer trenches, exceeding three hundred feet (300’) in length, a third party testing firm shall be utilized at the Licensee’s expense, to perform nuclear density testing.

Pavement Trimming:

Only sawcutting (without overcuts) shall be allowed as a means of creating the final/”permanent” edge between existing and new hot-mix asphalt or cement concrete on any parkway or sidewalk. All accidental overcuts shall be filled with bituminous joint sealer. The standard “**cutback**” for all permanent pavement patches shall be 12” beyond the original pavement cuts made to perform the Contractor’s work. If, upon completion of the permanent patch, there would be less than twenty-four inches (24”) as measured from the nearest granite curbing (or berm), to the nearest parallel edge of the final trench patch (including overcut), then the trench-patch shall be expanded, and the face of curbing/berm shall serve as one edge of the permanent pavement patch.

Typical PERMANENT Pavement Patch Design:

After the temporary **PARKWAY** pavement patch has been in place for a full winter season, and verified with the DCR, the Licensee shall excavate a trench, (with 12” overcuts of the original trench) to a minimum depth of seven and a half inches (7-1/2”) below the existing surface. Then the Licensee shall replace the paved surface in three courses.

- 4” of Base (SBC-37.5)

- 2” of State Dense Binder (SIC-19)

- 1-1/2” of Modified State Top (SSC-12.5)

(For course-thicknesses of permanent paving in **SIDEWALK AREAS**, the Licensee(s) can refer to the DCR’s “Typical Repair Methods” (attached)).

(Example: If the original trench is 36” wide, and curb is not a limiting factor, then the hot-mix asphalt bituminous portion of the permanent pavement patch shall be 60” wide and at least 7-1/2” deep) (see next paragraph, “THICKNESSES”).

THICKNESSES:

Pavement replacement thickness must match the existing pavement thickness, or conform to Attachment #1 “Typical Repair Methods”, whichever pavement depth is DEEPER. However, the Licensee can request from DCR, permission to pave a total thickness of 7-1/2”, as outlined above, if the existing asphalt layer is inordinately thick.

All abutting edges of existing pavement (vertical and horizontal) shall be coated with Bitumen for Tack Coat RS-1 Emulsion immediately prior to the placement of the permanent patch.

All hot-mix asphalt surfaces (vertical and horizontal) shall be coated with emulsion tack coat immediately prior to placing any new hot-mix asphalt layer.

Reflectorized Drums with Flashers:

All flashers and “steady-burn” lights on drums must be in good working order, and drums need to have reflectorized strips around them to increase their visibility.

TRENCHING NOTE:

Wherever a trench is to be dug to a depth of five feet or more, that trench shall be sheeted and braced in conformity with the rules and regulations for the prevention of accidents in construction operations pursuant to Section 129A of Chapter 149 of the Massachusetts General Laws. It may be possible to substitute sheeting/bracing with a trench box on a case-by-case basis, but only with prior written approval from the DCR.

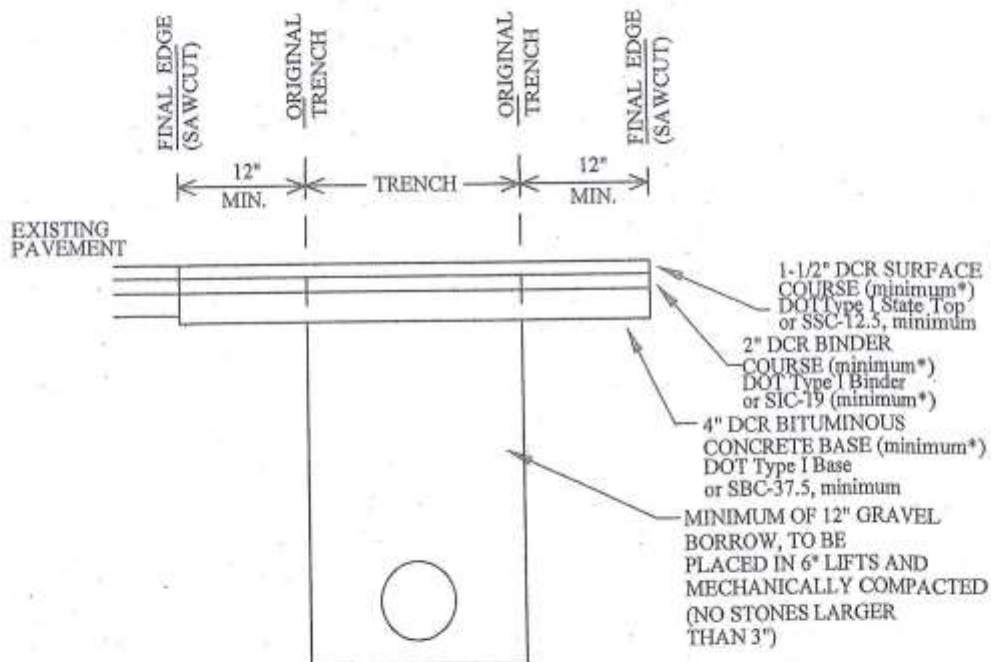
Trench Diagrams:

NOTES: MINIMUM CUTBACK OF 12" ON EACH SIDE OF TRENCH WHEN INSTALLING THE PERMANENT PAVEMENT PATCH (SAWCUT)

ALL EXCAVATIONS TO BE BACKFILLED WITH DCR-APPROVED GRAVEL ONLY, AND NO STONES LARGER THAN 3"

ALL BITUMINOUS CONCRETE SURFACES AND EXISTING VERTICAL PAVEMENT EDGES SHALL BE TACK-COATED PRIOR TO PLACING NEW BITUMINOUS CONCRETE

*BIT. CONC. THICKNESSES LISTED BELOW ARE MINIMUMS AND TOTAL PATCH THICKNESS SHALL MATCH EXISTING



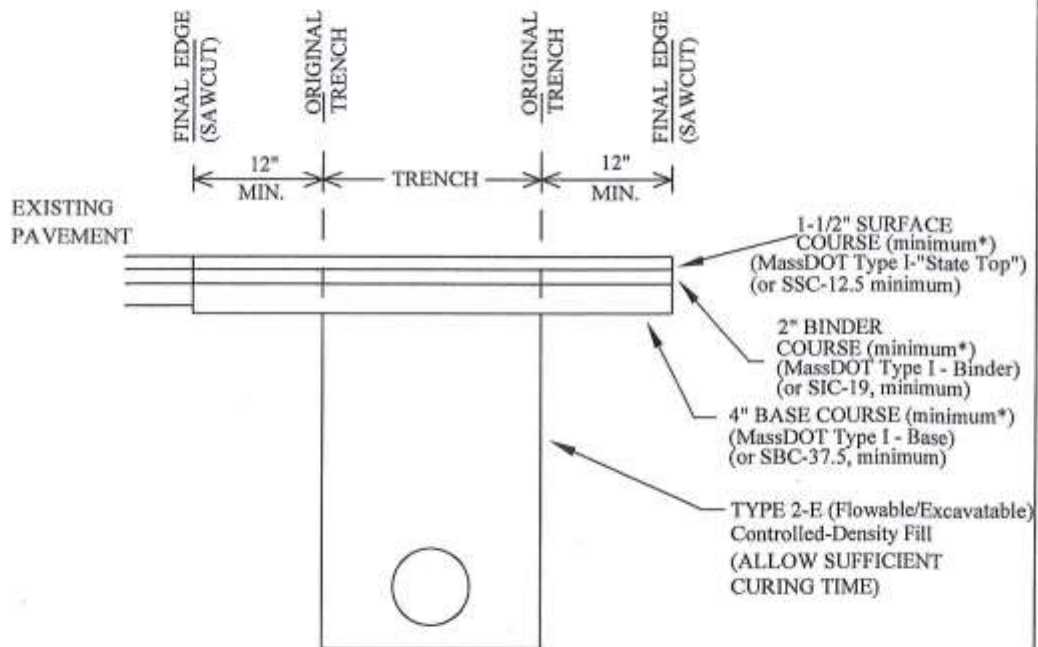
TYPICAL TRENCH REPAIR			
HOT-MIX ASPHALT TRENCH REPAIR USING GRAVEL BORROW			
SIZE	FSCM NO.	DWG NO.	REV
SCALE	NTS	SHEET	

Attachment 2

NOTES: MINIMUM CUTBACK OF 12" ON EACH SIDE OF TRENCH WHEN
INSTALLING THE PERMANENT PAVEMENT PATCH (SAWCUT)

ALL HOT-MIX ASPHALT SURFACES AND EXISTING
VERTICAL PAVEMENT EDGES SHALL BE TACK-COATED
PRIOR TO PLACING NEW HOT-MIX ASPHALT

*PAVEMENT THICKNESSES LISTED BELOW ARE MINIMUMS.
(FINAL PATCH THICKNESS SHALL MATCH EXISTING
OR EQUAL 7-1/2", WHICHEVER IS GREATER)



TYPICAL PARKWAY TRENCH REPAIR				
HOT-MIX ASPHALT TRENCH REPAIR USING "MassDOT- TYPE 2-E" C.D. FILL				
SIZE	FSCM NO.	DWG NO.	REV	
SCALE	NTS	SHEET		

Attachment 2

STEEL PLATES:

(Note: Steel plates create a slippery surface, and should only be used when necessary. Steel plates must be recessed, so that they are flush with the parkway surface. Steel plates must not remain over the weekend. The Licensee(s) should schedule the work accordingly.)

Any steel plates used shall not be vulnerable to flexing (or lateral movement due to vehicular traffic) during non-work hours

Where any gaps exist between the plate and the roadway surface, “cold-patch” asphalt mix shall be used to fill those voids

The 2 main reasons for this are as follows:

- 1.) Plates are less likely to flex and move laterally overnight
- 2.) Abutters will be subjected to the least amount of noise pollution during non-work hours

Pavement Markings:

All pavement markings removed/damaged during the course of construction must be replaced with markings matching the configuration, color, width and type (thermoplastic, paint, etc.) of the markings removed.

Pavement Patch Quality Control:

All trenches and affected curbing shall be maintained by the Licensee(s) from the inception of this project until the affected property has been restored to “equal or better” condition.

Sidewalk & Curbing Repair Conditions:

-Any sidewalk replacement shall conform to the Americans with Disabilities Act, as most recently amended, or the Architectural Access Board handicapped accessibility standards, whichever is more stringent.

-Any fine-grading of subgrade soils required before sidewalk installation, shall be accomplished with MassDOT-M1.03.0 “Type C”

Gravel Borrow (2” = max. stone size)

-Any sidewalk damaged must be replaced with a material matching the existing sidewalk surface (hot-mix asphalt or cement concrete), and the replacement shall conform with the following:

Cement Concrete Sidewalks (with OR without driveways)

Please see DCR – “Typical Repair Methods” (Note # 4.)

Six-Inch (6”) thick cement concrete (4,000 psi, ¾” aggregate) shall be used.

All concrete sidewalk shall include 6” x 6” welded-wire mesh throughout

-Mesh shall be Gage No. 10 wire per ASTM Specification A185.

-Only sheet mesh shall be used. **(Rolled mesh shall not be permitted.)**

- Mesh shall rest on reinforcement “chairs” or concrete bricks, spaced at 36” maximum in every direction to keep the mesh from deforming during cement concrete placement.
- Mesh shall be installed at mid-depth in the concrete (i.e. 3” down).

The limits of the sidewalk repair shall include the entire work area and extend to the nearest sidewalk control joint. Sawcuts shall be made along those joints and only full, complete concrete sidewalk panels shall be removed. All demolished concrete walkway shall be removed from DCR property and legally disposed of off of DCR property.

***** WINTER CONCRETE NOTE *****

If Licensee is placing cement concrete sidewalk between November 15 & April 15, then the concrete repair must be covered completely with insulated blankets, and protected from all vehicle traffic and pedestrian traffic for a minimum of forty-eight (48) hours after placement***

Hot-Mix Asphalt Sidewalks (at driveways)

Please see DCR – “Typical Repair Methods” (Note # 3A.)

Hot-Mix Asphalt Sidewalks (without driveways)

Please see DCR – “Typical Repair Methods” (Note # 3B.)

Concrete in front of and in back of Curbing:

For all edgestone/ curbing being reset or replaced:

On both the front and back of curbing/edgestone, 2,000 p.s.i. cement concrete (with a 6” x 6” profile) shall be installed for the entire length of curbing/ edgestone being reset or replaced, and the top surface of both front and back sections of this cement concrete shall be 1-1/2” lower than the finished roadway elevation.

Detectable Warning Panels

PLEASE NOTE: Detectable Warning Panels are required for any pedestrian ramp.

DCR Policy on Detectable Warning Panel COLOR:

The detectable warning panels for cement concrete pedestrian ramps shall be “brick-colored”, and “safety yellow” for hot-mix asphalt pedestrian ramps. Exceptions to this would be possible, subject to the approval of the DCR, if, for example, the Licensee’s Engineer is trying to match the color of existing, nearby pedestrian ramp warning panels. In Historic Districts, such as Beacon Hill, iron detectable warning panels shall be used.

For Detectable Warning Panels:

The panel can be precast concrete, cast-in-place concrete or other suitable material permanently applied to the ramp. The Licensee is urged to visit the US Access Board’s website for a list of manufacturers for these panels.

(visit www.access-board.com click on “Publications”, go to “Public Rights of Way”, go to “Detectable Warnings: Synthesis of US and International Practice”)

(***Portions of the DCR Dense Graded Crushed Stone specification are included below as a reference***)

Dense Graded Crushed Stone **(CY)**

DESCRIPTION

Dense graded crushed stone shall consist of inert angular material derived from a stone quarry, that is hard, durable stone and stone screenings, free from loam and clay, surface coatings, and plastic materials. Gradation shall conform to Standard Specification with these requirements:

<u>Sieve Designation</u>	<u>% Passing</u>
2 inch	100
1 1/2 inch	70 - 100
3/4 inch	50 - 85
No. 4	30 - 55
No. 50	8 - 24
No. 200	3 - 10

This sub-base material shall combine crusher-run coarse aggregates of crushed stone and fine aggregates of natural sand or stone screenings uniformly premixed with a predetermined quantity of water.

Coarse aggregate shall consist of hard, durable particles of fragments of stone. Materials that break up when alternately frozen and thawed or wetted and dried shall not be used. Coarse aggregate shall have a percentage of wear, by the Los Angeles Test, of not less than 45.

Dewatering and Drainage: Dewater as necessary to maintain dry excavations without extra cost to the DCR. Prevent surface and subsurface water from entering excavations. Prevent softening of sub-grades, undercutting of footings and foundations, and other detrimental conditions. Provide temporary water control ditches, pumps and drainage systems as needed to control water. All fill materials shall be placed and compacted with moisture content controlled for optimum compaction.

Moisture Control: Control moisture of sub-grades and fill materials by wetting and drying as needed to maintain moisture content within 3% of optimum moisture content as determined by ASTM D1557, Method C. to minimum of 95% Maximum Dry Density.

Mucky, soft, or spongy soils shall be considered unsuitable for construction purposes. If the Licensee encounters unsuitable soil materials at the specified depths, he shall contact DCR for instructions before proceeding further. If so directed, the Licensee shall excavate to suitable soil, backfill with specified crushed stone, and place specified filter fabric prior to placing sub-base courses.

FILLING, BACKFILLING, AND COMPACTION

Placing Fills and Compacting:

Place fill materials in accordance with the requirements of the details and specifications.

All areas to be filled or backfilled shall be free of construction debris, refuse, compressible or organic materials, and standing water. Do not place fill when fill materials or material below it are frozen. No fill material containing ice or frozen lumps shall be used.

The Licensee shall notify DCR when excavation is ready for formal inspection. Filling and backfilling shall not be started until conditions have been approved by DCR.

The DCR reserves the right to disapprove of compaction equipment being used for compacting if he deems the equipment in use is unsuited or inadequate to compact materials to the specified densities and within a reasonable length of time.

AS-BUILT PLAN(S):

Licensee shall provide DCR with a copy of as-built plan(s) for this work no less than 60 days after installation completion, so that DCR can update its records.

EXHIBIT C DCR LIGHT POLE SPECIFICATIONS

23'- 6" STREET LIGHT STANDARD-GALVANIZED (TRANSFORMER BASE TYPE) (Storrow Drive Type) - Octaflute twenty-three foot, six inch steel

These standards shall be used as necessary to replace damaged or deteriorated shafts of the existing street light systems on Storrow Drive and Soldiers Field Road, Boston, and other locations as directed by DCR. These standards shall be manufactured by Union Metal Company, Catalog No. 401-B180Yi, Valmont Industries or DCR approved equal, and shall have been approved for use by the Department of Conservation and Recreation. The shafts shall be galvanized inside and out and painted with an approved coat of Department of Conservation and Recreation Primer and Finish.

25' - ALUMINUM LIGHT STANDARD (Jamaicaway Type)

These standards shall be used as necessary to replace damaged or deteriorated shafts of the existing Department of Conservation and Recreation street lights on the Riverway, Jamaica, Arborway and other locations, as directed by DCR.

The street lighting standards shall be fabricated from a one (1) piece seamless aluminum extrusion of 6063-T6 alloy being approximately 6" square with a minimum wall thickness of approximately 3/16". The street lighting standard shall provide a 25' mounting height for the fixtures, and shall have an anchor type base. The pole shall have a wind load rating exceeding the loading of the luminaire which is to be mounted on it. The pole base shall be designed to fit a bolt circle to be mounted on a concrete base. The finish of the pole shall be black polyester powder coat. The pole shall be as manufactured by P+K Tubular Products, Cat #SSA6M25 WFE1-06D, or DCR approved equal. The base of the street lighting standards shall have a cast aluminum cover to conceal the protruding anchor bolts and nuts assembly. The street lighting standards shall have a suitable handhole opening, near the bottom of the shaft, as determined by the manufacturer of the standard which shall be approved by DCR. The handhole cover shall be secured in place with vandal proof type screws. Each street lighting standard shall be identified by a stick-on plastic type number, approximately 3" high, as approved by DCR. This number shall correspond to the number of the unit noted on the Contract Plans. These reflective numbers shall be affixed on the approach side of the standard in a vertical location about 10' above the ground level.

This item also calls for installation of (a) bracket arm(s) to support the luminaire. This bracket arm shall have an approximate dimension of 6" in height, 3" in width and 15" in length.

This component shall be fabricated from a one (1) piece seamless aluminum extrusion of 6063-T6 alloy having a thickness of approximately 3/16". The bracket arm shall have a finish similar to that finish approved by DCR for the street lighting standards.

As determined by a given manufacturer's design requirements, steel pipes, steel reinforcing plates and/or other supporting members located within the bracket arm cavity, shall be the components responsible for securing and supporting the luminaires on top of the street lighting standards.

27'- 0" HISTORIC PENDANT LIGHT STANDARD (Memorial Drive Type)

These standards shall be a complete unit in every way including 6' foot steel pipe arms with scrollwork, light base and any other hardware or components necessary to make use of it as a complete segment of a street light and as a complete.

These standards shall be used as necessary to replace damaged or deteriorated shafts of existing street lights on **Memorial Drive, Cambridge and other locations** as directed by DCR. These standards shall be as described and in accordance with attached *Spring City Electrical Mfg. Co. Drawings* or approved equal.

The light pole shall be the Cambridge style as manufactured by Spring City Electrical Mfg. Co. The pole shall be 27'- 0" in height and of style as shown on the drawings. The light pole shall consist of 7-guaged, smooth (non-fluted) hot-dip galvanized steel monotube construction. The shaft taper shall be 0.14" per foot. The shaft shall have provisions for 1/4" - 20 square nut welded to the inside opposite the handhole for ground stud.

The light pole base shall be 17" in diameter and constructed of 2 piece heavy wall cast iron per ASTM A-48 83 class 30. The base shall have an access door to coincide with the handhole in the steel shafts as shown on the drawings.

The light pole cross-arms shall be 6'-0" in length from the centerline of the post to the centerline of luminaires as shown on the drawings. The cross-arms shall be constructed of cast ductile iron with 2" standard galvanized steel pipe and black steel flat stock scrollwork.

The anchor bolts shall be 1" in diameter per ASTM A-36 and galvanized to ASTM A153.

The finish for the light pole and accessories shall be hot-dipped galvanized; prime-painted and finish-painted of Bottle Green as approved by DCR

The light pole shall have provisions for photoelectric control.

PAINTING SYSTEM -

Recoatable Epoxy Primer - A Rust inhibitive high built catalyzed polyamide / bisphenol primer designed for fast dry and quick or extended recoatability.

Surface Preparation:

Surface must be dry and free of oil, dust, loose rust, mill scale or other foreign substances. Steel surfaces should be abrasive blast cleaned. All prepared surfaces are to be primed the same day.

Product Characteristics:

Drying Schedule:	Recoat Time: 2 Hours to 1 Year
Cure Time:	2 weeks
Number of components:	2
Spreading Rate:	4.0 - 6.0 dry mils
Volume Solids:	65%+/-2%
Weight Solids:	80%+/-2%

Application:

Temperature:	35 to 120 Degrees Fahrenheit (85% Max
Relative Humidity)	

Methods:

Airless Spray:	2400 psi pressure
Tip:	017"
Filter:	60 mesh
Hose:	¼ "

Brush:	china Bristle, working primer into tight areas
Roller:	3/8" to ½" soft woven nap cover with phenolic core.

Finish coat. Acrolon 218 HS

A 2 component, VOC compliant, polyester modified acrylic polyurethane designed for high performance use.

Surface Preparation:

Surfaces must be clean, dry and in sound condition Removed of oil, dust, grease, **dirt loose** rust, and other foreign substances. Solvent Clean to SSPC-SP1. Surface preparation to SSPC-SP6. Prime paint with recommended primer.

Product Characteristics:

Gloss:	80+ units @ 60 Degrees
Drying Schedule:	Max recoat time: 30 days @ 78 deg F
Cure Time:	7 days @ 50% RH and 78 deg. F.
Number of Components:	2
Spreading Rate:	3.0 - 6.0 dry mils
VOC (Catalyzed)	2.401bs/gal (Unreduced)
Volume Solids	65%+/-2%
Weight Solids:	78%+/-2%

28'- 6" LAMINATED WOOD STANDARD

(VFW Parkway Type) twenty-eight foot, six inch laminated wooden poles. These wooden poles shall be a complete unit in every way, including the pole, center raceway and pole conduit and the necessary hardware and components. These wooden poles shall be used as necessary to replace damaged or deteriorated poles of existing street light systems on the V.F.W. Parkway, West Roxbury and Quincy Shore Drive, Quincy, as directed by the DCR.

These standards must be made to order, and sufficient lead time must be given the manufacturer so as to have them ready for replacement of defective poles as necessary. The pole has an overall length of 28'-6", for a mounting height of 22'. It is made of Southern Yellow pine, pressure treated with Cellon process, guaranteeing retention of Pentachlorophenol so as to give a 20-year lifetime for protection against decay or insect attack. Finished units shall have a striated surface and a natural color. They shall be wrapped individually with heavy duty, moisture-resistant paper. Units shall be 8 1/4" X 8 1/2" with center raceway and a 5/8" by 2 1/2" dapped area of 8 1/2" faces running the full length of the standard. Units may be constructed of two 3" X 8 1/4" laminations, two 2 1/2" square fillers, all bolted on 4' centers with 3/8" X 6" machine bolts. Areas for machine bolt heads and nuts shall be dapped and plugged. One-inch rigid conduit shall be installed in the interior of each pole. Detail plans of the pole, the Light Riser

Special, No. LR 3258, (or equivalent) as manufactured by Enwood Structures; Morrisville, NC, are attached.

30' SPUN ALUMINUM STREET LIGHT STANDARD

(Nantasket Beach Type) thirty foot (30') spun aluminum street light standards. These standards shall be a complete unit in every way including an 8 foot bracket arm and hardware or components necessary to make use of it as a complete unit to be paid as an item of this contract.

These standards shall be used as necessary to replace damaged or deteriorated shafts of the existing street lights on *Nantasket Avenue, Hull* as directed by DCR.

These standards shall be as described and in accordance with P+K Pole Products Cat. #RTA8M25AAS18, or equivalent and shall have been approved for use by the Department of Conservation and Recreation.

FOUNDATIONS FOR LIGHT POLES

Foundations shall be designed and manufactured, with DCR approval, to match the Pole Manufacturer Specifications for bending movements, axial force, shear force, torsion force, anchor bolt diameter and bolt circle. Cement foundations shall conform to the Department of Conservation and Recreation Portland Cement Concrete Standard Specifications for 4000 psi concrete.

Excavation shall be made to the minimum depth necessary to install the light pole foundation. The foundation shall be installed perfectly plumb and at the proper elevation for sidewalks or paved areas. Backfill shall be placed around the foundation in 12-inch layers and compacted. No large rocks or large pieces of concrete or organic material shall be included in the backfill material. The Contractor shall also provide and install expansion joints on all sides between concrete pavement and foundations wherever these conditions exist. A PVC sleeve may be installed in the foundation to facilitate field installation of the ground rod.

Concrete foundations for heavy duty steel Octaflute poles and the tapered concrete foundations for Quincy Shore Drive and Furnace Brook Parkway style poles are 7ft long.

For unpaved areas a pedestal shall be installed to prevent damage and support the installed pole. DCR will review pedestal designs provided by Licensee.