

CITY OF PORTLAND, MAINE

RULES AND REGULATIONS

For

EXCAVATION ACTIVITY WITHIN

THE PUBLIC RIGHT-OF-WAY

May 1997

Revised June 2000

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SECTION 1.0

INTENT AND PURPOSE

Sec. 1.01 Intent and Purpose

- (A) These Rules have been enacted by the Director to regulate the use of public right-of-ways in the interest of public safety and convenience, and to operate and protect Public Works infrastructure. Excavation and restoration standards are required to preserve the integrity, operational safety, and function of the public right-of-way.
- (B) The Public Works Authority is granted the authority to administer and enforce the requirements of these Rules. Compliance with the provisions of these Rules shall be monitored by Department of Public Works personnel who shall have the right to require such actions as may be necessary to enforce the City Code of Ordinance Chapter 25 and these Rules and Regulations. Note that most excavations into the City's right-of-way occur within City streets, however, references to "streets" in these Rules shall also be applicable to all other City right-of-ways.
- (C) It is the intent of the Public Works Authority to ensure quality performance by all permitted users and to promote cooperation among all users of the public right-of-way. To minimize disruption of public places the Department of Public Works strongly encourages the use of tunneling, boring, jacking, or other trenchless technologies instead of open trench excavation whenever possible. It should be noted that applicable permit expenses may be substantially reduced if open trench excavation into paved areas is avoided.
- (D) These Rules and Regulations are intended to provide a mechanism to assure that all excavation activities are performed consistently. Public Works maintenance of potholes and utility trenches which are no longer under a guarantee shall be waived from these Rules and Regulations.

SECTION 2.0

DEFINITIONS

Sec. 2.01 Definitions

For the purposes of these Rules, all words shall have their normal meanings and such meanings as may be in common use in the field of excavation and pavement restoration. Certain words are more particularly defined as follows:

Arterial Street shall be defined as a primary traveled roadway which may be functionally classified under the Federal-Aid Classification System (Fed-Aid) or National Highway System (NHS), as facilitating the movement of the highest traffic volumes in the city.

Backfill shall mean the placement of specified material in all spaces excavated and not occupied by substructures up to the elevation of the bottom of the pavement structure or other surface material.

City shall mean City of Portland and/or its Public Works Authority.

Collector Street shall mean a secondary classification facility to the arterial in which the heavier traffic volume streets may be classified under the Fed-Aid or NHS system; serving as feeder routes from residential streets to arterial streets or travel between arterial streets.

Compaction shall mean the act of firmly packing together construction material to ensure stability of substructures, bedding materials, backfill, base gravels, and surface materials.

Controlled Density Fill (CDF) shall mean an alternate backfill material which may be poured into excavated areas where typical compaction methods are not feasible.

Dig-Safe shall be the existing underground facility damage prevention system as defined by 23 M.R.S.A. § 3360-A as may be amended from time to time; established by the American Public Works Association and the Utilities Location and Coordination Council to provide for safe underground excavation.

Director shall mean Director of Public Works and/or designee.

Distortion shall mean localized pavement surface areas having elevations lower or higher than those of the surrounding pavement.

Emergency shall mean any event which may threaten public health or safety, including but not limited to: damaged or leaking water or gas conduit systems, damaged, plugged or leaking sewer or storm drain conduit systems, damaged underground electrical and communications facilities, or downed or seriously damaged overhead pole structures.

Excavation shall mean any operation in which earth, rock, or other material below the ground is moved or otherwise displaced, by means of power tools, power equipment or explosives and including grading, trenching, digging, ditching, drilling, augering, tunneling, scraping and cable or pipe driving, except tilling of soil and gardening or displacement of earth, rock or other material for agricultural purposes, and except installation and maintenance of signs performed by the City or Department of Transportation.

Facility shall mean pipe, pipeline, tube, main, service, trap, vent, vault, manhole, meter, gauge, regulator, valve, conduit, wire tower, pole, pole line, anchor, cable, junction box, or any other material, structure, or object of any kind or character, whether enumerated herein or not, which is or may be lawfully constructed, left, placed or maintained in, upon, along, across, under, or over any public place.

Five (5) Year Moratorium shall mean that period of time during which newly constructed, reconstructed, or rehabilitated streets shall not typically be excavated except as provided by 23 M.R.S.A. § 3352 as may be amended from time to time, City Code of Ordinance, and these Rules and Regulations.

Licensed excavator shall mean any person who has been issued a license by the city to excavate in public places in the city.

Major Excavation shall mean placement, repair, or replacement of any main utility line, placement, repair, or replacement of the majority of utility service lines on any street, any excavation project of a minimum one hundred (100) foot length or two hundred and fifty (250) square foot area, or any project complex enough to be deemed major by the Director.

MDOT shall mean Maine Department of Transportation.

Modified Winter Patching Material shall mean a mixture of bituminous material and mineral aggregates used to temporarily repair winter excavations which shall meet the technical specifications in Appendix A.

Moratorium shall mean a period of time during which excavation activity must be minimized in order to maximize pavement performance life.

Newly constructed, reconstructed or rehabilitated streets shall mean any street which has been newly constructed, reconstructed or rehabilitated within the past five (5) years.

Paved Area shall mean an area with a paved surface of material such as hot-mixed asphalt, concrete, brick, cobblestone, or granite pavers. These areas are typically referred to as streets, driveways, alleys, sidewalks, or walkways.

Pavement Structure shall be made up of a surface, intermediate course, and sometimes a base hot-mixed asphalt (HMA) material, or Portland cement concrete or block/brick materials founded on a dense, granular or other approved base/subbase material, all of which are founded on backfill material.

Permanent Pavement Restoration shall mean the process of replacing any pavement disturbed by excavation activity to a condition level which typically meets or exceeds the standards found in Section 4.08 (H) and 4.09 as necessary and the city's Technical and Design Standards and Guidelines, and can reasonably be expected to remain in good condition for at least the remainder of the street's original pavement life before excavation.

Permittee shall mean a person who has obtained a permit as required by Chapter 25 Article VII of the City Code of Ordinance and these Rules.

Person shall mean any individual, firm, company, association, corporation, trust or government authority, partnership, public or private corporation or authority, trust, estate, governmental entity, agency or political subdivision of a municipality, the State of Maine, or the United States, or any other legal entity, or their legal representative, agent, or assign. The masculine gender shall include the feminine, and the singular shall include the plural where indicated by the context.

Pole Placement shall mean an excavation associated solely with a single placement or replacement of a utility pole.

Public place shall mean any public street, way, place, alley, sidewalk, park, square, plaza, or any other similar public property owned or controlled by the city and dedicated to public use, and any dedicated-but-unaccepted street or way.

Rehabilitation shall mean that activity of work on any street which provides structural improvement having a minimum service life of 15 years with minor maintenance; which includes pavement overlay of one and one-half (1 1/2) inches minimum depth, and partial or full depth reconstruction.

Residential Street shall mean all city streets not classified as Arterial or Collector per Fed-Aid or NHS classification systems.

Rideability shall mean the effect of street pavement conditions on vehicular traffic. Acceptable rideability is typically achieved from pavement surfaces which are smooth, dense, and uniform. Pavement restorations which do not exhibit the failed conditions detailed in Section 4.11 will typically be considered to have acceptable rideability.

Roadway shall mean any area (generally paved) within a City right-of-way (including driveways) which is available to vehicular traffic.

Security shall mean a bond or deposit submitted to the Dept. of Public Works to assure timely and proper completion of required work.

Substructure shall mean any pipe, conduit, duct, tunnel, manhole, vault, buried cable, wire, utility system appurtenance or any other similar structures located below the surface of any public place.

Temporary Pavement Repair shall mean the replacement of excavated pavement with MDOT Type “B” hot-mixed asphalt.

Trench shall mean an area normally excavated to accommodate a substructure and its appropriate bedding material.

Utility shall mean a public utility as defined in 35-A M.R.S.A. §102 as it may be hereinafter amended, and shall specifically include the non-regulated activities of such a utility.

SECTION 3.0

PERMIT REQUIREMENTS

Sec. 3.01 Activities Requiring Permit

Examples of work typically requiring a permit include, but are not limited to, installation of utilities, driveways, curbing, or sidewalks; excavation or filling for grading purposes; or any other modification which could either damage the City’s infrastructure or conflict with existing or planned utility or infrastructure locations.

Sec. 3.02 Application

- (A) No permit shall be issued unless a complete written application on a current form provided by the Department of Public Works is submitted to and approved by the Public Works Authority. The written application shall include a minimum of the following:
- (1) Name, address, and telephone number of the applicant
 - (a) Note: For all major excavation projects the applicant shall be required to provide a viable means of contact accessible twenty-four (24) hours a day.
 - (2) Date request is made
 - (3) Name and location by nearest street address number or proximity to intersecting street of the public place to be excavated
 - (4) Beginning and ending date of proposed work, including anticipated date of any and all paved area restoration
 - (5) Purpose, scope, and limits of work to be done, including a diagram of the utility, showing location, depth, size, and proximity to other existing site features in the immediate area. See Appendix E for an example.
 - (6) Diagram of location, size, and number of paved area cutouts anticipated
 - (7) Proposed method of excavation and backfill, including submittal of the lab certified current maximum dry density and corresponding moisture content (ASTM D1557) of the gravel material to be used within the pavement structure base and subbase, and the type of compaction equipment to be used. Gravel reports must include stockpile location address and detailed description of tested material stockpile on-site location in the event additional testing is necessary. Note that these reports must be updated each Spring; lab reports from the previous season will not be accepted.

- (8) Verification that applicant is a currently licensed excavator in the City of Portland, Maine
- (9) Approved “Dig-Safe” authorization number
- (10) Signature of applicant
- (11) Appropriate Fees as confirmed by the Street Opening Clerk
- (12) If the excavation is deemed “major”, a representation that the applicant has complied with Sec. 3.03
- (13) Request to conduct permanent pavement restoration of street excavation, and acknowledgment of resulting responsibilities. See Section 5.0 for details.

(B) Application forms shall be available from, and submittals shall be given to, the Street Openings Clerk at the Department of Public Works, 55 Portland Street.

(C) A separate permit shall be required for each City block affected by the proposed continuous excavation activity.

Sec. 3.03 Major Excavations

All applicants requesting permits for major excavations are required to meet with the City to discuss the scope of work and necessary conditions prior to application. A major goal of this meeting will be to define the excavation, traffic and parking impacts, and street surface conditions allowed during the project; focusing on the safety and convenience of the traveling public. The Director may assign a full time City inspector to the project. The applicant may also be required to submit for approval plans and specifications, including a traffic control plan, certified by a registered professional engineer in the State of Maine prior to issuance of permit if the project is extraordinarily complex as determined by the Public Works Authority on a case-by-case basis.

Sec. 3.04 Billing Procedures

(A) Upon completion of the excavation and temporary restoration work, a measurement shall be made by the city inspector of the actual size of the street opening. An invoice will be prepared and mailed to the permittee for any actual quantity of work that exceeds the estimated quantity of work at the time of the permit application. However, if the additional area is a direct result of a mutual agreement between the City and the permittee to extend paved area restoration beyond the required area no additional fees will be assessed. Any fees collected at the time of permit application which may exceed the assessment determined by final measurements may be credited or refunded to the applicant. A credit or refund may also result from mutually agreed extensions of paved area restorations.

(B) Bills rendered in accordance with this section shall be due and payable by the permittee immediately upon receipt thereof. If a permittee does not pay any such bill within thirty (30) days of receipt, the city shall issue no further permits to any such permittee until it receives payment of such outstanding bill as provided in Sec. 2-201 through 2-205 of the Portland City Code.

SECTION 4.0

TECHNICAL STANDARDS - STREET EXCAVATIONS

Sec. 4.01 Technical Standards

Any person or utility having first obtained a street opening permit shall be fully responsible for restoring streets and their appurtenances (e.g. granite curb, underdrain, filter fabric, sewer and drainage structures, median strips, signage,

pavement markings, traffic signal loops, handicapp access ramps, etc.) in complete compliance with City Code of Ordinance Sec. 25-130 through Sec. 25-132 and the City's Technical and Design Standards and Guidelines. [All persons and utilities are encouraged to obtain a current copy of said standards from the City's Engineering office located at the Department of Public Works.]

Sec. 4.02 Excavation Requirements

- (A) All work must be conducted in strict accordance with the latest regulations of OSHA for excavations.
- (B) All excavations shall be performed in accordance with the City of Portland Department of Public Works specifications or in a manner as prescribed by the Director of Public Works for circumstances not covered by the specifications.
- (C) All material excavated from trenches and piled adjacent to the trench or in any street shall be piled and maintained in such manner as not to endanger those working in the trench, pedestrians or users of the streets, and so that as little inconvenience as possible is caused to those using streets and adjoining property. Where the confines of the area being excavated are too narrow to permit the piling of excavated material beside the trench, the city shall have the authority to require that the permittee haul the excavated material offsite.
- (D) It shall be the permittee's responsibility to secure the necessary permission and make all necessary arrangements for all required storage and disposal sites.
- (E) All material excavated shall be laid compactly along the side of the trench and kept trimmed so as to cause as little inconvenience as reasonably possible to vehicular and pedestrian traffic, or as specified by the city. Whenever necessary in order to expedite the flow of traffic or to abate the dirt or dust nuisance, boards or bins may be required by the city to prevent the spreading of dirt into traffic lanes. If any portion of the excavated material is allowed to be used as backfill, it shall be stockpiled separately from all other materials.
- (F) Breaking through pavement in streets.
 - (1) The Permittee shall make every effort to keep the amount of pavement damage to a minimum. Any pavement damage created by permittee's excavation shall be promptly repaired by the permittee.
 - (2) All excavations into paved street surfaces shall be pre-cut in a neat line with pavement breakers or saws.
 - (3) Heavy duty pavement breakers may be prohibited by the city when the use endangers existing substructures or other property.
 - (4) No irregular shapes, i.e. jagged edges, will be allowed. The shape of pavement cutouts will generally be rectangular, triangular, or a combination of these shapes unless otherwise agreed to by the City and permittee.
 - (5) Pavement edges shall be trimmed to a neat vertical face free of loose materials and neatly aligned with the centerline of the trench.
 - (6) Unstable pavement shall be removed over cave-outs and overbreaks and the subgrade shall be treated as the main trench.
 - (7) An additional area of pavement extending a minimum of twelve (12) inches beyond the edges of the disturbed soils caused by excavation shall be neatly removed prior to the final compaction of base gravels. This task must result in exposing a minimum twelve (12) inch width of undisturbed soils for the entire depth of the excavation, creating

a stable native shelf for pavement restoration. In no case shall soils undermining exist in the excavation below this twelve-inch shelf. Please refer to Appendix B for a diagram of the required shelf.

- (G) The permittee shall not be required to repair pavement damage outside of the requirements of Section 4.04 existing prior to the excavation unless his or her cut results in small floating sections that may be unstable, in which case, the permittee shall remove the unstable portion and the area shall be treated as part of the excavation.
- (H) At the time of permit application the applicant will be required to pay an assessment for all Belgian Pavers/granite paving blocks, cobblestones, or bricks expected to be removed as a result of excavations within the right of way unless these materials are required to be replaced or are delivered in good condition to the City's Recycling Center.

Sec. 4.03 Backfill Requirements

- (A) All work must be conducted in strict accordance with the latest regulations of OSHA for excavations.
- (B) All work must be protected from freezing.
- (C) Temporary or permanent sheeting, or other acceptable means must be used to support the side walls where necessary to prevent undermining of the full depth twelve (12) inch stable shelf of undisturbed street base soil, adjacent pavement, and/or maintain the safety of personnel and traffic.
- (D) Whenever water is found standing in the excavation area, the water shall be removed by pump or other means before backfilling operations may commence.
- (E) Backfilling of excavations shall be performed by the Permittee as soon as practicable so that the least possible subsequent settling will occur. In most cases backfilling shall occur on the same day as the excavation was begun. If this is not feasible due to the complex nature of work, emergency, or unpreventable conditions the permittee must notify the Director that same day, if not sooner, and take appropriate measures to protect public safety and infrastructure until work commences again the following day. Permittees are encouraged to contact the Street Opening Inspector before backfilling commences, allowing adequate time for inspection of the site.
- (F) Granular Borrow material selected from the spoil, or delivered to the site, shall be spread in layers not exceeding eight inches (8") in loose depth and thoroughly compacted around and under the appropriate bedding material for any substructure, and used as backfill up to the bottom of the pavement structure subbase.
- (G) Where the excavated material is primarily clay, it shall be allowed for use as backfill only upon the express approval of the Director, with the intention of minimizing differential settling.
- (H) All remaining excavated material shall be removed from the jobsite and disposed of, as the Permittee's responsibility, in such a manner that will minimize interference with pedestrian and vehicular traffic. No material shall be left within the right-of-way once the repair and/or installation is complete.
- (I) Pavement structure base and subbase materials:
 - (1) The pavement structure subbase shall be backfilled with Crushed Type D gravel (or better) conforming to Section 4.05 (B). The crushed aggregate shall be spread in layers not exceeding eight (8") inches in loose depth and compacted to no less than 95% of the maximum dry density of the material, ASTM D1557, to the depth required by the City's Technical and Design Standards and Guidelines.

- (2) The pavement structure base material will be Crushed Type B gravel conforming to Section 4.05 (A) and compacted to no less than 95% of the maximum dry density of the aggregate base course materials, ASTM D1557, to the depth required by the City's Technical and Design Standards and Guidelines.
 - (a) Prior to the compaction of base gravel materials the permittee must ensure that a twelve (12) inch width of undisturbed native base soil is exposed around the perimeter of the excavation.
 - (3) The maximum dry density of the material to be used in the trench along with the corresponding moisture contents, in accordance with ASTM D1557, shall be filed at the time of application to obtain the permit. The City reserves the right to verify maximum density and field density at any time.
- (J) The City will allow, as an alternate, digable, pourable backfill, otherwise known as Controlled Density Fill (CDF), under the following conditions:
- (1) The requirements of Section 4.03 (I) shall be met.
 - (2) Only Type IE, Excavatable, Flowable Fill will be allowed. These mixes are designed to have very flowable characteristics for filling small areas or hard to reach areas such as multiple duct trenches whereby compaction equipment maneuvering would be difficult.
 - (3) This material is not to be used for bedding material or in situations that will cause floating of the utility lines, or in the presence of cast iron or steel pipes.
 - (4) CDF placement in trenches must be fully barricaded or police protected for a minimum of three (3) hours after the pour or until a set is reached that will prevent a hazard to animals or humans.
- (K) The requirements of this Section are intended to maximize compaction and therefore minimize settling.

Sec. 4.04 Restoration of Streets

- (A) Upon the completion of proper backfilling, the Permittee shall construct temporary pavement. (See section 4.08 (G) for details of construction methods.) The permittee shall take all reasonable measures to complete temporary pavement on the same day excavation work was begun. If same day paving is not achievable due to complexity of work, emergency, or unpreventable conditions, the permittee must notify the Director as soon as practicable that same day, if not sooner, and take appropriate measures to protect the public safety and infrastructure until work commences again the following day. The most stringent measures will be required on arterial / collector streets. Same day paving will typically be required if work is not expected to be continued the next day, regardless of location.
- (B) Before paving operations begin, the permittee **must** notify the Director, allowing adequate time as determined by the Director for inspection. **All hot-mixed asphalt paving must first be approved by the Director or designee as to depth and materials; this applies to both temporary and permanent paving activities.**
- (1) Notification of the anticipated timing of all paving activity must be acknowledged by the Director; any notification delivered by facsimile machine must be preceded or followed up by a telephone conversation to assure its proper and timely receipt.
 - (2) Permittees shall endeavor to make notification by 9:00 AM of each work day that paving is anticipated. In the event of schedule changes or emergencies, the permittee is requested to provide a minimum of one hour notification to assure inspection availability.
 - (3) If a City inspector is not able to be on-site within 30 minutes of the acknowledged anticipated start time of paving activity, the permittee shall be allowed to commence paving in accordance with this Section.
 - (4) Permittees who do not provide proper notification of paving activities may be subject to required removal and replacement of pavement for the purpose of inspection.
- (C) All temporary pavement shall be hot-mixed asphalt Grade B placed in one and one half (1½”) inch compacted lifts. The total depth of temporary pavement shall match the total depth of hot-mixed asphalt pavement found in the street.

If a layer of concrete, cobblestone, granite pavers, or other supporting material also exists the permittee shall also install concrete to match that depth prior to installing temporary pavement. The temporary pavement shall meet the guarantee standard of Section 4.11 for the applicable guarantee period of Section 4.10.

- (D) If excavation (or pavement damage) occurs at or within twenty-four (24) inches of the edge of pavement, the permittee shall be responsible for full depth pavement replacement to the edge of pavement.
- (E) Hot-mixed asphalt paving of trenches meeting the definition of major excavation shall be paver applied unless otherwise authorized by the Director.
- (F) Any street markings or traffic loops disturbed by the permittee shall be promptly replaced by the permittee, unless otherwise directed by the Director. Street markings (centerlines, crosswalks, stop bars, lane markings, etc.) and traffic loops must be replaced no later than thirty (30) days after pavement restoration. If work disturbs centerlines or lane markings on arterial / collector streets, the permittee shall, and has the duty and obligation to, place temporary reflective markers immediately after the pavement is placed.
- (G) The Permittee shall be responsible for the proper placement and maintenance of the temporary pavement and shall keep the temporary pavement in acceptable rideability condition as detailed in Section 4.11, until the end of the guarantee period specified in Sec. 4.10.
- (H) It shall be the responsibility of the Permittee to perform the necessary restoration beyond the limits of the street pavement which shall include but not be limited to restoration of lawns, esplanades, shrubs, gardens, curbing, sidewalks, underdrains, separations fabrics, fences, walls, etc. Upon completion of the permanent repairs outside the limits of the street pavement, the Permittee shall notify the Director in writing that the permanent repairs and/or replacements have been completed, setting forth the date of completion. The Permittee shall, and has the duty and responsibility to, maintain the repaired area outside of the pavement for a period of three (3) years after completion with the exception that once proper horticultural growth has been established no further horticultural maintenance is required.
- (I) Refilling of bar holes. Any person or utility making bar holes in the street or sidewalk of any public place shall immediately upon completion of the work place granular material up to three (3) inches below the paved surface and fill the remaining three (3) inches with an approved asphalt plug.
- (J) Permanent Pavement Restoration:
 - (1) Permanent pavement restoration requirements shall be dependent on whether the street was under a five-year moratorium at the time of excavation. See Sec. 4.08 (H) for details; if the street was under a five-year moratorium also see Sec. 4.09 for additional requirements.
 - (2) If two or more excavations are made for the same utility or client in the same construction season and are within six (6) feet of each other, edge to edge, they will be permanently repaired as one trench, including the pavement between excavations.
 - (a) Same theory will apply if in a future season an excavation for the same utility or client occurs within six (6) feet and the first has not yet been permanently repaired.
 - (3) If an excavation for the same utility or client falls within six (6) feet of another excavation already permanently repaired, the permanent repair of the second excavation shall include all surface pavement between both excavations.
 - (4) The permanent pavement restoration fee will be assessed based on the entire area required to be permanently repaired.

- (5) Permanent restoration of streets shall, with the exception noted below, be made by the City commencing within twenty-four (24) months after termination of the appropriate guarantee period; typically 3 or 5 years.
- (6) The City shall allow those permittees representing Utilities (as defined in Sec. 2.01) whose performance is considered good (as defined in Section 7.0) to undertake their own permanent pavement restorations, provided that the restoration meets or exceeds the specifications in Section 4.08 (H) and 4.09 as necessary. In addition, those permittees choosing to conduct permanent pavement restorations shall be deemed to have agreed to all terms of Section 5.0.
- (K) Permanent pavement restoration shall not be allowed to commence until at least one (1) winter moratorium cycle has passed since the installation of approved temporary hot-mixed asphalt.
- (L) In cases where the pavement adjoining a proposed excavation is in need of rehabilitation the City and permittee may enter into a mutual agreement such that the permittee undertakes the pavement rehabilitation as part of their pavement restoration.

Sec. 4.05 Material Specification

- (A) Pavement structure base material shall be crushed Type B gravel conforming to MDOT Standard Specifications Section 703.06 with the exception that all material must pass a two inch (2") square mesh sieve.
- (B) Pavement structure subbase material shall be crushed Type D gravel or better conforming to MDOT Standard Specifications Section 703.06 with the exception that all material must pass a three inch (3") square mesh sieve.
- (C) Granular borrow used as backfill material, whether delivered to the site or selected from the spoils, shall conform with MDOT Standard Specifications Section 703.19 with the following revisions. All material must pass a three-inch (3") square mesh sieve and shall not contain frozen material or pavement. The gradation requirements of 703.19 shall not apply for the purposes of these Rules and Regulations.
- (D) Controlled Density Fill (CDF) Type IE Excavatable
 - (1) The CDF ingredients shall comply with the following:

(a) Portland Cement	AASHTO M85
(b) FLY ASH	AASHTO M295, Class F
(c) Fine Aggregate	MDOT Std. Spec. 703.01
(d) Water	MDOT Std. Spec. 701.02
(e) Air Entraining Admixtures	MDOT Std. Spec. 701.03
 - (2) The CDF must meet the following requirements:

(a) Compressive Strength @ 28 days	= 30 - 80 psi (210-550kPa)
(b) Compressive Strength @ 90 days	= 100 psi max. (700kPa max.)
(c) Slump	= 10 - 12 inches (250-300 mm)
(d) Air	= 1%-30%
- (E) Temporary pavement shall be Grade B hot-mixed asphalt conforming to MDOT Standard Specification Section 403.

- (F) Permanent pavement shall meet the specifications detailed in the City's Technical and Design Standards and Guidelines Section I. Depth of materials may vary dependent on the depth of pavement surrounding the excavation. Paving materials shall conform to MDOT Standard Specifications Section 403.
- (G) Bar holes shall be plugged with an appropriately sized asphalt plug or other material approved by the Director.
- (H) Modified Winter Patching Material: See Appendix A.
- (I) Portland Cement Concrete shall conform to the requirements of Section 502 of the MDOT Standard Specifications for Structural Concrete, Class "A".
- (J) Welded Steel Wire Fabric shall be six inch by six inch (6" x 6") mesh with No. 10 wire and shall conform to the requirements of AASHTO designation M55, Welded Steel Wire Fabric for Concrete Reinforcement. Substitution of welded wire fabric with FIBERMESH fibers (100% virgin polypropylene, collated, fibrillated fibers) at a rate of 1.5 lb. per cubic yard of concrete will be allowed for non-structural reinforcement. Installation shall be per manufacturer's recommendations.
- (K) New Brick shall conform to the various subsections of the specifications listed below.
 - (1) Brick shall conform to requirements of ASTM Standard Specifications for Building Brick (made of clay or shale) Designation C62-66 for Grade SW with the following modifications:
 - (a) The absorption limits shall be from 8 to 12 percent for the average of 5 bricks.
 - (b) The compressive strength shall not be less than 8000 pounds per square inch (psi).
 - (c) The modulus of rupture shall not be less than 1000 pounds per square inch (psi).
 - (d) The bricks shall be No. 1, wire cut type for paving.
 - (2) Bricks shall be of standard size (2-1/4" x 3-3/4" x 8") with permissible variations not to exceed 1/16" in depth, 1/8" in wide or 1/4" in length. Bricks shall be as manufactured by the Morin Brick Co. of Danville, Maine or an approved equal.
 - (3) Sand-Cement Base for Brick: A layer of sand-cement base course material one (1") inch in thickness shall be spread upon the properly prepared bituminous base course. The course shall be thoroughly compacted and present a hard smooth surface parallel to the proposed finish slope and grade. The ratio shall be six (6) parts of washed mortar sand to one (1) part Portland Cement.
- (L) Mortar shall conform to MDOT Standard Specification Section 705.02 "Joint Mortar".
- (M) Underdrain shall be six (6) inch diameter SDR 35 or approved equal with perforations laid downwards. See Figure II-14 in the City's Technical and Design Standards and Guidelines for construction details. Coiled pipes shall not be used.
- (N) Filter Fabric for underdrain shall be equal to Mirafi 140 by Fiber Industries.
- (O) Loam shall conform to MDOT Standard Specification Section 615 "Loam". Loam shall have a finished depth of four (4) inches (minimum).
- (P) Seeding shall be MDOT Method Number 1 and shall conform to the requirements of MDOT Standard Specification Section 618. Permittees shall be required to continually seed areas of loam and seed until a satisfactory growth of grass is established.

Sec. 4.06 Winter Excavations

- (A) Excavations into paved areas will not typically be approved during the winter moratorium period. In the event that winter weather conditions have not yet set in and hot-mixed asphalt is available for pavement repairs, the Director may, on a case-by-case basis, allow conditional permits to be granted. The Director shall reserve the right to revoke such permits if weather or hot-mixed asphalt availability conditions warrant.
- (1) Weather and site conditions that must exist before consideration of permit granting include:
 - (a) Temperatures of 40° Fahrenheit and rising during day
 - (b) No measurable snowfall anticipated prior to pavement restoration completion
 - (c) Frost shall not exist below the surface of a paved area
 - (2) Nothing in this section shall be construed to limit ability to address emergency situations. If a paved area excavation occurs due to an emergency, documentation of that emergency is required to be submitted with the next day permit application.
- (A) If work is conducted in a paved area during the winter moratorium period, the following specifications shall apply:
- (1) The temporary pavement repair shall be hot-mixed asphalt as specified unless hot-mix material is documented to not be available within a seventy-five (75) mile radius of the city. In this case as an alternate the Permittee may use:
 - (2) Modified Winter Patching Material (MWPM) as specified in Appendix A placed in one lift of three inches (3”), minimum, compacted thickness. **This material must then be removed and the excavation repaired in accordance with Sec. 4.04 and 4.08 by June 1st of the upcoming construction season.** The applicable guarantee period will begin when the hot-mixed asphalt repair is completed. No pavement shall be allowed over frozen materials unless it is expressly understood that complete trench reconstruction will be completed by the permittee during the following spring. In this case, the guarantee period begins after the spring reconstruction by the permittee.
 - (3) In all cases of Modified Winter Patching Material use, the permittee shall take all reasonable measures, including blotting the material, to prevent against vehicular or pedestrian tracking of the asphalt material.
 - (4) In the rare event of a non-emergency case of MWPM use the permittee shall be assessed a winter moratorium surcharge.
 - (5) If the trench area is saturated, the following experimental backfill method shall apply:
 - (a) Filter fabric meeting Section 4.05 (N) shall be placed to form a lining for the crushed stone backfill to be wrapped in, leaving extra material to completely cover the stone when placed.
 - (b) Crushed stone meeting the City’s Technical and Design Standards and Guidelines Figure II-24 must be placed to the height of saturation and completely wrapped in filter fabric.
 - (c) Backfill requirements shall be dependent on vertical trench area absent of saturation. A minimum of twenty-four inches (24”) of crushed Type D gravel shall be spread in layers not exceeding eight inches (8”) in loose depth and compacted to no less than 95% of the maximum dry density of the material, ASTM D1557, up to the base of temporary pavement. Should a vertical zone exist between the saturation zone and Type D gravel zone, the backfill methods outlined in Section 4.03 (F) may be utilized within this zone.
 - (d) The Public Works Authority shall waive the required guarantee period and the applicability of Section 7.02 and 7.03 if the properly constructed crushed stone backfill method is proven to breach the guarantee definition of Sec. 4.11. In this event the Public Works Authority shall revise the required backfill method as necessary.

Sec. 4.07 Special Condition(s)

(A) Geofabric Material

- (1) If an excavation cuts through an area that has been constructed with geofabrics, the following restoration procedures shall be strictly adhered to:
 - (a) Use a fabric replacement piece that has similar properties as that of the cut fabric. The most important property is that of the 0₉₅ Sieve Test or that property of the fabric which has an opening mesh size which allows 5% of glass beads to pass through when sieved (ASTM D4751-87).
 - (b) Overcut the trench walls by a minimum of 4" in the area of the fabric replacement being careful not to disturb the existing 4" width of fabric exposed. Place a minimum of a 4" overlap of new fabric. Do not allow soil migration in this seam area. Increase the seam width if the subgrade is very soft. If soft subgrade and if the trench lies directly beneath a wheelpath, increase the seam width to 12".
 - (c) Sew or staple the seams in accordance with manufacturer's recommendation. If sewn, use colored thread, do not sew near the edge, double sew at 10-15 stitches per inch, and use thread material that closely matches fabric properties. If stapled or pinned, pin on 2 foot (0.6m) centers; use 6"x1" wide staples which can be applied by foot activated guns.
 - (d) Caution must be exercised when placing and compacting the first twelve (12) inches of material so as not to puncture the fabric.

(B) Underdrain

- (1) If an excavation cuts through an existing underdrain system, it shall be repaired by the permittee in accordance with the city's Technical and Design Standards and Guidelines.
- (2) The Director shall have the right to require a permittee to install underdrain within any major excavation zone if conditions warrant.

Sec. 4.08 Methods of Construction

(A) Workmanship

- (1) The permittee is required to furnish all materials and will be responsible for the job to be done in an orderly, timely, quality controlled manner, and will be required to utilize quality workmanship and construction techniques conducted in accordance with industry standards for the successful completion of the utility work, backfilling, appurtenant restorations and pavement repair.
- (2) The Permittee shall keep a competent foreman and sufficient competent employees to carry on the work with all proper speed and in accordance with the requirements of law and other public authorities and to the reasonable satisfaction of the Director.
- (3) The Permittee shall conduct the work in such a manner as not to unreasonably interfere with other work being done by the City, by contract or otherwise. If deemed necessary by the Director, the work done under these specifications shall conform to the progress of said other work. The Permittee shall cooperate with the contractors or employees who may be doing work for the City, and with public service corporations affected by the work in arranging for storage places, temporary support for structures, repairs, etc.
- (4) All temporary repairs shall be properly maintained by the Permittee to assure good rideability conditions until the end of the guarantee period or until permanent repair has been made, whichever first occurs.
- (5) Permanent pavement restoration accomplished by utilities per Sec. 4.04 (J)(6) shall be properly maintained to assure good rideability conditions until such time as the street is structurally rehabilitated.

(B) Pavement Removal

- (1) Whether accomplished by saw cutting, milling, pavement breaker or other mechanical means the pavement shall be neatly removed such that all surfaces are neat and free of loose materials to effect a tight seal with the new pavement.

(C) Length of Trench Opening

- (1) The maximum length of open trench in an excavation permissible at any time shall be two hundred (200') feet, and no greater length shall be opened for pavement removal excavation, construction, backfilling, repairing or any other operation without the express written permission of the City.

(D) Placement of backfill material

- (1) The backfill material shall be spread and compacted in layers not exceeding eight inches (8") in loose depth.
- (2) No excavated pavement shall be used or mixed in with any backfill material.

(E) Placement of Crushed Type D Gravel

- (1) The aggregate pavement structure subbase shall be spread and compacted in layers not exceeding eight (8") inches in loose depth except the last layer of material shall be six (6") inches in depth. The crushed aggregate shall be compacted to not less than 95% of the maximum dry density of the material, ASTM D1557, to the depth required by the City's Technical and Design Standards and Guidelines.
- (2) The maximum dry density of the material to be used as subbase along with the corresponding moisture contents, in accordance with ASTM D1557, must be filed at the time of application to obtain the permit. Single source documentation will be acceptable for multiple permits in a season, provided that every stockpile utilized is accounted for. These documents must be updated each season.

(F) Placement of Crushed Type B Gravel

- (1) The aggregate pavement structure base shall be compacted to not less than 95% of the maximum dry density of the base material, ASTM D1557, to the depth required by the City's Technical and Design Standards and Guidelines.
- (2) The maximum dry density of the material to be used as base along with the corresponding moisture content, in accordance with ASTM D1557, must be filed at the time of application to obtain the permit. Single source documentation will be acceptable for multiple permits in a season, provided that every stockpile utilized is accounted for. These documents must be updated each season.

(G) Temporary Asphalt Pavement

- (1) All temporary pavement shall be installed according to these specifications which include a thickness matching the existing pavement depth, and use of Grade B hot-mixed asphalt placed in 1½" compacted lifts. All materials, placement, compaction and workmanship shall be in accordance with the applicable provisions of the Maine Dept. of Transportation Standard Specifications for this material. Note that if a layer of pavement material other than hot-mixed asphalt exists it must also be replaced with an equal depth of concrete in accordance with industry standards and Sec. 4.05 (I).
- (2) Each 1½" layer of hot-mixed asphalt is to be compacted separately meeting the requirement of 92 % minimum compaction of standard laboratory maximum theoretical density for the specific material.

- (3) Mechanical compactors will be permitted for repairs less than 10 square yards; repairs exceeding 10 square yards shall be rolled with an appropriately sized, power driven, steel-wheeled roller to obtain specification density.
- (4) Hot-mixed asphalt materials shall be laid upon an approved clean, dry, compacted surface, spread and struck off to the established grade and elevation giving regard to the loss in depth between loose and compacted mixtures. Immediately after the bituminous mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted. A tight seal to existing pavement shall be accomplished to prevent entry of water.
- (5) The placing temperature of the hot-mixed asphalt mixture shall be between 325°F and 255°F, refer to City Technical and Design Standards and Guidelines for a table of minimum placement temperatures. All compaction rolling shall be completed before the mixture cools below 185°F. This can and should be checked using a thermometer suitable for this type of work.

(H) Permanent Pavement Restoration

- (1) All materials, placement, compaction and workmanship shall be in accordance with the applicable provisions of the Maine Dept. of Transportation Standard Specifications for this material.
- (2) Existing paving material shall be milled or saw cut and neatly removed, as needed to comply with all provisions of this subsection.
- (3) Pavement structure base and subbase should be checked for compliance with 95% compaction requirement, if the permittee elects or is required to remove the entire temporary paving material. If compaction is found to be less than 95%, trench must be re-compacted to meet specifications before paving will be allowed.
- (4) Permanent pavement restoration requirements shall be dependent on whether the street was under a five-year moratorium at the time of excavation.
 - a) If a five-year moratorium was not in effect the temporary pavement and the surrounding pavement a minimum of six (6) inches beyond the original excavation shall be milled to a minimum depth of one and one-half (1½) inches typically.
 - b) If a five-year moratorium was in effect the City will strictly enforce the moratorium restoration requirements set forth in 23 MRSA § 3351-A, see Sec. 4.09 for details.
- (5) The permanent pavement materials shall conform with the specifications found in the City's Technical and Design Standards and Guidelines. Depth of permanent pavement layers shall match those of the surrounding pavement.
- (6) Each 1½" layer of hot-mixed asphalt is to be compacted separately meeting the requirement of 92 % minimum compaction of standard laboratory maximum theoretical density for the specific material.
- (7) Mechanical compactors will be permitted for repairs less than 10 square yards; repairs exceeding 10 square yards shall be rolled with an appropriately sized, power driven, steel-wheeled roller to obtain specification density.
- (8) Hot-mixed asphalt materials shall be laid upon an approved clean, dry, compacted surface, spread and struck off to the established grade and elevation giving regard to the loss in depth between loose and compacted mixtures. Immediately after the bituminous mixture has been spread, struck off, and surface irregularities adjusted, it shall be thoroughly and uniformly compacted. A tight seal to existing pavement shall be accomplished to prevent entry of water.
- (9) The placing temperature of the hot-mixed asphalt mixture shall be between 325°F and 255°F, refer to City Technical and Design Standards and Guidelines for a table of minimum placement temperatures. All compaction rolling shall be completed before the mixture cools below 185°F. This can and should be checked using a thermometer suitable for this type of work.

(I) “Tack” Coating

- (1) All surfaces of the existing pavement shall be neat, free of loose materials, and tack coated with an approved asphalt emulsion by applying the liquid material per MDOT Standard Specification 409 to fully cover the surfaces prior to pavement installation.

(J) “Top” Joint Sealing

- (1) All top surface joints between the pavement repair and the existing pavement are to be sealed with an asphaltic emulsion by swabbing or brushing a minimum three (3”) inch width paint-like application over the joint to seal the surface air voids.

(K) Depth of Substructures

- (1) No person or utility shall, without written permission from the city, install any substructure, except manholes, valve casings, culverts, and catch basins at a vertical distance less than:
- (2) Twenty-four (24) inches below the established flow line of the nearest gutter. If the flow line is not established, then the depth shall be at a minimum of twenty-four (24) inches below the surface of the nearest outermost edge of the traveled portion of the street.
- (3) The minimum depth of any substructure shall be twenty-four (24) inches below the established gutter grade when the substructure parallels the street.
- (4) The minimum depth of any substructure shall be twenty-four (24) inches below the established sidewalk or curb when such substructure is at a right angle to the street.
- (5) The minimum depth of any substructure on any other public place shall be twenty-four (24) inches below the surface; provided, however, that the city may permit a lesser depth in special cases.
- (6) Nothing in this section shall impose a duty upon the permittee to maintain the specifications as required herein upon subsequent changes of grade in the surface unless the grade in the substructure interferes with the maintenance of or travel on a public street.
- (7) Refer to City’s Technical and Design Standards and Guidelines for typical cross-section and depth requirements for substructures in City streets.

Sec. 4.09 Five-Year Moratorium Street Restoration Requirements

- (A) The Director of Public Works is empowered to approve or deny any permit application requesting the excavation of any roadway during its 5-year moratorium period.
- (B) All excavations into such streets shall be subject to these requirements, including emergency excavations, with the exception of: Traffic loop installation and City/MDOT construction, reconstruction or paving projects (to include rehabilitation) of a street adjoining a 5-year moratorium street.
- (C) If excavation occurs the following minimum requirements will apply:
 - (1) Permanent pavement restoration shall be performed immediately following one winter season and within one hundred and twenty (120) days of local hot mix asphalt plants opening.
 - (2) The permanent pavement restoration width shall require paving the entire width of the paved street on which the excavation occurred.

- (3) The permanent pavement restoration length required shall be twenty (20) feet in both directions from the furthest edges of the excavation. If the permanent pavement restoration area overlaps the edge of a repair from any previous opening the area shall be expanded to include the entire previously repaired area to its furthest edge. Previous opening is defined as any repair performed by anyone during the five-year moratorium period.
- (4) The permanent pavement restoration depth shall be no less than one and one-half (1½) inches and a maximum of the existing street surface pavement depth.
- (5) Preparation for permanent paving shall be accomplished by machine grinding the existing pavement to meet the depth requirement. Vertical surfaces of machine ground pavement shall be perpendicular to the pavement surface.
- (6) All permanent pavement shall be paver applied and rolled with an appropriately sized, power driven, steel-wheeled roller to obtain specification density.
- (D) Any exceptions to these standards must have the Director of Public Works approval and will be approved or denied on a case by case basis.
- (E) The requirements of Section 4.08 (H) (1), (5), (6), (8), (9), & (10) shall also apply to these restorations.

Sec. 4.10 Guarantee Period

- (A) All street excavation repairs shall be guaranteed to conform to the requirements of Section 4.11 for a minimum of three (3) years unless the conditions of (B)(2) below are met, in which event the guarantee period may be reduced to one (1) year.
- (B) Temporary Repairs
 - (1) The temporary repair will be guaranteed by the Permittee for a three (3) year period for all trenches not founded in clay or plastic soils. At the end of the guarantee period, the City will construct the permanent repair in accordance with the specifications in 4.08 (H) unless the permittee has been allowed to construct their own permanent repair.
 - (2) This three (3) year period may be reduced to one (1) year if all of the necessary inspection certifications are filed with the City for the depth, quality and compaction of the materials placed. The submission of inspection/testing certificates of acceptance may be completed by either the City, if available, or a certified, independent materials testing laboratory authorized under a registered professional engineer. These certifications shall include the following, at a minimum:
 - (a) Written verification from the City inspector of the in-place pavement structure depths (including pavement, base, and subbase materials).
 - (b) Laboratory certified maximum dry density and corresponding moisture content (ASTM D1557) of the in-place gravel base and subbase.
 - (c) Laboratory certified gradation results of the in-place gravel base and subbase materials.
 - (d) Laboratory certified in-place compaction of the gravel base and subbase materials.
 - (e) Laboratory certified pavement mixture aggregate type and gradation, bituminous material type and amount, including additives, and material preparation and placement temperature ranges.
 - (3) Those repairs that are constructed in clay or plastic soil deposits will be guaranteed by the permittee for a period of five (5) years. At the end of the guarantee period, the City will construct the permanent repair in accordance with the specifications in 4.08 (H) unless the permittee has been allowed to construct their own permanent repair.
 - (4) As with (B)(2) above, the five (5) year period may be reduced to two (2) years if all of the necessary inspection certifications are filed with the City for the depth, quality and compaction of the materials placed.
- (C) Permanent pavement restoration performed by the permittee shall be guaranteed in accordance with Sec. 5.02.
- (D) All street excavation repair guarantee periods shall begin upon the approved placement of hot-mixed asphalt in accordance with these Rules.

- (E) Guarantee periods shall end if the street is rehabilitated by the City prior to the expiration of the guarantee period.
- (F) Maintenance of restored items other than street pavement and trench material (such as driveways, esplanades, and sidewalks) shall be the responsibility of the permittee for a period of three (3) years from approved completion of work. Documentation such as a dated photograph submitted to show healthy (90%) grass growth after two (2) mowings or other healthy horticultural restorations shall be deemed to meet this guarantee requirement.
- (G) See Section 25-139 and 25-160 of the Portland City Code for enforcement details.

Sec. 4.11 Definition of Guaranteed Pavement Repair Conditions

- (A) Pavement repairs which exhibit the following conditions shall be deemed failed repairs.
 - (1) Minor failure category includes:
 - (a) Delamination to the full depth of the approved surface pavement in the following conditions:
 - (i) 1% to 5% delamination area to the entire repair area in combination with up to 10% of distortions, alligator cracking or a combination of the two;
 - (ii) 5% to 10% delamination area to the entire repair area in addition to either 1% to 5% of distortions, alligator cracking or a combination of the two;
 - (iii) Greater than 10% delamination area to the entire repair area with no other defects apparent in the repair area, except, perimeter cracking without distortion may be apparent.
 - (b) Distortion of up to one-half (1/2) inch in less than 10% of the total surface area of the repair
 - (c) Distortion of up to one (1) inch in less than 5% of the total surface area of the repair.
 - (d) Cracks of up to one-quarter (1/4) inch in the surface or edges of the repair totaling 10% to 50% of the total perimeter length, in combination with up to 5% distortion, alligator cracking, or delamination.
 - (e) The hot-mixed asphalt within the trench being completely flushed and bleeding where the potential exists for wet-weather skids.
 - (2) Major failure category includes:
 - (a) Greater than 10% delamination area to the entire repair area in addition to any sign of distortion or alligator cracking.
 - (b) Distortion of up to one-half (1/2) inch or greater in more than 10% of the total surface area of the repair
 - (c) Distortion of one (1) inch or greater in more than 5% of the total surface area of the repair.
 - (d) Cracks of one-quarter (1/4) inch or greater in the surface or edges of the repair totaling more than 50% of the total perimeter length, in combination with more than 5% distortion, alligator cracking, or delamination.
- (B) Existence of any of the above conditions shall constitute a breach of guarantee and subject the permittee to remedial actions as provided in Sec. 25-139 and 25-160 of the Portland City Code. These remedial actions will vary dependent on the severity and frequency of defects and non-conformance as determined by the Public Works Authority. Minor defects will require remedial actions which typically do not require full depth pavement removal; major failures will typically require excavation into the supporting soils layers.
- (C) Severe [over one inch (1”)] distortion conditions shall be considered Tort liability street defect conditions and shall necessitate that full repairs be completed within twenty-four (24) hours of notification by the City as provided in Sec. 25-139 (a) of the Portland City Code.

Sec. 4.12 Pavement Management Maintenance Program

The city has initiated a pavement management maintenance program (PMMP) at the Dept. of Public Works. This integrated system will play an important part of the city street excavation ordinance. Work/cost/history documentation of work completed on streets will be initiated and a better system to maintain and track excavation repairs and pavement condition performance will be created; as well as the necessary foundation for the documentation of the city roadway distress conditions for estimating service life performances. These systems will enable the city to provide users with more objective and readily available data on pavement distress information, pavement inventory information, age of street since last structural improvement, utility repair performances, work/cost/complaint information on streets, budget projections of future rehabilitation needs as well as objective information as to why streets are prioritized for repair. As the Department continues to improve this system the data collected through Street Opening permits and inspections will become a vital part of our research and PMMP decisions.

SECTION 5.0

PERMANENT PAVEMENT RESTORATION AGREEMENT

Sec. 5.01 Application Agreement

(A) At the time of the application submission under Section 3.02, each utility in good standing under Section 7.0 may elect that the City waive the fee for permanent pavement restoration assessed under Chapter 25 Article VII Sec. 25-157 of the City of Portland Code of Ordinances provided that the utility by electing such waiver of fee shall be deemed to have agreed to the terms of Section 5.02 below.

Sec. 5.02 Obligations of Permittee

- (A) The utility permittee, as a condition of the permanent pavement restoration fee waiver by the City, agrees to the following:
- (1) The permittee shall comply with all applicable Technical Standards in Section 4.0.
 - (2) The permittee shall undertake on behalf of the City the permanent pavement restoration in accordance with Section 4.08 (H) and Sec. 4.09 as necessary, and shall pre-notify the City in advance of any permanent pavement restoration to allow for inspection and verification of permit obligations.
 - (3) The permittee shall guarantee each permanent pavement restoration as defined in Section 4.11 until the rehabilitation of the street by the City.

SECTION 6.0

TECHNICAL STANDARDS - OTHER EXCAVATION

Sec. 6.01 Excavation Requirements

(A) All parts of Section 4.02 shall apply to this section.

- (B) On concrete sidewalks, all cuts shall be made from the nearest joint or score line on one side of the excavation to the nearest joint or score line on the other side of the excavation.
- (C) On brick sidewalks, all cuts shall be made by neatly squaring all edges of the excavation to the nearest line of full size bricks. All bricks in the way of excavation shall be neatly removed by the permittee prior to the work to be done, and either paid for as part of the permit fee, reset (if approved by City), or delivered to a recycling site to be selected by the city.
- (D) On asphalt sidewalks, all cuts shall be made by neatly squaring all edges of the excavation to form a rectangular shape, or combination of rectangular shapes.
- (E) Driveway excavation shall incorporate the full width and extend from the street gutterline to the street right-of-way line. If the driveway is twenty (20) or more feet wide this area may be reduced if expressly approved by the Director.

Sec. 6.02 Backfill Requirements

- (A) All parts of Sec. 4.03 shall apply to this section with the exception of 4.03 (I).
- (B) All sidewalk, walkway, driveway, curb, esplanade, and lawn areas disturbed by excavation activity shall be repaired in conformance with the City's Technical and Design Standards and Guidelines. Modifications may be allowed only upon the express approval of the Director in response to special field circumstances not covered by these Rules and Regulations or the City Technical and Design Standards and Guidelines.
- (C) Gravel material installed as sidewalk and / or driveway base shall be aggregate base course crushed Type B gravel conforming to MDOT Standard Specification 703 with the exception that all material must pass a two inch (2") square mesh sieve. The base material shall be spread in layers not exceeding eight inches (8") in loose depth, and thoroughly compacted to no less than 95% of the maximum dry density (ASTM D1557) of the gravel.

Sec. 6.03 Restoration of Sidewalks/Walkways/Driveways/Esplanade/Lawns

- (A) The permittee shall be required to restore the area(s) bounded by the dimensions described in Section 6.01, or as determined by the Director, to minimize the effects of excavation.
- (B) Permanent restoration of the sidewalk, walkway, driveway, esplanade, and lawn area shall be made promptly by the Permittee and shall be performed in accordance with the City's Technical and Design Standards and Guidelines or in a manner as prescribed by the Director for special conditions not covered by these specifications.
- (C) It shall be the responsibility of the Permittee to perform the necessary restoration beyond the limits of the pavement which shall include but not be limited to restoration of lawns, shrubs, gardens, curbing, underdrains, fabrics, fences, walls, signage, etc. Upon completion of the permanent repairs outside the limits of the pavement, the Permittee shall notify the Director in writing that the permanent repairs or replacement has been completed, setting forth the date of completion. The Permittee shall, and has the duty and responsibility to, guarantee the restoration area outside of the pavement against construction defects for a period of three (3) years after completion is approved by the City.
- (D) In esplanade and lawn repair areas the permittee is required to establish healthy (90%) grass growth through two consecutive mowings. The City strongly recommends that the permittee date photograph any horticultural restorations and healthy grass growth after two mowings and submit documentation to the Director.

- (E) The Permittee shall be required to construct a handicapped accessible ramp conforming to ADA and City of Portland Specifications when the area of excavation lies within ten (10') feet of a street intersection or when the excavation extends through an intersection right-of-way. All sidewalk and driveway areas between the trench and the intersection shall be restored by the permittee.

Sec. 6.04 Material Specifications

- (A) All parts of Sec. 4.05 shall apply to this section with the exception of 4.05 (E) and (F).
- (B) Pavement materials and depths shall be as defined in the City's Technical and Design Standards and Guidelines.

Sec. 6.05 Winter Excavations

- (A) Sec. 4.06 shall apply for all public right-of-way paved areas.

Sec. 6.06 Special Condition(s)

If any geofabric material or underdrain is encountered within the excavation area the procedures for restoration as defined in Section 4.07 shall be applied.

Sec. 6.07 Methods of Construction

- (A) Workmanship
 - (1) The permittee is required to furnish all materials and will be responsible for the job to be done in an orderly, timely, quality controlled manner, and will be required to utilize quality workmanship and construction techniques conducted in accordance with industry standards for the successful completion of the utility work, backfilling, appurtenant restorations and pavement repair.
 - (2) The Permittee shall keep a competent foreman and sufficient competent employees to carry on the work with all proper speed and in accordance with the requirements of law and other public authorities and to the reasonable satisfaction of the Director.
 - (3) The Permittee shall conduct the work in such a manner as not to unreasonably interfere with other work being done by the City, by contract or otherwise. If deemed necessary by the Director, the work done under these specifications shall conform to the progress of said other work. The Permittee shall cooperate with the contractors or employees who may be doing work for the City, and with public service corporations affected by the work in arranging for storage places, temporary support for structures, repairs, etc.
 - (3) All temporary repairs must be maintained by the Permittee until the permanent repair has been made.
- (B) Length of Trench Opening
 - (1) The maximum length of open trench in an excavation permissible at any time shall be two hundred (200') feet, and no greater length shall be opened for pavement removal excavation, construction, backfilling, repairing or any other operation without the express written permission of the City.
- (C) Placement of backfill material
 - (1) The backfill material shall be spread and compacted in layers not exceeding eight inches (8") in loose depth.
 - (2) No excavated pavement shall be used or mixed in with any backfill material.

(D) Depth of Substructures

- (1) No person or utility shall, without written permission from the city, install any substructure, except manholes, valve casings, culverts, and catch basins at a vertical distance less than:
- (a) The minimum depth of any substructure shall be twenty-four (24) inches below the established sidewalk or curb when such substructure is at a right angle to the street.
 - (b) The minimum depth of any substructure on any other public place shall be twenty-four (24) inches below the surface; provided, however, that the city may permit a lesser depth in special cases.
 - (c) Nothing in this section shall impose a duty upon the permittee to maintain the specifications as required herein upon subsequent changes of grade in the surface unless the grade in the substructure interferes with the maintenance of or travel on a public right-of-way.

Sec. 6.08 Guarantee Period

The Permittee shall guarantee the workmanship of the final sidewalk, driveway, curb, esplanade, and lawn area permanent repairs for a period of three (3) years. Documentation such as a dated photograph submitted to show healthy (90%) grass growth after two (2) mowings and other horticultural restorations shall be deemed to meet this three (3) year guarantee.

SECTION 7.0

QUALITY CONTROL / QUALITY ASSURANCE PROTOCOL

Sec. 7.01 Inspections

- (A) The City has the right to perform inspections for the purpose of assuring quality performance by all permittees. The main purpose of these inspections will be to verify if proper compaction, depth, and quality of materials are present in trench excavation repairs.
- (B) City Inspection of pavement structure gravel base materials will be required of all street excavations to verify 95% compaction prior to paving.
- (C) All permittees will be subject to City inspection of any and all excavation and restoration activities. If ten (10) or fewer excavations are performed on an annual basis by any one permittee / utility, all repairs will be inspected. For those permittees / utilities conducting more than ten (10) excavation repairs, the City shall endeavor to inspect at least twenty-five percent (25%) of all excavation and repairs made on an annual basis.
- (D) Methods of inspection and testing shall be in conformance with industry standards, and may be conducted after final pavement is installed.
- (E) Testing will be conducted on a random basis to assure compliance with the City Code of Ordinance Chapter 25 and these rules. This testing may include procedures to confirm rideability and proper soils and pavement materials, depths, and compaction.

Sec. 7.02 Acceptable Results

- (A) Compaction of the pavement structure base shall be deemed acceptable if testing results are within the range of 93% - 100% of the maximum dry density of the material as certified at the time of application. Compaction testing results below 93% of the maximum dry density shall be unacceptable.
- (B) The number of individual permittee / utility repairs tested shall be increased if unacceptable results are found to exceed ten percent (10%) of the total number of repairs tested. In addition, if testing must be increased, the permittee / utility shall be required to reimburse the City for all costs of testing, whether the results are unacceptable or not.
 - (1) If 10% - 15% of the total number of permittee repairs tested are found to be unacceptable, the City shall double the percentage of repairs tested. (i.e. increase testing from 25% to 50% of the permittees total annual repairs.)
 - (2) If more than 15% but less than 30% of the total number of permittee repairs tested are found to be unacceptable, the City shall triple the percentage of repairs tested. (i.e. increase from 25% to 75% of the annual total.)
 - (3) If more than 30% of the total number of permittee repairs tested are found to be unacceptable, this shall be deemed a “gross” failure rate, and the City shall reserve the right to deny any further permits to this permittee / utility.
- (C) The permittee shall continue to be required to reimburse the City for all testing until the percentage of unacceptable results is ten percent (10%) or fewer of the total number of repairs tested.

Sec. 7.03 Performance Requirement for Permanent Pavement Restoration

- (A) Only those utilities whose performance is considered “good” shall be allowed to choose to perform their own permanent repairs in accordance with Section 4.08 (H) and Sec. 4.09 as necessary. “Good” performance shall be defined as follows:
 - (1) Ten percent (10%) or fewer unacceptable initial or post-restoration compaction test results from the total annual (based on a calendar year) number of excavations inspected / tested.
- (B) Utilities whose performance does not meet the definition of “good” shall not be allowed to perform their own permanent repairs during the immediately following calendar year. In order to be allowed this choice again in the future, the utility must show good performance for a minimum of one calendar year through the testing protocol described above.
- (B) Any Utility aggrieved by a decision rendered by the City as a result of quality control shall have the right to appeal as provided in Sec. 25-162 in the Portland City Code.

SECTION 8.0

LOCATION OF UTILITY INFRASTRUCTURE

Sec. 8.01 Selection of Utility Infrastructure Location

- (A) The City’s Technical and Design Standards and Guidelines Section I specifies for each street classification the approximate locations within the right-of-way for each type of utility. From time to time a utility may determine that an alternate location is preferable. In such cases the utility shall submit written application to the City. If the City finds good cause for the alternate location it may allow a utility to locate or relocate its infrastructure in a location other than that specified by the Technical and Design Standards and Guidelines.

- (B) In deciding if there is good cause to alter the typical location of the utility infrastructure, the Department shall consider the following factors:
- (1) public safety
 - (2) accessibility to the utility infrastructure
 - (3) pavement disturbance reduction benefits both current and future, if any
 - (4) future use impacts
 - (5) adequacy of location documentation
 - (6) space constraints for other utilities
- (C) In making an application to alter the typical location of a utility infrastructure, the applicant shall certify with written documents that it has consulted with and received agreement from all other existing and potential utilities in the proposed location area as to its request to alter its typical location. The Department shall give reasonable deference to an objection made by any utility on the basis of protection and maintenance of its existing infrastructure.
- (D) The City will reserve the right to require public improvements in cases where it allows a utility to locate its infrastructure in non-standard locations. The City will consider the Utilities fiscal policies guiding infrastructure expansion decisions when determining the level of required public improvements. The cost of this requirement shall not exceed seventy-five percent (75%) of the standard legal location cost.

APPENDIX A

MODIFIED WINTER PATCHING MATERIAL

1. DESCRIPTION:

This material shall be a plant mixed pavement patching material capable of storage in a stockpile composed of mineral aggregates and a modified bituminous material. The mix provided shall meet the graduation contained herein.

The material shall be uniform, workable, coated, and free of contaminants, debris, and ice and have a wet shiny visual appearance at the time of delivery.

2. MATERIALS

a) Aggregates: Aggregates shall conform to AASHTO M43 (aggregate size designation) modified as shown below and in accordance with ASTM C-136 for standard test method:

<u>SIEVE</u>		<u>OPEN GRADED #89 STONE</u>
		<u>% PASSING</u>
1/2"	12.5 mm	100
3/8"	9.50 mm	90-100
#4	4.75 mm	20-55
#8	2.36 mm	5-30
#16	1.16 mm	0-10
#30	0.60 mm	0-7
#50	0.30 mm	0-5
#200	0.075 mm	0-2.5

ASTM C-88	Soundness Loss (Sodium - 5 cycles)	12.0% Max.
ASTM C-131	Los Angeles Abrasion Loss	40.0% Max.
ASTM C-127-128	Absorption	0.5%-2.0%
ASTM C-127-128	Specific Gravity	2.45%-2.80%
ASTM C-123	Deleterious Material soft pieces	3.0% Max.
ASTM C-295	Deleterious Material Coal & Lignite	1.0% Max.
ASTM C-142	Deleterious Material Shale/Chirt/etc.	2.5% Max.

b) Bituminous Material: The bituminous material shall be prepared from a base asphalt stock of either AC-10 or AC-20 and meeting the following requirements:

ASTM D-1310	Flash Point (TOC)	94°C (200°F) min.
ASTM D-2170	Kinematic Viscosity @ 60° C (140°F)	400-650
ASTM D-95	Water	0.2% Max.
ASTM D-402	Distillate Test (Volume of original sample)	
	To 225° C (437°F)	None
	To 260° C (500°F)	None
	To 315°C (600°F)	0-18%
	Residue from Distillate at 360°C (680°F)	72-95%

Tests on Residue:

ASTM-D-2171 Abs. Viscosity at 60°C (140°)	125-425 Poises
ASTM D-5* Penetration:	180 min. (Using cone method)*
ASTM D-113 Ductility at 4°C (39°F) 1 cm/min:	100 min.
ASTM D-2042 Solubility in Trichloroethylene:	99% min.

*Same procedure as ASTM D-5 except using a penetration cone conforming to ASTM D-217 in lieu of the standard penetration needle. The total moving weight of the cone and attachments shall be 150 ± 0.1 gram. The transfer dish water level shall be lowered to less than the height of the sample followed by decanting water from the top of the sample before transferring from the bath to the penetrometer.

The bituminous material shall be available in various grades so that one such grade will enable a stockpile to remain pliable and workable at a temperature of -15°F (-26°C).

3. COMPOSITION OF MIXTURES:

The aggregate gradation and bituminous material quantities shall meet the requirements given in Table 1 below. The Job Mix Formula design computations and trial batch tests shall be submitted to the Director for review prior to installation of material in any City location. As with the State and local specifications, information shall be supplied including aggregate graduations, aggregate type and sources of supply, bituminous material amount and type including any additives, and temperature ranges for the material preparation. Submission of the above design and test information shall be required each time a change is made in the production design, producer, or aggregate type or source.

TABLE 1 COMPOSITION OF STOCKPILE PATCHING MATERIALS

<u>SIEVE</u>	<u>OPEN GRADED #89 STONE</u>
	<u>% PASSING</u>
1/2" (12.5 mm)	100
3/8" (9.50 mm)	90-100
#4 (4.75 mm)	20-55
#8 (2.36 mm)	5-30
#16 (1.18 mm)	0-10
#30 (0.60 mm)	0-7
#50 (0.30 mm)	0-5
#200 (0.075 mm)	0-2.5
Total Liquid	5.25 - 7.0

The Final Job Mix Formula Total Liquid Content, when received by the Permittee, shall not vary more than 0.5% from the design content when tested in accordance with ASTM D2172 Method A (including the ash) or Method E. The master ranges given above in Table 1 shall govern over the final job mix design content and allowable variations. All aggregate percentages in the table are based on the total weight of aggregate. The bituminous material percentage is based on the total weight of the mix and shall include any additives.

The mixture, after obtaining field working temperature following mixing, shall meet the following requirements:

STRIPPING TEST

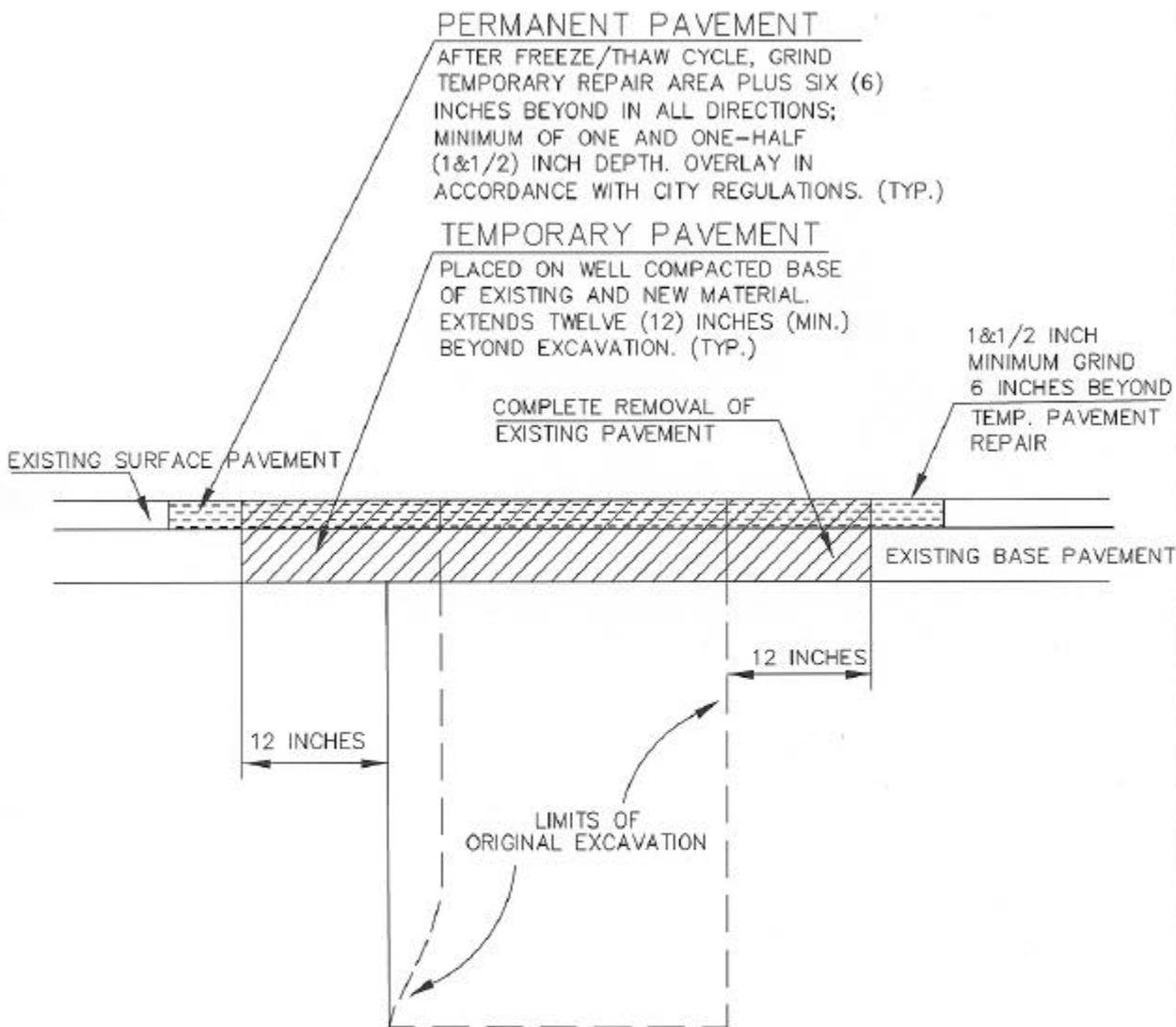
A sample for test is to be obtained by removing a sample toward the top of the stockpile and at a one-foot depth and removing a similar sample toward the bottom of the stockpile at least one foot up from the toe of the stockpile and one foot into the stockpile. The two samples shall be combined to form one test sample. A suitable size test sample of the plant mixed material shall be permitted to cure at normal laboratory temperature for at least 24 hours after which it shall be placed in a glass jar, fitted with a tight cover, and completely covered with distilled water. The jar and contents shall then be allowed to stand for a period of 24 hours at normal laboratory temperature (approximately 70° ±F) (21° C). The sample shall then be shaken vigorously for a period of 15 minutes. The water shall then be poured from the jar and the sample removed to a flat surface to be permitted to air dry after which it shall be visually examined for stripping of the bituminous film from the aggregate. The aggregate surface shall be at least 95% coated with the bituminous film.

4. FIELD PERFORMANCE

The mixture shall be capable of maintaining all of its performance features after remaining in an uncovered stockpile of 100 tons or more for up to 12 months. The field performance, as specified in this Section shall meet a minimum of 90% effectiveness. The mixture shall be capable of maintaining adhesive qualities in areas which are damp or wet at the time of placement and, shall not bleed (flush) when overlaid with hot-mixed asphalt.

5. STOCKPILING AND HANDLING PROCEDURES

Following production, the patch material should be allowed to cool to ambient temperature prior to field use by storing 24 to 48 hours in piles no greater than six feet. Once ambient temperature levels are reached, the patch material can be mounded to meet local needs being sure to avoid traveling on the patch material with loaders or trucks. The stockpile of patch should be placed on a clean, hard paved surface preferably away from blowing dust. Avoid contamination from other sources. To take advantage of the solar heat effects, the ideal stockpile is rectangular in shape with sloped sides and ends. The stockpiles are placed in southeasterly to northwesterly directions: this allows the operator to work off the southeast face during the morning hours providing additional workability at sub-zero temperatures. These modified patch material stockpiles form a thin protective crust after a few weeks. This crust plays an important role in the longevity of the stockpile. It should not be disturbed except for the portion that gets mixed in while loading trucks which should be loaded, if possible, from the shorter rectangular end of the stockpile. Do not freshen or work the entire pile to disturb the protective crust. If moisture has penetrated the stockpile, subsequently freezes and creates visible ice crystals inside of the pile, the material should be placed inside overnight at a minimum temperature of 50°F (10°C). Material returning to the stockpile at the end of the day should be placed near the working face followed by mixing with fresh material on a 50/50 basis during the next load out.



THE TWELVE (12) INCH PAVEMENT OVERCUT MEASUREMENT STARTS AT FURTHEST EDGE OF INTACT NATIVE SOILS. TRENCH WALL DISTURBANCE WILL IMPACT AMOUNT OF PAVEMENT REMOVAL REQUIRED.

CROSS SECTION OF TYPICAL EXCAVATION

NOT TO SCALE

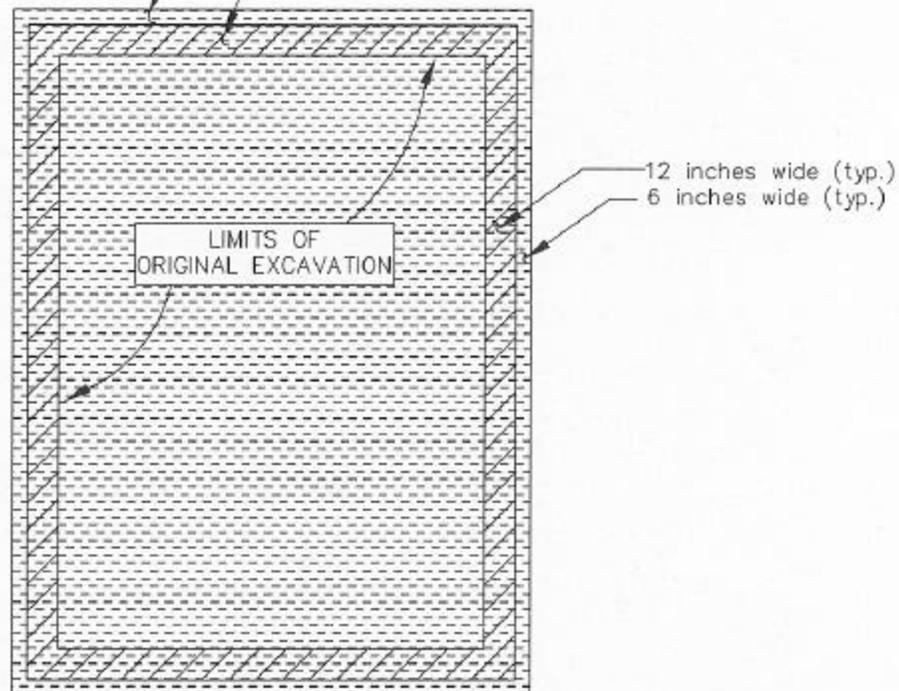
Appendix B

PERMANENT PAVEMENT

AFTER FREEZE/THAW CYCLE, GRIND
TEMPORARY REPAIR AREA PLUS SIX (6)
INCHES BEYOND IN ALL DIRECTIONS;
MINIMUM OF ONE AND ONE-HALF
(1&1/2) INCH DEPTH. OVERLAY IN
ACCORDANCE WITH CITY REGULATIONS. (TYP.)

TEMPORARY PAVEMENT

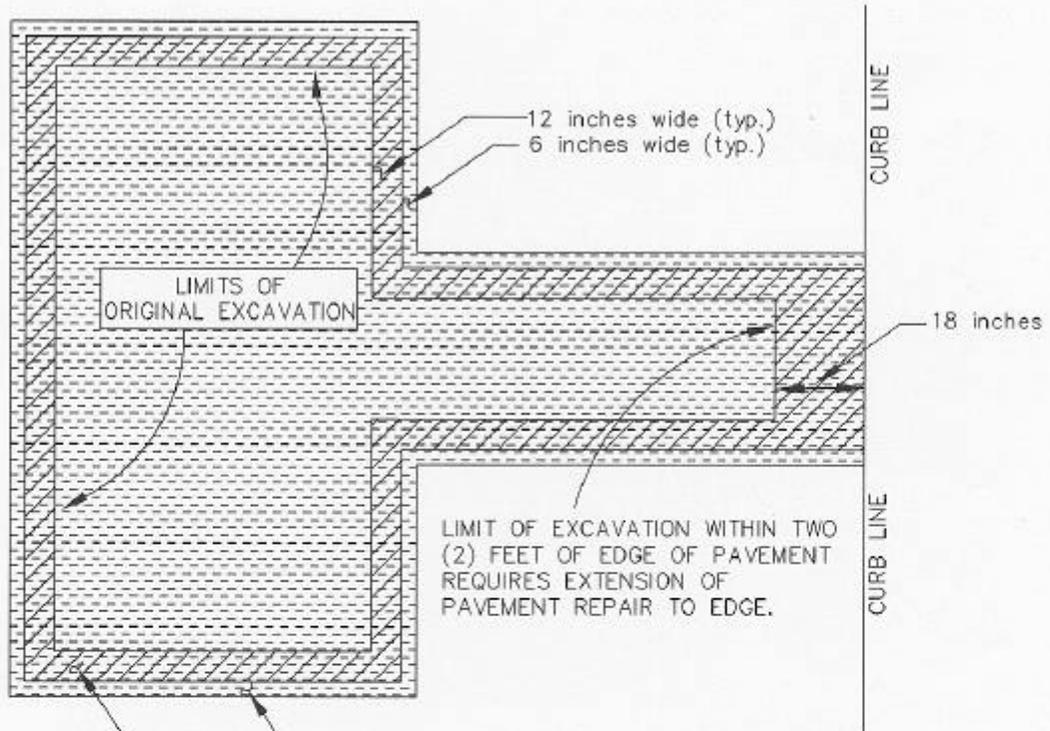
PLACED ON WELL COMPACTED BASE
OF EXISTING AND NEW MATERIAL.
EXTENDS TWELVE (12) INCHES BEYOND
EXCAVATION. (TYP.)



**PLAN VIEW OF
MINOR EXCAVATION PAVEMENT REPAIR**

NOT TO SCALE

Appendix C1



PERMANENT PAVEMENT

AFTER FREEZE/THAW CYCLE, GRIND TEMPORARY REPAIR AREA PLUS SIX (6) INCHES BEYOND IN ALL DIRECTIONS; MINIMUM OF ONE AND ONE-HALF (1&1/2) INCH DEPTH. OVERLAY IN ACCORDANCE WITH CITY REGULATIONS. (TYP.)

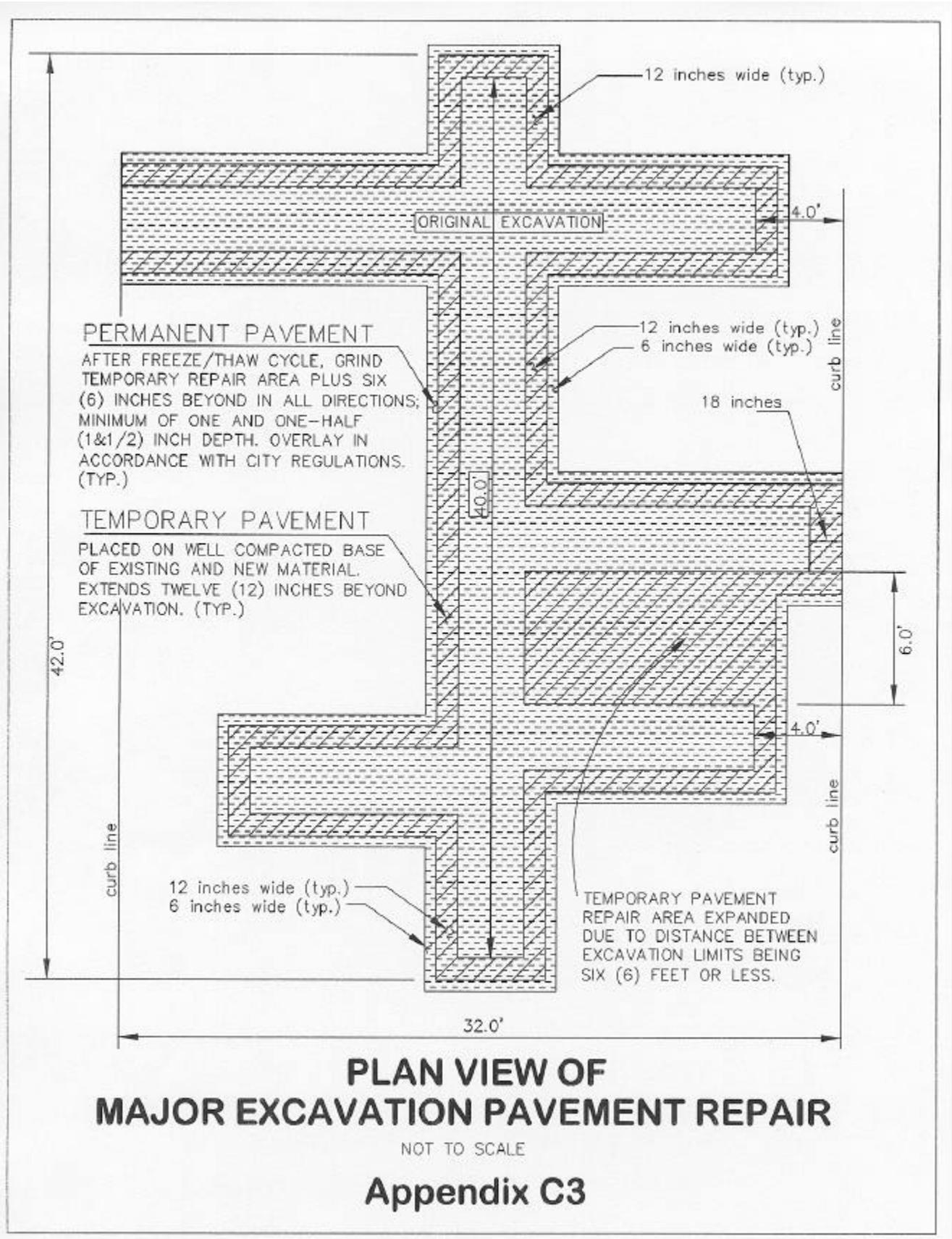
TEMPORARY PAVEMENT

PLACED ON WELL COMPACTED BASE OF EXISTING AND NEW MATERIAL. EXTENDS TWELVE (12) INCHES BEYOND EXCAVATION. (TYP.)

**PLAN VIEW OF
MINOR EXCAVATION PAVEMENT REPAIR**

NOT TO SCALE

Appendix C2

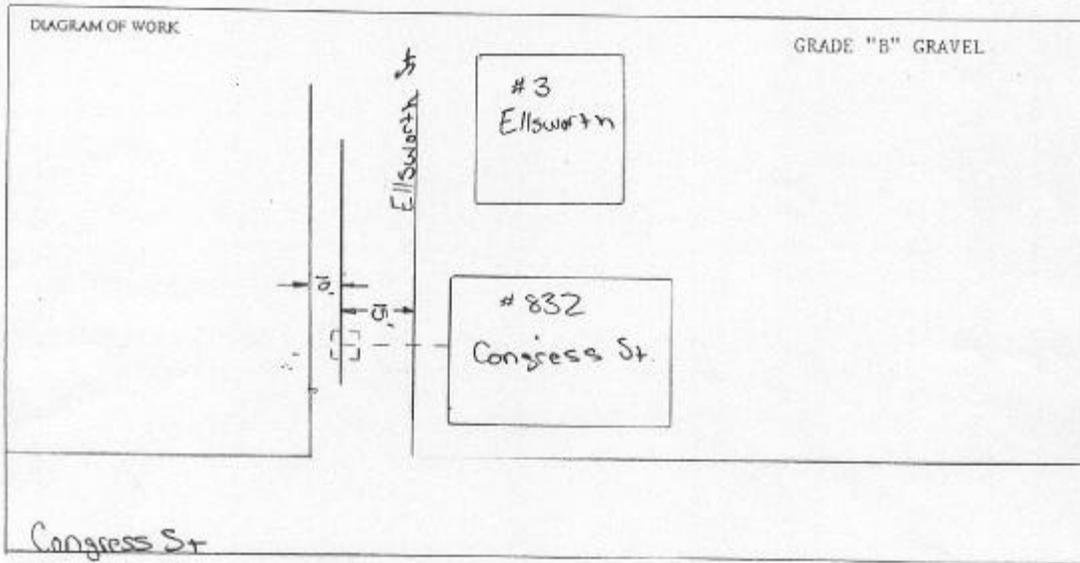


**PLAN VIEW OF
MAJOR EXCAVATION PAVEMENT REPAIR**

NOT TO SCALE

Appendix C3

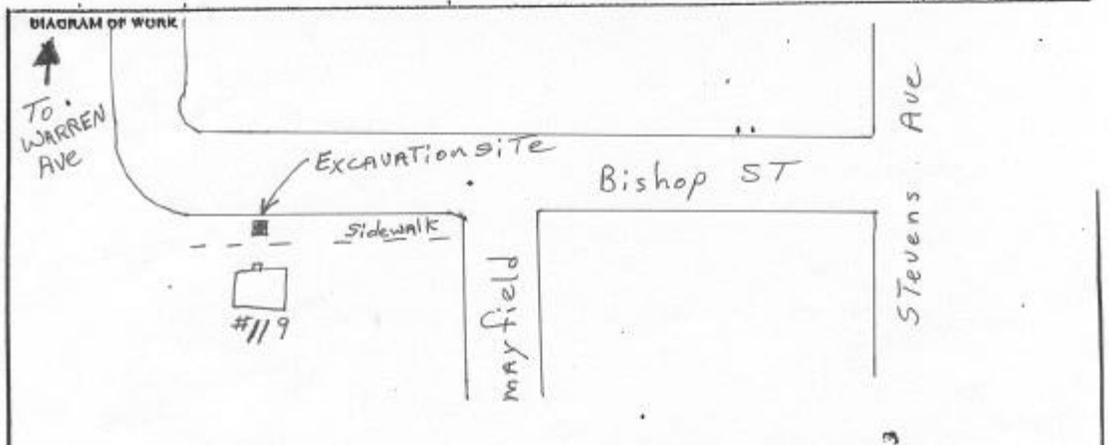
Date & Time
Location, size, and number of pavement cuts anticipated: One (1) - 3x5 hole.



If this is an amendment, has work been completed? NO

Date & Time
Location, size, and number of pavement cuts anticipated: one Trench 5'x5'x5' in Sidewalk AREA

Method of excavation and backfill with certified soil test; gravel reports must include stockpile location address: ON File



Example Permit Application Diagrams

Appendix E