BOROUGH OF MARCUS HOOK
TRENCH BACKFILL AND RESTORATION SPECIFICATIONS

SPECIFICATION

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Backfill and compact and restore utility trenches to match the existing elevations as specified herein and as needed to meet the requirements of other local codes.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen including supervisory personnel who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

B. Use equipment adequate in size, capacity and numbers to accomplish the work in a timely manner.

C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Borough Engineer.

PART 2 - MATERIALS

2.1 BACKFILL MATERIALS

A. Suitable Material:
   1. Suitable material is that material removed from the excavations or imported from off-site borrow areas subject to the approval of the Borough Engineer.
   2. Provide soil materials free from organic matter, debris and deleterious substances, containing no rocks or lumps over 6" in greatest dimension and with no more than 15% of the rock or lumps larger than 2" in their greatest dimension.
   3. Provide material meeting the following specifications:
      a. Required density - % of standard proctor
         - within top 2.0 feet - 95%
         - below top 2.0 feet - 90%
      b. Tolerable range of moisture about optimum - 2%
      c. Minimum California Bearing Ration - 5
      d. For clay materials, compaction moisture and density shall be determined through material testing to minimize expansion and to provide the required CBR value.
B. Select Material:
1. If suitable material is unavailable or unacceptable, provide select material (PennDOT 2A) consisting of durable bank or crushed gravel, stone, or slag, mixed or blended with suitable filler materials to provide a uniform mixture.
2. Use material free from vegetation, organic matter, lumps, excessive clay, foreign substances and not more than 10% of deleterious shale by weight.
3. Material shall conform to the following gradation, determined in accordance with PTM No. 619:
   a. Passing 2 inch sieve - 100%
   b. Passing 3/4 inch sieve - 52 to 100%
   c. Passing 3/8 inch sieve - 36 to 70%
   d. Passing No. 4 sieve - 24 to 50%
   e. Passing No. 16 sieve - 10 to 30%

2.2 BITUMINOUS MATERIAL

A. Bituminous Concrete Base Course
   1. All material shall conform to PennDOT Publication 408, latest edition, Section 309.

B. Bituminous Concrete Wearing Course
   1. All material shall conform to PennDOT Publication 408, latest edition, Section 409.

C. Other Bituminous Materials
   1. All materials shall conform to PennDOT Publication 408, latest edition.

2.3 CONCRETE MATERIALS

A. High early strength concrete
   1. All material shall conform to PennDOT Publication 408, latest edition, Section 704, Class AA concrete

PART 3 - EXECUTION

3.1 Surface Conditions

A. Upon completion of utility work, examine the work area and conditions and correct any detrimental conditions. These shall include, but not be limited to, trench dewatering, removal of unstable soils and removal of debris.

3.2 Backfilling

A. Placing and Compacting:
   1. Place backfill material in level horizontal layers not more than 12 inches in loose depth.
   2. Before compacting, moisten or aerate each layer as necessary to provide the optimum moisture content.
   3. Compact each layer to required percentage of maximum density as follows:
      a. Within top 2 feet - 95%
      b. Below top 2 feet - 90%
4. Do not place backfill on surfaces that are muddy or frozen or containing frost or ice. Do not use backfill that is frozen or contains ice.
5. Place backfill evenly adjacent to structures. Take care to prevent wedging action of backfill against structures by carrying material uniformly around the structure.
6. Place backfill material to within 10" inches of adjacent paving elevation.

3.3 Paving Restoration

A. Temporary:
1. After completion of trench backfill and compaction, place a 8 inch layer of select material in two lifts and compact.
2. Place a 2 inch course of temporary bituminous material and compact with a roller weighing not less than 8 tons. The temporary paving shall be maintained to provide a firm and level road surface until such time that permanent restoration is completed.
3. The temporary paving shall remain for a period of at lease one month or as directed.

B. Permanent:
1. After expiration of the one month period or as directed, the paving shall be mechanically cut back 12 inches from the edge of trench. The area shall be excavated to a depth of 8 inches and the subgrade shall be compacted. All excavated material shall be removed from the site.
2. Place a minimum of 6 inch layer of bituminous concrete base course in two lifts of 3 inches each. Compact each lift with a roller weighing not less than 8 tons.
3. Place a 2 inch layer of wearing course and compact with a roller weighing not less than 8 tons.
4. All joints in the paving shall be sealed with a 12 inch strip wide strip of asphalt sealer applied by pressure distribution. The sealer shall be coated with sand or cement to allow traffic movement over joint.
5. All striping and pavement markings shall be restored.

C. Concrete Base Course - in areas where concrete base course is encountered, the restoration shall be as follows:

1. Sawcut the street opening in a clean straight line to the full depth of concrete at least twelve inches (12") wider than the excavation. If the excavation is within three feet (3") of the curb, the opening shall be extended to curb.
2. The area shall be excavated to a depth of twelve inches (12") below the road surface and the subgrade shall be compacted. All excavated material shall be removed from the site.
3. Place an eight inch (8") layer of high early strength concrete. Protect opening with steel plate.
4. After no less than seventy-two (72) hours, place a two and one-half inch (2-1/2") layer of bituminous concrete base course and compact with a roller weighing not less than eight (8) tons.
5. Place a one and one-half inch (1-1/2") layer of bituminous concrete wearing course and compact with a roller weighing not less than eight (8) tons.
6. All joints in the paving shall be sealed with a twelve inch (12") wide strip of asphalt sealer applied by a pressure distributor. The sealer shall be coated with sand or cement to allow traffic movement.

7. All striping and pavement markings shall be restored.

3.4 General Requirements

A. If the permittee opens pavement having a bituminous concrete surface and the wearing course is less than eight (8) years old, the permittee shall mill and overlay the entire width of the street in that part of the block in which the opening(s) was made, with the length of the overlay to be determined by the Borough Engineer, so that the street is repaved and not patched.

B. If the permittee opens pavement having a bituminous concrete surface and regardless of the age of the wearing course, the permittee shall mill and overlay the lane width of the street in that part of the block in which the opening(s) was made, with the length of the overlay to be determined by the Borough Engineer, so that the street is repaved and not patched in accordance with any one of the following conditions:
   1. If more than one hundred (100) linear feet of longitudinal or transverse openings, or both, are made in the pavement and the pavement has not been impaired by any openings or defects.
   2. If four (4) or more openings are made by the same permittee within one hundred (100) linear feet of pavement.
   3. If the trench width is more than one-third of the roadway width, the trench width measurement shall include the required twelve inch (12") cutback from the edge of the trench.

C. If an opening is made within three feet (3') from the edge of the pavement or other longitudinal or transverse joint or opening, the surface restoration shall be extended to the edge of the pavement or longitudinal or transverse joint or opening.

D. Contribution in lieu of overlay:
   1. Upon approval of the Borough, the permittee may make a contribution of the estimated milling and paving costs to the Borough for the street restoration work to be performed by the Borough.

3.5 Traffic Maintenance and Protection

A. All traffic control shall be in accordance with PennDOT Publication.

B. No road closures or detours shall be established without approval of the appropriate agency.

C. Any trenches left below the existing road surface shall be protected by a steel plate to allow unimpeded traffic flow.

*Adopted by Borough Council on December 3, 2012.*