PART 1 - GENERAL

1.01 DESCRIPTION

A. Work Specified
   1. The CONTRACTOR shall furnish all labor, materials, equipment, and
      incidentals necessary for excavation, trenching, backfill, and compaction as
      shown and specified. Disposal of excess and unsuitable excavated material is
      included.
   2. Backfill of excavations with acceptable materials as specified in other
      Sections.

B. Related Work Specified Elsewhere
   1. Section 02316 - Select Granular Materials
   2. Section 02317 - Rock Excavation
   3. Section 02900 - Restoration
   4. Section 15051 - Buried Piping Installation

1.02 QUALITY ASSURANCE

A. Reference Standards
   1. ASTM A36, Structural Steel
   2. ASTM A328, Steel Sheet Piling
   3. ASTM D422, Particle-Size Analysis of Soils
   4. ASTM D698, Moisture-Density Relations of Soils, using 5.5 lb. Rammer and
      12-inch Drop
   5. ASTM D1556, Density of Soil in Place by the Sand-Cone Method
   6. ASTM D1557, Moisture-Density Relations of Soils, using 10 lb. Rammer
      and 18-inch Drop
   7. ASTM D2321, Recommended Practices for Underground Installation of Pipe
      for Sewers and Other Gravity Flow Applications
   8. ASTM D2922, Density of Soil and Soil-Aggregate in Place by Nuclear
      Method (Shallow Depth)
   9. AISC Specifications for the Design, Fabrication and Erection of Structural
      Steel for Buildings
   10. Occupational Safety and Health Administration (OSHA) Regulations
   11. Industrial Code Rule 23
1.03 SUBMITTALS

A. Before any excavation begins, the CONTRACTOR shall obtain all permits and licenses required by governing authorities having jurisdiction and submit certified copies to ENGINEER prior to work being performed.

B. The CONTRACTOR shall submit drawings submitted with a PE stamp, for information only, for the following items as required:
   1. Sheet ing, shoring and bracing
   2. Dewatering systems
   3. Cofferdams
   4. Additional protection systems required
   5. Underpinning
   6. Underdraining
   7. Sediment and Erosion control
   8. Boring and Receiving Pits.

C. The CONTRACTOR shall submit proposed materials, methods and operations of backfilling and compaction to the ENGINEER for review prior to the start of work. A list of equipment to be used in CONTRACTOR’S methods and operations must be included.

D. All drawings shall be prepared and sealed by an independent professional engineer recognized as an expert in the specialty involved and licensed to practice in the State of New York. The drawings shall be submitted to the ENGINEER to establish compliance with the terms of the Contract Documents. Calculations shall not be submitted. Drawing submissions will not be checked and will not imply approval by the ENGINEER of the work involved. CONTRACTOR shall be wholly responsible for designing, installing, and operating whatever system is necessary to accomplish satisfactory sheeting, bracing, protection, underpinning, and dewatering.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Bedding and Select Backfill
   1. Bedding and select backfill material shall be in accordance with Section 02316 - Select Granular Materials.

B. Backfill and Fill Materials
   1. Excavated materials may be used for backfill provided:
      a. Material is sandy, loamy or similar to bank run gravel.
      b. Material is free of debris, hazardous materials, frozen materials, organic or other deleterious materials. Material greater than 4-inches
in any direction is unacceptable. Material greater than 2-inches in any direction is unacceptable for backfill directly against the watermain.

c. Maximum dry density and optimum moisture content are determined in accordance with the above.

d. Material is reviewed and deemed acceptable by the ENGINEER.

2. Use select granular backfill within 5 feet or within a 1 on 1 slope from the trench to the edge of pavement of all roadways.

C. Topsoil
1. Topsoil shall be furnished and installed and coordinated with Section 02900, Restoration.

D. Explosives
1. Explosives are not allowed to be used nor allowed on site.

E. Sheet, Shoring & Bracing
1. Used material shall be in good condition, not damaged or excessively pitted. Unless otherwise specified, all sheeting to remain in place shall be new. New or used sheeting may be used for temporary work.

2. All timber used for breast boards (lagging) shall be new or used, meeting the requirements for Douglas Fir Dense Construction grade or Southern Pine No. 2 Dense S3. Where close or tight sheeting is required, wood sheeting shall be tongued and grooved.

3. All steel work for sheeting, shoring, bracing, cofferdams, etc. shall be designed in accordance with the provisions of the “Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings”, of the AISC except that field welding will be permitted.

4. Steel sheet piling shall be manufactured from steel conforming to ASTM A328. Steel soldier piles, wales and braces shall be new or used and shall conform to ASTM A36.

5. Steel sheeting shall have a minimum thickness of 3/8-inch in web, unless otherwise specified.

PART 3 - EXECUTION

3.01 INSPECTION

A. The CONTRACTOR shall provide the ENGINEER with sufficient time and means to examine the areas and conditions under which excavating, filling and grading are to be performed. The CONTRACTOR shall notify the ENGINEER of conditions detrimental to the proper and timely completion of work. The CONTRACTOR shall not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to the ENGINEER.
3.02 TEST PITS

A. Where shown or ordered by the ENGINEER, the CONTRACTOR shall excavate and backfill test pits in advance of construction to determine conditions or location of existing facilities. The CONTRACTOR shall perform all work required in connection with excavating, stockpiling, maintaining, sheeting, shoring, backfilling and restoring the surface for the test pits.

B. Test pits which the CONTRACTOR excavates that are not shown on the Drawings or specified or ordered shall be at the CONTRACTOR’S expense.

C. No test pits will be dug prior to utility company stakeout.

D. Cold patch for temporary repair shall be placed as directed by the ENGINEER.

3.03 EROSION CONTROL

A. All necessary precautions shall be taken to preclude the contamination of any wetland or waterway by suspended solids, sediment, fuels, solvents, lubricants, epoxy coatings, paints, concrete leachate or any other environmentally deleterious substance associated with the project.

B. All necessary precautions shall be taken to prevent the entry of raw concrete or concrete liquors into the waters and/or wetlands of the State of New York. Equipment washwater from this project shall not be allowed to enter any waterway or wetland.

C. All sediments are to be retained on the project site through the use of hay bales, silt fences or other barriers, as specified or approved by the local authority having jurisdiction, to prevent erosion.

D. All areas of soil disturbance resulting from this project shall be seeded with an appropriate perennial grass seed and mulched with hay or straw within one week of final grading. Mulch shall be maintained until a suitable vegetative cover has been established.

E. Pumped groundwater collected from excavations shall not be allowed to be discharged directly to any wetland, waterway, or other water body.

F. Contamination of any wetland, waterway, or other water body shall be cleaned and/or restored to the satisfaction of the ENGINEER and governing authorities at the expense of the CONTRACTOR.
3.04 EXCAVATION

A. The CONTRACTOR shall perform all excavation required to complete the work as shown and specified. Excavations shall include earth, sand, clay, gravel, hardpan, boulders and ledge rock, decomposed rock, pavements, rubbish and all other materials within the excavation limits, except rock. Where the excavation is in rock meeting the definition in Section 02317 - Rock Excavation (requiring drilling, jackhammering and hand removal), the rock shall be removed as specified in Section 02317.

B. Excavations for pipelines, utilities and structures shall be open excavations, shored and braced where necessary, according to OSHA standards, to prevent possible injury to workmen and to new and existing structures or pipelines.

C. Where the pipeline, utility or structure is to be placed below the ground water table, well-points, cofferdams or other acceptable methods shall be used to permit construction under dry conditions. Dry conditions shall prevail until concrete has reached sufficient strength to withstand earth and hydrostatic loads and until the pipelines are properly jointed, tested and backfilled.

D. Pumping in excavations shall be done in such a manner so as to prevent damage to the existing subgrade, and to prevent the carrying away of unsolidified concrete materials.

E. Excavations for pipelines shall be made sufficiently wide to permit proper laying and jointing of the pipe. The trench width at the top of the pipe should not be greater than the outside diameter of the pipe barrel plus 2 feet, but shall be sufficient to allow thorough compacting of earth refill adjacent to the bottom half of the pipe. The depth of trench shall be sufficient to allow a minimum cover over the top of the pipe as shown on the drawings. The use of excavating equipment which requires the trench to be excavated to an excessive width will not be allowed. All trenches for buried piping shall be excavated at least 6 inches below the bottom of the pipe and backfilled with pipe bedding material as specified in Section 02316 – Select Granular Materials.

F. Acceptable excavated materials shall be stockpiled in specified areas until required for backfill or fill. Place, grade and shape stockpiles for proper drainage.
   1. Locate and retain soil materials away from edge of excavations.
   2. Unsuitable backfill material shall be kept separate from all other material and shall be disposed of as specified hereinafter. Disposal of unsuitable and excess excavated material shall be accomplished immediately upon removal from the excavation.
   3. Stockpiles shall not be located such that they interfere with traffic or access to public or private property. If necessary, the CONTRACTOR shall maintain additional stockpile areas located elsewhere on the site, and shall
transport the suitable backfill material to and from such stockpile areas as required for the work.

4. In built-up districts and in streets where traffic conditions render it necessary, the material excavated from the initial opening shall be removed by the CONTRACTOR as soon as excavated, and the material subsequently excavated, if suitable for the purpose, shall be used to backfill the trenches in which pipe has been laid or structures have been built, and neither the excavated material nor materials of construction shall be stored on the streets or sidewalks.

G. If the material at the design grade is unsuitable as determined by the ENGINEER, the CONTRACTOR, when ordered in writing, shall excavate additional material to the depth necessary and shall backfill to the proposed grade with select granular material.

H. Unless otherwise directed or permitted, not more than 100 feet of trench in advance of the end of the completed pipe or structure therein shall be opened at any time. Every trench in rock shall be fully opened at least 30 feet in advance of any place where masonry or pipe is being laid. Any time when the CONTRACTOR’S crews are not on the job working, a trench length equal to or less than one-half of the last length of pipe installed may be left open, but properly covered or barricaded to protect the public.

I. At such locations where two pipes may be installed in parallel in a common trench, and where specified, the CONTRACTOR shall install the pipes a minimum of 2 feet apart as measured horizontally from the outside diameter of pipe.

3.05 UNAUTHORIZED EXCAVATION

A. All excavation outside the lines and grades shown and not specified, together with the removal and disposal of the associated material shall be at the CONTRACTOR’S expense. The unauthorized excavation shall be filled as directed by the ENGINEER with select compacted backfill at the CONTRACTOR’S expense. Claims and damages resulting from the CONTRACTOR’S unauthorized excavation will be his sole responsibility.

3.06 DRAINAGE AND DEWATERING

A. General
1. Prevent surface and subsurface water from flowing into excavations and from flooding adjacent areas.
2. Remove water from excavation as fast as it collects.
3. Maintain the ground water level at least 2 feet below the bottom of the excavation to provide a stable surface for construction operations and to prevent damage to the work during all stages of construction.
4. Provide and maintain pumps, sumps, suction and discharge lines and other dewatering system components necessary to convey water away from excavations.
5. Provide sediment traps when water is conveyed into water courses.
6. Notify the ENGINEER before shutting down dewatering systems for any reason.
7. Standing water shall not be permitted in the excavation at any time. If the material at the design grade becomes unsuitable or contaminated due to the actions of the CONTRACTOR, the CONTRACTOR shall excavate additional material to the depth necessary and shall backfill to the proposed grade with select fill or crushed stone.
8. 100% stand-by pumps (gasoline powered) shall be maintained at the site at all times.
9. Any hardships created by the temporary dewatering for this Contract which adversely affects the water supply to local property owners, shall be satisfactorily resolved by the CONTRACTOR, including the provision of temporary water service, if required, at no additional cost to the OWNER.
10. Obtain required permits from agencies of jurisdiction, NYSDEC, and USACOE, for any water being discharged into rivers, streams, or water courses.

B. Disposal of Water Removed by Dewatering Systems
1. Dispose of all water removed from the excavation in such a manner as not to endanger public health, property, or any portion of the work under construction or completed.
2. Dispose of water in such a manner as to cause no inconvenience to the owner or others on or adjacent to the site.
3. Convey water from the excavation in a closed conduit. Do not use trench excavations as temporary drainage ditches.
4. Disposal of water shall be by specified methods and shall not cause erosion or sedimentation to occur in existing drainage systems. All sedimentation or blocking of existing systems shall be thoroughly cleaned and returned to original condition by the CONTRACTOR at his expense.
5. Damage caused by the CONTRACTOR’S operations to public or private property shall be repaired by him to the satisfaction of the ENGINEER and the damaged property owner at the CONTRACTOR’S expense.
6. The CONTRACTOR shall perform all work, furnish all materials and install all measures required to reasonably control soil erosion resulting from construction operations and prevent excessive flow of sediment from the construction site. Such work may include the installation of water diversion structures, diversion ditches and sediment basins and seeding, mulching or sodding critical areas to provide temporary protection. The CONTRACTOR shall submit a plan showing the methods to be used for controlling erosion.
and sedimentation during construction along with the schedule of construction operations to the ENGINEER for review.

7. All erosion and sediment control practices shall be in place prior to any grading operations and installation of proposed structures or utilities.

8. All erosion and sediment control practices shall be left in place until construction is completed and/or area is stabilized.

9. Where necessary, disturbed areas shall be temporarily seeded and/or mulched until proper weather conditions exist for establishment of a permanent vegetative cover.

3.07 SHEETING, SHORING, AND BRACING

A. General

1. Unless otherwise shown or specified, excavations shall be open, shored and braced or sheeted where necessary to prevent injury to workmen, structures, pipelines and utilities.

2. Structures within 100 feet of sheeting installations shall be subject to a pre-construction survey to identify and record existing structural conditions. In the instance of private residencies, the homeowners shall be contacted directly. These inspections shall be carried out by a pre-inspection firm experienced in this line of work.

3. During the actual construction process, the CONTRACTOR shall provide the monitoring and recording of the actual vibrations generated. A baseline of ambient vibration levels shall be established prior to driving sheet piling.
   a. The particle acceleration during the driving of the sheet piling shall not exceed 2.0 FPS.
   b. The CONTRACTOR will be required to change the construction methods if the work is resulting in unacceptable vibration levels.

4. All municipal, county, state, and federal ordinances, codes, regulations, and laws shall be observed. The CONTRACTOR shall provide all sheeting, shoring, and bracing which conforms to New York State Department of Labor – Industrial Code Note 23 and all applicable sections of the 1970 Occupational Safety and Health Act (OSHA), and any other requirements as necessary.

5. All municipal, county, state and federal ordinances, codes, regulations, laws and OSHA regulations shall be observed.

6. Maintain shoring and bracing in excavations regardless of time period excavations will be open. Carry down the shoring and bracing as excavation progresses.

7. Safe and satisfactory sheeting, shoring and bracing shall be the entire responsibility of the CONTRACTOR.

8. The CONTRACTOR shall be held accountable and responsible for the sufficiency of all shoring and bracing used and for all damage to persons or
property resulting from the improper quality, strength, placing, maintaining or removing of the same.

9. The ENGINEER’S permission to proceed with work in either a sheeted, shored braced or open trench condition shall in no way relieve the CONTRACTOR from the above responsibilities.

10. The clearances and types of temporary structures, insofar as they affect the character of the finished work, and the design of steel sheeting to be left in place, will be subject to the review of the ENGINEER, but the CONTRACTOR shall be solely responsible for the adequacy of all sheeting, shoring, bracing, cofferdamming, etc.

11. Unless otherwise shown, specified, or ordered, all materials used for temporary construction shall be removed when work is completed. Such removal shall be made in a manner not injurious to the pipelines or structures.

12. All steel sheet piling designed to remain in place shall be new materials. New or used materials may be used for temporary work.

13. Steel sheet piling shall be manufactured from steel conforming to ASTM A328. Steel for soldier piles, wales, and braces shall be manufactured to conform to ASTM A36.

B. Sheetin9 Left in Place
1. Steel sheet piling shall be left in place or where conditions are such that the removal of sheeting will endanger the work or adjacent pipes or structures or when ordered in writing to be left in place by the ENGINEER. It shall consist of rolled sections of the continuous interlocking type unless otherwise specified. The type and design of the sheeting and bracing shall conform to the above specifications for all steel work for sheeting and bracing.

2. Steel sheet piling to be left in place shall be driven straight to the lines and grades as shown or directed. The piles shall penetrate into firm materials with secure interlocking throughout the entire length of the pile. Damaged piling having faulty alignment shall be pulled and replaced by new piling.

3. The type of guide structure used and method of driving for steel sheet piling to be left in place shall be submitted to the ENGINEER for review. Jetting will not be permitted.

4. The CONTRACTOR shall cut off piling left in place at least 2 feet below road surface or to the grades shown or ordered by the ENGINEER and shall dispose of the cutoffs.

5. Portions of sheeting or soldier piles and breast boards which are in contact with concrete shall be left in place.

C. Removal of Sheetin9 and Bracing
1. Sheetin9 and bracing shall be removed from excavation unless otherwise indicated by the ENGINEER. Removal shall be done so as to not cause injury to the work.
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a. Wood or steel sheeting shall not be removed when adjacent to structures, pavement, pipes, or any other public or private property where removal may cause damage to such property.

b. Fill all voids left by removal of sheeting with select fill.

2. Removal of sheet piling shall be done so as not to cause injury to the Work. Removal shall be equal on both sides of excavation to ensure no unequal loads on pipe or structures.

D. Pipeline Alignment in New York State Department of Transportation and Erie County Highway Department Right-Of-Way:

1. The New York State Department Of Transportation and Erie County Highway Department require all trenches or excavations which fall within a 1 on 1 slope as measured from the edge of pavement to be tight-sheeted with pre-driven steel sheet piling prior to excavation.

a. The design of the predriven steel sheet piling and bracing system is the responsibility of the CONTRACTOR. The ENGINEER may reject any materials which he regards as unsound.

b. A copy of all predriven steel sheet piling and bracing system designs shall be submitted to the ENGINEER for his information before installation of same. Each drawing and computation page shall display the seal and signature of a licensed New York State professional engineer. This information must also be submitted to the Agency having jurisdiction for review and must meet with that Agency’s approval.

c. The CONTRACTOR’S submittal to the ENGINEER shall include written verification from the Agency of jurisdiction that the information being submitted to the ENGINEER has been approved by that Agency.

2. If devices other than pre-driven steel sheet piling are approved by the Agency of jurisdiction in areas designated as requiring temporary sheeting, the CONTRACTOR may (with the ENGINEER’S review) be allowed to use them. However, the costs of furnishing and using these devices will be considered as included in the unit prices bid for the various pipe sections.

E. In areas where the Drawings call for sheeting to remain in place, alternate sheeting methods will not be allowed. Only pre-driven, steel sheet piling systems designed for the CONTRACTOR by a professional engineer will be allowed in these areas.

3.08 BACKFILL AND COMPACTION

A. All backfill required for trenches and structures required to provide the finished grades shown and as described herein shall be furnished, placed and compacted in 6 inch lifts by the CONTRACTOR. Unless otherwise specified or required, fill shall be obtained from the excavated materials. All materials used for filling and backfilling shall be soil of acceptable quality, free from boulders, frozen lumps,
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wood, stumps, sludge, or other organic matter or other deleterious or hazardous materials. Excavated materials meeting these requirements and approved by the ENGINEER may be used as backfill.

B. Rock and/or earth material may be encountered during the work that is unsuitable for backfilling. When this material is encountered, it shall be disposed of in the specified manner, possibly resulting in a shortage of suitable backfill material. In this event, the CONTRACTOR shall be responsible for furnishing, delivering and installing clean earth or select backfill materials to properly and completely backfill the excavation. Backfill material for these situations may be obtained from other areas of the project where suitable material is available or from offsite locations as approved by the ENGINEER. All backfill material is subject to the ENGINEER’S review and must meet the minimum requirements of the specifications above.

C. Backfill excavations as promptly as work permits, but not until completion of the following:
   1. Inspection by the ENGINEER of all work within the excavation.
   2. Inspection, testing approval, and recording of locations of underground utilities, connections, branches, structures and other facilities.
   3. Removal of shoring and bracing, and backfilling of voids with satisfactory materials. Cut off temporary sheet piling driven below bottom of structures and remove in a manner to prevent settlement of the structure or utilities, or leave in place if required.
   4. Removal and proper disposal of trash and debris.

D. Excavation shall be kept dry during backfilling operations. Backfill around piping and structures shall be brought up evenly on all sides.

E. The minimum density to be obtained during backfilling operations shall be 95 percent and is a percentage of the maximum density obtained in the laboratory as defined in ASTM D698 Method C including Note 2. This percentage is of modified Proctor density. In-place density determinations shall be made using a sand density cone or equivalent method as specified by ASTM D1556. If any bricks, bottles, pieces of metal, debris or other foreign matter larger than 3/4-inch size are encountered in the density test hole, a different test location shall be chosen. The ENGINEER will determine the frequency of field testing required to determine the density of the fill and shall direct the number and location of density tests. All equipment necessary to determine fill density, including nuclear density meters, shall be supplied by the CONTRACTOR.

F. The water content of fill material shall be controlled during placement within the range necessary to obtain the density specified. In general, the moisture content of the fill shall be within 5 percent dry and 2 percent wet of the optimum moisture content for the specified density as determined by laboratory tests. The CONTRACTOR shall perform all necessary work to adjust the water content of the
material to within the range necessary to permit the density specified. No fill material shall be placed and no compaction of fill will be permitted when there is any standing water in the trenches or when the fill material or the ground the fill is to be placed on is frozen.

G. The CONTRACTOR is not allowed to access any part of an existing water supply system (fire hydrants, etc.) as a source of water for any reason during construction activities, including the use of water for backfilling to obtain the proper moisture content.

H. If the specified densities are not obtained because of the CONTRACTOR’S improper control of placement or compaction procedures, or because of inadequate or improperly functioning equipment, the CONTRACTOR shall perform whatever work is required to provide the specified densities. This work shall include complete removal of unacceptable fill areas, replacement and recompaction until acceptable fill is provided.

I. All backfill in pipe trenches shall be placed in horizontal layers not exceeding 6 inches in depth and thoroughly compacted before the next layer is placed.

J. Where pipe is laid in rock excavation, crushed stone or gravel fill shall be carefully placed and tamped over the rock before the pipe is laid. After laying, pipe, the balance of the backfill shall be placed as described herein above.

K. Placement:
   1. Place pipe bedding, select backfill and/or earth backfill or borrow materials, as specified herein and in Section 15051- Buried Piping Installation.
   2. Trenches under roadways shall be backfilled with select backfill material for the entire length of the open cut crossing plus 5 feet back from the edge of pavement or a distance equal to a 1 on 1 slope to the invert, whichever is greater.
   3. Where shoulders are excavated, the trench shall be backfilled with select granular material.
   4. The entire trench area under driveways, parking areas, and sidewalks, shall be backfilled with select granular material in accordance with the Contract Drawings and Specifications.
   5. Prior to commencing with the backfilling operation, the CONTRACTOR shall submit information to the ENGINEER such as catalog cuts, specification sheets, etc., describing the type of compaction equipment he intends to use.

L. Pipe Trench Preparation
   1. Braced trench width shall be minimized to greatest extent practical but shall conform to the following:
a. Trench width shall be sufficient to provide room for installing, jointing and inspecting piping, as shown on Contract Drawings.
b. Enlargements at pipe joints may be made if required and specified by the ENGINEER.
c. Trench width shall be sufficient for sheeting, bracing, sloping, and dewatering.
d. Trench width shall be sufficient to allow thorough compacting of backfill.
e. Do not use excavating equipment which requires the trench to be excavated to excessive width.

2. Depth of trench shall be as shown. If required, depths may be revised as specified by the ENGINEER.

M. The CONTRACTOR shall repair any settlement that occurs at no additional cost to the OWNER.

3.09 GRADING

A. General
Uniformly grade areas within limits of grading under this Section including adjacent transition areas. Smooth subgrade surface within specified tolerances, compact with uniform levels or slopes between points where elevations are shown, or between such points and existing grades.

B. Turfed Areas
Finish areas to receive topsoil to within not more than 1 inch above or below the required subgrade elevation.

C. Walks and Pavements
Shape surface of areas under walks to line, grade and cross-section, with finish surface not more than 1/2 inch above or below the required subgrade elevation.

D. Slabs
Grade smooth and even, free of voids, compacted as specified, and to required elevation. Provide final grades within a tolerance of 3 inch when tested with a 10 foot straightedge.

E. Compaction
After grading, compact subgrade surfaces to the depth and percentage of maximum density required.

F. All existing drainage swales and ditches, if disturbed, shall immediately, upon completion of pipe installation, be restored to proper lines and grades. CONTRACTOR shall ensure the final drainage facilities are in working condition and acceptable to the agency of jurisdiction.
3.10 PAVEMENT SUBBASE COURSE

A. General
Place subbase material, in layers of specified thickness, over ground surface to support the pavement base course.

B. Grade Control
During construction, maintain lines and grades including crown and cross-slope of subbase course.

C. Shoulders
Place shoulders along edges of subbase course to prevent lateral movement. Construct shoulders of acceptable soil materials as specified, placed in such quantity to compact to thickness of each subbase course layer. Compact and roll at least 12 inch width of shoulder simultaneously with compacting and rolling of each layer of subbase course.

D. Placing
Place subbase course material on prepared subgrade in layers of uniform thickness, conforming to indicated cross-section and thickness. Maintain optimum moisture content for compacting subbase material during placement operations. When a compacted subbase course is shown to be 6 inches thick or less, place material in a single layer. When shown to be more than 6 inches thick, place material in equal layers, except no single layer more than 6 inches or less than 3 inches in thickness when compacted.

3.11 DISPOSAL OF EXCAVATED MATERIALS

A. Material removed from the excavations which does not conform to the requirements for fill or is in excess of that required for backfill shall be hauled away by the CONTRACTOR and disposed of in compliance with Municipal, County, State, Federal or other applicable regulations at no additional cost to the OWNER.

B. The CONTRACTOR shall not dispose waste excavated material in any of the following locations:
1. Wetland areas.
2. Flood plains.
3. Any area where excess siltation will damage or pollute receiving water.
4. Disposal of excess materials shall only be allowed at locations approved by NYSDEC Region 9.

3.12 RESTORATION AND CLEAN-UP
A. Following installation, the CONTRACTOR shall restore all areas to their original condition to the requirements of Section 02900 - Restoration, and to the satisfaction of the ENGINEER.

END OF SECTION