

## SECTION 02300

### EARTHWORK

#### PART 1 - GENERAL

##### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

##### 1.2 SUMMARY

- A. This Section includes the following:

1. Preparing subgrades for slabs-on-grade, walks, pavements, lawns, and plantings.
2. Excavating and backfilling for buildings and structures.
- ~~3. Capillary barrier course for floor slabs on grade.~~
- ~~4.3. Subbase course for concrete walks and pavements.~~
- ~~5. Subbase course for asphalt paving.~~
- ~~6. Excavating and backfilling trenches within building lines.~~
- ~~7.4. Excavating and backfilling trenches for buried mechanical and electrical utilities and pits for buried utility structures.~~

- B. Related Sections include the following:

1. Division 1 Section "Construction Facilities and Temporary Controls."
2. Division 2 Section "Site Clearing" for site stripping, grubbing, removing topsoil, and protecting trees to remain.
3. Division 2 Section "Excavation Support and Protection."
4. Division 2 Section "Foundation Drainage Systems" for drainage of footings, slabs-on-grade, and walls.
5. Division 2 Section "Landscaping" for finish grading, including placing and preparing topsoil for lawns and plantings.

##### 1.3 DEFINITIONS

- A. Backfill: Soil materials used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
2. Final Backfill: Backfill placed over initial backfill to fill a trench.

- B. Base Course: Layer placed between the subbase course and paving.

- C. Bedding Course: Layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.

~~E. Capillary barrier: Layer supporting floor slab on grade used to minimize capillary flow of pore water.~~

~~F.E.~~ Excavation: Removal of material encountered above subgrade elevations.

1. Remedial Grading: Over excavation beneath trails, retaining walls, paving and flatwork as described in this section [and the Geotechnical Report](#) and shown on the plans.
2. Additional Excavation: Excavation below subgrade or limits of remedial grading elevations as directed by Landscape Architect or Owner. Any additional excavation and replacement material will be paid for according to the Contract provisions.
3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated dimensions without direction by Landscape Architect or Owner. Unauthorized excavation, as well as remedial work directed by Landscape Architect or Owner, shall be without additional compensation.

~~G.F.~~ Fill: Soil materials used to raise existing grades.

~~H. Rock: Refer to section 02411 Rock Removal. Rock material in beds, ledges, unstratified masses, and conglomerate deposits and boulders of rock material exceeding 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:~~

- ~~1. Excavation of Footings, Trenches, and Pits: Late model, track mounted hydraulic excavator; equipped with a 42 inch wide, short tip radius rock bucket; rated at not less than 120 hp flywheel power with bucket curling force of not less than 25,000 lbf and stick crowd force of not less than 18,700 lbf; measured according to SAE J-1179.~~

~~I.G. Bulk Excavation: Late model, track mounted loader; rated at not less than 210 hp flywheel power and developing a minimum of 45,000 lbf breakout force; measured according to SAE J-732.~~

~~J.H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.~~

~~K.I. Subbase Course: Layer placed between the subgrade and base course for asphalt paving, or layer placed between the subgrade and a concrete pavement or walk.~~

~~L.J. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.~~

~~M.K. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.~~

## 1.4 QUALITY ASSURANCE

- A. Geotechnical Testing Agency: soil and material testing to comply with specification requirements shall be the responsibility of the contractor. Owner to hire materials testing firm to perform compaction testing and concrete testing.

## 1.5 PROJECT CONDITIONS

- A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated:
  - 1. Notify Owner not less than three days in advance of proposed utility interruptions.
  - 2. Do not proceed with utility interruptions without Owner's written permission.
  - 3. Contact utility-locator service for area where Project is located before excavating.
- B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies and Palomar College to shut off services if lines are active.

## PART 2 - PRODUCTS

### 2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: ASTM D 2487 soil classification groups GW, GP, GM, GC, SW, SP, SC and SM, or a combination of these group symbols; free of rock or gravel larger than 6 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
  - 1. Expansion Index: Not more than 50 as measured by UBC Std. 29-2 and ASTM D4829.
  - 2. Upper 18 inches of subgrade fill under landscaped areas: Soil containing not more than 10% stones or lumps larger than 1-1/2 inches.
- C. Unsatisfactory Soils: ASTM D 2487 soil classification groups ML, MH, CL, CH, OL, OH, and PT, or a combination of these group symbols, or soil with an expansion index greater than 50 as measured by ASTM D4829 or UBC 29-2.
- D. Backfill and Fill: Satisfactory soil materials.
- E. Subbase: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2- inch sieve and not more than 12 percent passing a No. 200 sieve.
- F. Bedding: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve. Pea gravel bedding shall be 3/8 inch.

### 2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:
- B. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, minimum 6 inches wide and 4 mils thick, continuously inscribed with a description of utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:
  - 1. Red: Electric.
  - 2. Yellow: Gas, oil, steam, and dangerous materials.
  - 3. Orange: Telephone and other communications.
  - 4. Blue: Water systems.
  - 5. Green: Sewer systems.

## PART 3 - EXECUTION

### 3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways. Implement all BMP's during construction as indicated in the SWPPP and as directed by the QSP.

### 3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
  - 2. Install a dewatering system to keep subgrades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.

### 3.3 EXPLOSIVES

- A. Explosives: Refer to Section 02228.

### 3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavation to subgrade elevations regardless of the character of surface and subsurface conditions encountered, including rock, soil materials, and obstructions.
  - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

~~B. Classified Excavation: Excavation to subgrade elevations classified as earth and rock.~~

~~1.2.~~ Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.

~~2.3.~~ Rock excavation includes removal and disposal of rock.

- a. Do not excavate rock until it has been classified and cross-sectioned by Landscape Architect or Owner.
- b. It is expected that rock will be encountered; will require breaking.

~~3.5 EXCAVATION FOR STRUCTURES~~

~~A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 0.1 feet. Extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.~~

~~1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.~~

~~2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch. Do not disturb bottom of excavations intended for bearing surface.~~

~~3.63.5 EXCAVATION FOR WALKS AND PAVEMENTS~~

- A. Excavate surfaces under walks and pavements to indicated cross sections, elevations, and grades. All grades indicated on plans are to finished surface elevation. Contractor is responsible for determining required subgrade elevation based on pavement type and thickness.

~~3.73.6 EXCAVATION FOR UTILITY TRENCHES~~

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
- B. Excavate trenches to uniform widths to provide a working clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit, unless otherwise indicated.
  - 1. Clearance: 12 inches on each side of pipe or conduit.
  - 2. Clearance: As indicated.

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- C. Trench Bottoms: Excavate trenches 4 inches deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.
  - 1. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

### 3.83.7 APPROVAL OF SUBGRADE

- A. Notify Testing Agency when excavations have reached required subgrade.
- B. If Testing Agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
  - 1. Additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- C. Proof roll subgrade with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof roll wet or saturated subgrades.
- D. Reconstruct subgrades damaged by rain, accumulated water, or construction activities, as directed by Testing Agency.

### 3.93.8 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill may be used when approved by Architect.
  - 1. Fill unauthorized excavations under other construction or utility pipe as directed by Landscape Architect.

### 3.103.9 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow materials and satisfactory excavated soil materials. Stockpile soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.
  - 2. Provide all required SWPPP BMP's for stockpiled material.

### 3.113.10 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  - 1. Construction below finish grade including, where applicable, damp proofing and water-proofing.

2. Surveying locations of underground utilities for record documents.
3. Inspecting and testing underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring and bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

### 3.123.11 UTILITY TRENCH BACKFILL

- A. Place and compact 6 inch bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
  1. Provide pea gravel bedding for sanitary and storm sewer piping.
  2. Sand bedding may be used for other than sewer piping.
- B. Backfill trenches excavated under footings and within 18 inches of bottom of footings; with concrete to elevation of bottom of footings.
- C. Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase.
- D. Place and compact initial backfill of pea gravel, free of particles larger than 1 inch, to a height of 12 inches over the utility pipe or conduit.
  1. Carefully compact material under pipe haunches and bring backfill evenly up on both sides and along the full length of utility piping or conduit to avoid damage or displacement of utility system.
- E. Coordinate backfilling with utilities testing.
- F. Fill voids with approved backfill materials while shoring and bracing, and as sheeting is removed.
- G. Place and compact final backfill of satisfactory soil material to final subgrade.
- H. Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

### 3.133.12 FILL

- A. Preparation: Remove vegetation, topsoil, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface before placing fills.
- B. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- C. Place and compact satisfactory fill material in layers to required elevations.

### 3.143.13 MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.
  - 1. Do not place backfill or fill material on surfaces that are muddy.
  - 2. Remove and replace, or scarify and air-dry, otherwise satisfactory soil material that is too wet to compact to the specified dry unit weight.

### 3.153.14 COMPACTION OF BACKFILLS AND FILLS

- A. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.
- C. Compact soil to at least 90 percent of the maximum dry density determined in general accordance with ASTM D1557, unless stated otherwise on the plans. The upper 12 inches of pavement subgrade should be compacted to at least 95 percent relative compaction.

### 3.163.15 GRADING

- A. General: Uniformly grade areas to a smooth surface, free from irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  - 1. Provide a smooth transition between adjacent existing grades and new grades.
  - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
  - 1. Lawn or Unpaved Areas: Plus or minus 0.1 feet.
  - 2. Walks and Trails: Plus or minus 0.054 feet.
  - 3. Pavements: Plus or minus 0.05 feet.

### 3.173.16 SUBBASE COURSES

- A. Under pavements and walks, place subbase course on prepared subgrade and as follows:
  - 1. Compact subbase course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum density according to ASTM D 1557.
  - 2. When thickness of compacted subbase course is 6 inches or less, place materials in a single layer.



3. When thickness of compacted subbase course exceeds 6 inches, place materials in equal layers, with no layer more than 6 inches thick or less than 3 inches thick when compacted.

### 3.183.17 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.
- B. Allow testing agency to observe and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
- C. Do not backfill utility trenches until the as-built location and elevation of each utility is surveyed and recorded and until the utility lines have been inspected and satisfactorily tested.
- D. Footing Subgrade: Foundation bearing soils should be observed by the geotechnical consultant prior to placing concrete.
- E. Testing agency will test compaction of soils in place according to ASTM D 1556, ASTM D 2167, ASTM D 2922, and ASTM D 2937, as applicable. Tests will be performed at the following locations and frequencies:
  1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 1000 sq. ft. or less of paved area or building slab, but in no case fewer than three tests.
  2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for each 50 feet or less of wall length, but no fewer than two tests.
  3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for each 50 feet or less of trench length, but no fewer than two tests.
  4. Retaining wall foundation subgrade: at least one test for each 50 feet of wall length.
- F. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.

### 3.193.18 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
  1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.
- C. Where settling occurs before Project warranty period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to the greatest extent possible.

### 3.203.19 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.

### 3.21 REMEDIAL EARTHWORK

- A. When performing earthwork activities the contractor is made aware:
  1. It is anticipated that excavations will require heavy ripping, rock breaking, and blasting. Depths of rippable materials will vary at the site and the presence of resistant rock masses or core stones should be anticipated.
  2. Oversized materials will be generated from excavations and blasting operations performed at the site. Oversized materials should be screened, crushed, or otherwise processed prior to their reuse as compacted fill.
  3. During the Geotechnical Investigation, granitic rock outcrops were observed on the surface in the project area. These areas are anticipated to be very difficult to excavate. Blasting or rock breaking should be anticipated. The contractor should anticipate difficulty in performing excavations. The presence of resistant boulders and or corestones can be problematic in a narrow trench and should be anticipated by the contractor. Rippability will also be dependent on the excavation equipment used and the skill and experience of the equipment operator.
  4. On-site materials may be suitable for reuse as compacted fill, provided that they are screened of oversized materials and they meet the criteria for compacted fill materials including presence of deleterious material and organic content.
- B. Site Preparation
  1. Site preparation should begin with the removal of vegetation, utility lines, concrete, and other deleterious debris from the areas to be graded. Tree stumps and roots should be removed to such a depth that organic material is generally not present. Clearing and grubbing should extend to the outside of the proposed excavation and fill areas. The debris and unsuitable material generated during clearing and grubbing should be removed from area to be graded and disposed of at a legal dumpsite away from the project area.
- C. Remedial Grading
  1. In areas underlying proposed trails, concrete flatwork and other improvements, it is recommended that the on-site soils be excavated to the planned subgrade elevations. The extent and depth of removals should be evaluated by the geotechnical consultant's representative in the field based on the material exposed. The resulting surface should be scarified 8 inches, moisture conditioned and recompacted to a relative compaction of 90 percent as evaluated by the ASTM Test Method 1557.

D. Excavation Characteristics

1. Based on Geotechnical field exploration and the experience of the Geotechnical Engineer, it is anticipated that excavations within the fill and colluvium may be accomplished with heavy-duty earthmoving equipment in good working condition. However large boulders present in these materials will require special handling. Based on the results of the seismic refraction survey prepared by the Geotechnical Engineer, the depth of ripplable material varies across the site. In general, excavations through the fill soils, colluvium, and weathered granitic rock (seismic velocities less than 4,000 ft/s) may be encountered to depths up to 15 feet. Fresh granitic rock (seismic velocities greater than 4,000 ft/s) is anticipated to require heavy ripping, rock breaking, and blasting. Surface rock outcrops were also observed in several locations across the site. Heavy ripping and blasting from the surface should be anticipated in areas where fresh granitic rock and/or surface outcrops are exposed during grading. Resistant rock masses or core stones should be anticipated at various depths.

E. Materials for Fill

1. Materials for fill may be obtained from on-site excavations or may be import materials. Fill soils should possess an organic content of less than approximately 3 percent by volume (or 1 percent by weight). In general, fill materials should not contain rocks or lumps over approximately 3 inches in diameter, and not more than approximately 30 percent larger than  $\frac{3}{4}$  inch. Oversize materials should be separated from material to be used for fill and removed from the site.

Imported fill material should generally be granular soils with a low expansion potential (i.e. an expansion index [EI] of 50 or less) for the building pads and other areas. Import material should also be non-corrosive in accordance with the Caltrans (2015) corrosion guidelines and American Concrete Institute (ACI) 318. Materials for use as fill should be evaluated by the Geotechnical Engineer's representative prior to filling or importing. To reduce the potential of importing contaminated materials to the site, prior to delivery, soil materials obtained from off-site sources should be sampled and tested in accordance with standard practice (Department of Toxic Substances Control [DTSC], 2001). Soils that exhibit a known risk to human health, the environment, or both, should not be imported to the site.

F. Compacted Fill

1. Prior to placement of compacted fill, the contractor shall request an evaluation of the exposed ground surface by the Geotechnical Engineer. Unless otherwise recommended, the exposed ground surface should then be scarified to a depth of approximately 8 inches and watered or dried, as needed, to achieve moisture contents generally above the optimum moisture content. The scarified materials should then be compacted to a relative compaction of 90 percent as evaluated in accordance with the ASTM D 1557. The evaluation of compaction by the geotechnical consultant should not preclude any requirements for observation or approval by governing agencies. It is the contractor's responsibility to notify the Geotechnical Engineer and the appropriate governing agency when project areas are ready for observation, and to provide reasonable time for that review.

Fill materials should be moisture conditioned to generally above the laboratory optimum moisture content prior to placement. The optimum moisture content will vary with material type and other factors. Moisture conditioning of fill soils should be generally consistent within the soil mass.

Prior to placement of additional compacted fill material following a delay in the grading operations, the exposed surface of previously compacted fill should be prepared to receive fill. Preparation may include scarification, moisture conditioning, and recompaction.

Compacted fill should be placed in horizontal lifts of approximately 8 inches in loose thickness. Prior to compaction, each lift should be watered or dried as needed to achieve a moisture content generally above the laboratory optimum, mixed, and then compacted by mechanical methods to a relative compaction of 90 percent as evaluated by ASTM D 1557. Successive lifts should be treated in a like manner until the desired finished grades are achieved.

G. Temporary Excavations

1. For temporary excavations, it is recommended that the following OSHA soil classifications be used:  
Fill and Colluvium – Type C  
Granitic Rock – Type B

Upon making the excavations, the soil classifications and excavation performance should be evaluated in the field by the geotechnical consultant in accordance with OSHA regulations. Temporary excavations should be constructed in accordance with OSHA recommendations. For trenches and other excavations, OSHA requirements regarding personnel safety should be met using appropriate shoring (including trench boxes) or by laying back the slopes to no steeper than 1.5:1 (horizontal:vertical) in fill and colluvium. A 1:1 slope may be used in granitic rock. Temporary excavations that encounter seepage may be shored or stabilized by placing sandbags or gravel along the base of the seepage zone. Excavations encountering seepage should be evaluated on a case-by-case basis. On-site safety of personnel is the responsibility of the contractor.

END OF SECTION 02300