

SECTION 31 2000  
EARTH MOVING

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes the following:

1. Preparing subgrades.
2. Excavating and backfilling for structures.
3. Subbase and base course for paving.

B. Related Sections include the following:

1. Division 01 Section "Temporary Facilities and Controls" for temporary controls, utilities, and support facilities.
2. Division 31 Section "Site Clearing" for temporary erosion and sedimentation control measures, site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.

1.03 UNIT PRICES

A. Unit prices for earthwork are included in Division 01 Section "Unit Prices." Unit price shall include cost for removal of soft materials and replacement of imported structural fill per cubic yard plus a unit price for rock removal per cubic yard.

1.04 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material 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: Course placed between the subgrade and hot-mix asphalt or concrete paving.

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

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

Revise heading in first paragraph below to read "Capillary Water Barrier" or a similar title if required.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.

1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

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

H. Initial Backfill: Fill free of particles larger than 1 inch in any dimension, to a height of 12 inches over the utility pipe or conduit and as defined by utility trench detail on the plans.

I. Mass Rock Excavation: Consists of the removal and satisfactory disposal off site per applicable unit price of bedrock, rock in lenses, or boulders 1 cubic yard or larger composed of hard granite or similar material requiring the use of rock drills and specialized equipment for removal, and that is measured, in place, prior to removal. In the event rock as defined above is encountered, the contractor shall immediately notify the Geotech Engineer and the Architect. If requested, the contractor shall demonstrate that material cannot be removed by ripping with a D&T dozer or equal with a minimum of 210 HP and a minimum operating weight of 41,200 lbs. equipped with a single shank ripper with a minimum penetration force of 15,000 pounds, with a pry out force of 20,000 pounds, pulling a single-tooth ripper, with ripping performed in a crisscross pattern or against the natural bedding plane. The Contractor may be required to provide equipment specification data verifying the above minimum-rated equipment will be used for demonstration purposes. The equipment is to be in good repair and in proper working condition.

1. If rock is encountered, the contract sum shall be adjusted in accordance with the unit prices submitted by the contractor or per agreed cost proposal provided by the contractor in bank form.
2. Upon encountering rock, the contractor shall remove all overburden from the material and notify the Geotech Engineer and Architect that the material is ready for measurement. The Geotech Engineer will then determine if the material is qualified rock. Once the material is judged as qualified mass rock, the contractor's registered land surveyor shall survey, by cross section, the rock in place and submit the cross sections and calculations to the owner, architect, civil engineer, and geotechnical engineer for approval. All parties must agree on mass rock and confirm quantities prior to removal of rock.
3. Any material moved or removed without the measurement and approval will be considered as earth excavation.
4. Limit of payment shall be from top of rock to excavation requirements per specifications.

J. Trench Rock Excavation: Consists of the removal and satisfactory disposal off site of material composed of hard granite or similar material in trenches less than 10 feet wide that cannot be effectively removed using a 125-hp excavator with a pull of 36,500 pounds at the rate of 6 inches per 10 minutes or more or a backhoe equipped with a minimum 1/4 cubic yard heavy-duty trenching bucket placed on a machine capable of a lifting capacity of 7,500 pounds at a trench depth of 10 feet at the rate of 6 inches per 10 minutes or more, and that is measured, in place, prior to removal. In the event rock as defined above is encountered, the contractor shall immediately notify the Geotech Engineer and the Architect. The Contractor may be required to provide equipment specification data verifying that the above minimum-rated equipment will be used for demonstration purposes. The equipment is to be in good repair and in proper working conditions.

1. If trench rock is encountered, the contract sum shall be adjusted in accordance with the unit prices submitted by the contractor or per agreed cost proposal provided by the contractor in bank form.
2. Any material moved or removed without the measurement and approval will be considered as earth excavation.
3. Upon encountering rock, the contractor shall remove all overburden from the material and notify the Geotech Engineer and Architect that the material is ready for measurement. The Geotech Engineer will then determine if the material is qualified rock. Once the material is judged as qualified rock, the contractor's registered land surveyor shall survey, by cross section, the rock in place and submit the cross sections and calculations to the owner, architect, civil engineer, and geotechnical engineer for approval. All parties must agree on rock and confirm quantities prior to removal of rock.
4. The trench rock payment limit shall generally be per excavation requirements shown in specifications and plans.
5. For rock excavation, a trench shall be defined as a linear excavation that is 5 feet or less in width and 2 feet or greater in depth. All other rock excavation shall be considered general mass rock excavation.
6. Trenches that are located within the limits of mass rock removal shall be classified as mass rock.

K. 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.

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

M. Utilities: Underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.04 SUBMITTALS

J. Product Data: For the following:

1. Detectable Warning tape
1. Classification according to ASTM D 2487 of each soil material proposed for fill and backfill.
2. Laboratory compaction curve according to ASTM D 698 for each soil material proposed for fill and backfill.

B. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by earthwork operations. Submit before earthwork begins.

1.06 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: An independent testing agency qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient on site materials do not match the Geotech report for engineered fill.

B. Base Course: Naturally graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; conforming to ODOT Type "A" aggregate base.

C. Engineered Fill:

1. Structural fill within the proposed building and pavement areas shall have the following properties and as specified in the geotechnical report:

- a. Material having a Plasticity Index (PI) of less than 20
- b. Material having a Liquid Limit (LL) of less than 40
- c. Maximum dry density in excess of 100 pounds per cubic foot
- d. Maximum particle size of 3 inches
- e. At least 30 percent of the material passing the No. 200 sieve
- f. Shall be free of any organics
- g. Prior to any filling operations, samples shall be tested by and approved by the owner's on-site geotechnical engineer.

2. Portions of the onsite lower plasticity clay soils are suitable for use as structural fill within the proposed building and pavement areas; however, the contractor shall delineate the area with lower plasticity lean clay soils and collect a bulk sample prior to start of placement for moisture-density relationship and soil classification testing to evaluate the suitability for use as fill within proposed building and pavement areas.

3. Refer to geotechnical report for other uses of onsite materials as fill.

D. Bedding Course: 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, or as defined by the utility trench details.

E. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and 0 to 5 percent passing a No. 4 sieve.

F. Sand: ASTM C 33; fine aggregate, natural, or manufactured sand.

2.02 ACCESSORIES

A. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the 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.



wallace design collective, pc  
structural-civil-landscape-survey  
123 north martin luther king jr. blvd.  
tulsa, oklahoma 74103  
918.584.5858  
oklahoma ca1460  
exp: 6-30-25



GREASY BALL FIELD

35.666668, -94.695143  
BUNCH, ADAIR COUNTY, OKLAHOMA 74931

DATE
8/29/2024

REV	DESCRIPTION
1	ADDENDUM #01

DATE	07.12.2024
PROJECT NO.	2340325
SHEET NAME	

SPECIFICATIONS  
SHEET 2

SHEET NO.  
**C801**