

Section 225

- 1 (6) Results and effectiveness of the blast and any proposed changes to subsequent
- 2 blasting;
- 3 (7) If applicable, blast monitoring results; and
- 4 (8) Blast damage report when necessary.

(F) Blast Damage Report

6 If damage occurs from blasting, notify the Engineer immediately and submit a blast
7 damage report with the post-blast report that includes the following:

- 8 (1) Property owner’s and injured person’s, if any, names, addresses and telephone
- 9 numbers;
- 10 (2) Details and description of property damage and injury, if any, with photographs or
- 11 video; and
- 12 (3) Any associated tort claims, complaint letters and other applicable information.

220-4 MEASUREMENT AND PAYMENT

14 Pre-splitting of Rock will be measured and paid in square yards. Pre-splitting will be
15 measured along the slope faces of pre-split rock cuts as the square yards of exposed pre-split
16 rock. No payment will be made for unsatisfactory pre-splitting as determined by the
17 Engineer.

18 No direct payment will be made for all other blasting including blasting plans, blast
19 monitoring, post-blast reports, scaling and stabilizing rock cuts.

20 No direct payment will be made for blasting for roadway excavation. Blasting for roadway
21 excavation will be incidental to the contract unit price for *Unclassified Excavation* in
22 accordance with Article 225-7 or the lump sum price for *Grading* in accordance with
23 Article 226-3.

24 No direct payment will be made for blasting for any pipe, utility or foundation excavation.
25 Blasting for these items will be incidental to the compensation for the excavation. Where no
26 direct payment is made for excavation, blasting will be incidental to the work and no separate
27 payment for will be made for blasting.

28 Payment will be made under:

Pay Item	Pay Unit
Pre-splitting of Rock	Square Yard

**SECTION 225
ROADWAY EXCAVATION**

225-1 DESCRIPTION

32 Excavate, place and compact or satisfactorily dispose of all materials encountered within the
33 limits of the work necessary for the construction of the roadway that are not to be removed
34 under another contract item.

35 Perform all excavation in conformity with the lines, grades and cross sections shown in the
36 plans or established by the Engineer.

37 Use care not to cause instability or displacement of the underlying or adjacent materials
38 during construction. The Engineer reserves the right to effect the removal from the grading
39 operation of any equipment that is causing instability or displacement of underlying or
40 adjacent materials to the detriment of the section being constructed.

41 Construct false sumps in accordance with the details in the plans and at the locations shown in
42 the plans or at other locations as directed.

1 Define "Unclassified Excavation" as all material excavated under this section, regardless of
 2 its nature or composition, except for undercut excavation and material directed to be removed
 3 beyond the limits of the original slope stakes.

4 Define "Undercut Excavation" as the excavation, placement and compaction and/or
 5 satisfactory disposal of materials removed from a location below the finished graded roadway
 6 cross section, except for the following:

7 (A) Rock in the bottom of roadway cuts that has been excavated one foot or less below the
 8 roadbed and ditches, or

9 (B) In cut areas, excavation removed below the outside slopes of roadway ditches.

10 **225-2 EROSION CONTROL REQUIREMENTS**

11 Install erosion control measures as required by the plans before any kind of land-disturbing
 12 activity.

13 Unless otherwise required by the plans, conduct operations so that final slopes are completely
 14 graded in a continuous operation and permanently seeded and mulched in accordance with
 15 Article 107-12.

16 Should the Contractor fail to comply with the requirements specified above within the time
 17 frames established by the Sedimentation and Pollution Control Act, the Contractor shall
 18 perform temporary seeding and mulching on any exposed areas at his own expense.

19 When the Contractor fails or neglects to coordinate grading with the permanent seeding and
 20 mulching operation, the Engineer may suspend the Contractor's grading operation in
 21 accordance with Article 108-7 until the work is coordinated in a manner acceptable to the
 22 Engineer. Failure to perform the directed work may result in the Engineer having the work
 23 performed in accordance with Article 105-16.

24 **225-3 UNCLASSIFIED EXCAVATION**

25 Use all suitable material removed from the excavation as far as practicable in the formation of
 26 embankments, subgrades, shoulders and places indicated in the plans or directed.

27 The wasting of suitable material removed as part of unclassified excavation before the
 28 completion of embankments is permitted where the Contractor executes a supplemental
 29 agreement documenting that he agrees to the following:

30 (A) Provide and incorporate into the project any material required to complete the project up
 31 to the volume wasted. Bear all additional costs for providing and incorporating this
 32 material into the work, including engineering costs, and

33 (B) Provide suitable replacement material either wasted from the project or approved borrow
 34 material, at the Contractor's option, and

35 (C) Present no claim for any time arising from the wasting of excess unclassified excavation
 36 or for having to replace material wasted from the project that the Department may require
 37 to complete the work, and

38 (D) Waive rights to request additional compensation with regard to wasting unclassified
 39 excavation under the compensation requirements of Section 104 as a result of wasting
 40 suitable unclassified excavation and providing replacement material required to complete
 41 the work except when unclassified excavation is a major contract item, as defined in
 42 Section 101, and when unclassified excavation underruns by more than 25%.

43 Where the work required to complete the project is so phased by the plans to preclude using
 44 suitable unclassified excavation, the Contractor will be permitted to waste suitable
 45 unclassified excavation without having to execute the above required supplemental
 46 agreement.

Section 225

1 Furnish disposal areas for the unsuitable material except where the Engineer permits or directs
2 the use of such material in the widening or flattening of fill slopes. The Engineer will
3 designate materials that are unsuitable.

4 Where suitable materials containing excessive moisture are encountered above grade in cuts,
5 construct above grade ditch drains before the excavation of the cut material when such
6 measures are necessary to provide proper drainage.

7 Upon execution of a supplemental agreement containing conditions listed below, the
8 Contractor may waste suitable unclassified excavation and replace it with approved borrow
9 material.

10 **(A)** Replace with approved borrow material all suitable unclassified excavation that was
11 wasted.

12 **(B)** Bear all additional costs associated with the wasting of the unsuitable unclassified
13 excavation and the replacing of it with borrow material, including any additional
14 engineering costs to the Department.

15 **(C)** The execution of a supplemental agreement allowing the Contractor to waste suitable
16 unclassified excavation and replace it with approved borrow material bars the Contractor
17 from any claim for any time extensions related to the wasting and replacement operation
18 described in the agreement.

19 **(D)** The Contractor specifically waives his rights to request additional compensation with
20 regard to wasting unclassified excavation under the compensation requirements of
21 Section 104 as result of substituting suitable borrow material and wasting suitable
22 unclassified excavation.

23 Where the contract includes earth shoulder construction, stockpile suitable surplus material
24 for use in the shoulders. To the extent possible, salvage topsoil from within the limits of the
25 slope stake lines and store in stockpiles. Before the topsoil is removed, clear the areas of all
26 weeds, brush, stumps, stones and other debris. Remove the topsoil from only such areas and
27 to only such depths as required by the contract or as directed. Exercise care to avoid mixing
28 subsoil or other unsuitable material with the topsoil. Stockpile an adequate quantity of
29 material to construct the proposed shoulder before wasting any suitable surplus material.
30 Locate the stockpiles along the project at approved locations. Neatly dress each stockpile,
31 when completed. Perform temporary or permanent seeding on the stockpiles where directed
32 or when necessary to prevent erosion. Remove and dispose of any surplus material remaining
33 in the stockpile after the shoulders are completed as provided below for waste matter.

34 Dispose of waste material in accordance with Section 802.

35 Uniformly round the intersection of slopes with natural ground surfaces, including the
36 beginning and ending of cut slopes, as shown in the plans. Concurrent with the excavation of
37 cuts, construct intercepting berm ditches or earth berms along and on top of the cut slopes at
38 locations shown in the plans or as designated. Finish all slopes to reasonably uniform
39 surfaces acceptable for seeding and mulching operations. Leave no rock or boulders in
40 place that protrude more than one foot within the typical section cut slope lines.
41 Clean all rock cuts of loose and overhanging material. Remove all protruding roots and other
42 objectionable vegetation from the slopes.

43 Where a cut has been finished and the slopes dressed in accordance with the plans and slope
44 stakes, the Contractor will not be required to flatten or widen the slopes of a completed cut
45 unless otherwise directed before beginning the work. When rock is unexpectedly
46 encountered, transition any widening or flattening already begun to leave the cut with
47 a pleasing appearance.

48 If required, investigate the top 12 inches of the subgrade in cut sections to determine the
49 necessity for rock undercut.

- 1 Unless otherwise directed, excavate rock in the bottom of roadway cuts to a depth of 1 foot
2 below the roadbed and ditches. Lower ditches if necessary so that water will drain from the
3 rock surface to the ditches. Upon completion of the rock excavation below the level of the
4 roadbed and ditches, backfill the areas where such rock has been removed with suitable
5 material, compact, and shape to the required grade and cross section.
- 6 Before any work beginning on the structure, excavate all rock under and adjacent to structure
7 sites as directed.
- 8 Bring all cuts to the grade and cross section shown in the plans before final inspection and
9 acceptance.
- 10 Remove and dispose of slides and overbreaks that occur before final acceptance of the project.
11 Where slides and overbreaks occur due to negligence or carelessness on the part of the
12 Contractor, the removal and disposal of said slides and overbreaks will be at no cost to the
13 Department.
- 14 Shape old roadways to produce an acceptable appearance in accordance with Section 808.
- 15 Conduct earthwork operations in a manner that will not disturb staking, utility poles or guy
16 wires required to remain in their original location.
- 17 Cut off and plug all private utility lines, remove existing shoulder drain and subdrain pipe and
18 remove all underground tanks intercepted within the typical section or in conflict with
19 construction.
- 20 Where it is necessary to remove existing sidewalks or driveways, furnish a neat edge along
21 the pavement retained by sawing a neat line approximately 2 inches deep with a concrete saw
22 before breaking the adjacent pavement away.
- 23 When excavation operations encounter graves, temporarily discontinue operations in the
24 vicinity of the graves and do not resume until directed.
- 25 When excavation operations encounter contaminated soils, temporarily discontinue operations
26 in the vicinity of the contamination and do not resume until directed.
- 27 When excavation operations encounter artifacts of historical or archeological significance,
28 temporarily discontinue operations in the vicinity of the artifacts and do not resume until
29 directed. Disposition of the artifacts shall be in accordance with the requirements of the
30 Division of Archives and History.

31 **225-4 UNDERCUT EXCAVATION**

- 32 When the Engineer determines that the natural soil materials in areas where fills are to be
33 placed are undesirable in their location or condition, the Engineer may require the Contractor
34 to remove the undesirable material and backfill with approved, properly compacted material.
- 35 When the Engineer determines that the finished graded roadway cross section contains
36 materials that are undesirable in their location or condition, the Engineer may require the
37 Contractor to remove the materials and backfill with approved, properly compacted material
38 to the finished graded section.
- 39 Where undercutting is required adjacent to or beneath the location of the proposed drainage
40 structure, perform undercut and backfill a sufficient distance adjacent to the installation to
41 prevent future operations from disturbing the completed drainage structure.
- 42 Use equipment in undercutting and backfilling operations of such weight, size and capability
43 to efficiently remove and replace the material within the limits established. Use equipment of
44 a size and weight that will not displace the underlying or adjacent material.
- 45 All material removed in the work of undercut excavation will be classified by the Engineer as
46 either suitable for other use without excessive manipulation and used elsewhere in the work,
47 or unsuitable for further use and disposed of by the Contractor.

Section 225

1 Conduct undercut operations so that the Engineer can take the necessary measurements before
2 any backfill is placed. Place backfill in undercut areas in a continuous operation concurrent
3 with the undercutting operation. Do not place backfill material in water unless otherwise
4 permitted by the Engineer.

5 **225-5 TOLERANCES**

6 A tolerance of ± 0.10 foot from the established grade will be permitted in the roadbed after it
7 has been graded to a uniform surface.

8 **225-6 MAINTENANCE**

9 Maintain all work covered by this section during construction until final acceptance. Provide
10 the drainage of surface runoff along and throughout the length of the cut, construct temporary
11 ditches and use any other methods necessary to control excessive soil erosion during
12 construction and until final acceptance of the project.

13 **225-7 MEASUREMENT AND PAYMENT**

14 *Excavation* will be measured and paid in cubic yards of materials, measured in their original
15 position and computed by the average end area method, acceptably excavated in accordance
16 with the contract. The Engineer may elect to use Digital Terrain Modeling (DTM) for
17 determining the earthwork quantities or other technology that has been proven accurate.
18 Original cross sections for the determination of excavation quantities will be taken before any
19 grading begins. Final cross sections will be taken after the excavation has been completed.
20 Final plan cross sections can be used for the final cross sections where, in the opinion of the
21 Engineer, the work has been constructed in reasonably close conformity to the plan typical
22 section.

23 Original and final cross sections will be taken by either ground or aerial survey methods, as
24 determined by the Engineer.

25 All materials excavated from a location below the graded roadway cross section are classified
26 as *Undercut Excavation* and will be measured separately except for the following:

27 **(A)** Rock in the bottom of roadway cuts excavated 1 foot or less below the roadbed and
28 ditches;

29 **(B)** In cut areas, undercut excavation is limited to excavation removed below the roadbed
30 sub-grade, removed below the inside slopes of roadway ditches and removed below the
31 bottom of flat bottom roadway ditches; or

32 **(C)** Root mat other than grass, removed as a part of clearing and grubbing.

33 When the contract does not include *Drainage Ditch Excavation*, measurement will be made in
34 accordance with Article 240-4 and payment for this class of excavation will be made at the
35 contract unit price per cubic yard for *Unclassified Excavation*.

36 Measurement of materials excavated from overbreaks or slides will be made except where the
37 overbreaks or slides were due to the negligence or carelessness of the Contractor.

38 No measurement will be made of any materials excavated outside of authorized excavation
39 limits established by the Engineer or any materials excavated before slope stakes were set.

40 Article 104-5 will not apply for any underruns in the quantity of *Unclassified Excavation*
41 resulting from the permitted use of such material as select granular material.

42 *Berm Ditch Construction* will be measured and paid in accordance with Article 240-4.

43 Materials excavated from stockpiles and used to construct earth shoulders will be paid as
44 *Shoulder Borrow* in accordance with Article 560-4. No payment will be made for the
45 removal and disposal of any surplus material remaining in the stockpile after the shoulders
46 have been completed.

- 1 Payment for material that the Engineer directs to be removed beyond the limits of the original
2 slope stakes will be made in accordance with Article 104-3.
- 3 If needed, investigative work within the top 12 inches of the subgrade to determine the
4 necessity for rock undercut will be paid in accordance with Article 104-7.
- 5 Payment includes, but is not limited to, excavation, blasting, hauling anywhere along the
6 project both within and across balance points shown in the plans, removal of undesirable
7 material, removal of sidewalk, driveways, curb and gutter, endwalls, traffic islands and
8 drainage structures, disposal of materials, formation and compaction of embankments,
9 subgrades and shoulders, the cutting off, plugging and removal of private utility lines and
10 underground tanks, any backfilling required, removing any existing shoulder drain or subdrain
11 pipe and maintaining the work.
- 12 Payment for false sumps will be classified as *Unclassified Excavation*, *Borrow Excavation* or
13 included in *Grading-Lump Sum*. Payment as *Unclassified Excavation* or *Borrow Excavation*
14 will be at the contract unit price per cubic yard.
- 15 Excavation done in the shaping of old roadways in accordance with Section 808 is paid as
16 *Unclassified Excavation*.
- 17 Where slides and overbreaks occur due to negligence or carelessness on the part of the
18 Contractor, the removal and disposal of said slides and overbreaks will be incidental to the
19 work of this section.
- 20 Payment will be made under:
- | Pay Item | Pay Unit |
|-------------------------|-----------------|
| Unclassified Excavation | Cubic Yard |
| Undercut Excavation | Cubic Yard |
- 21
- 22 **SECTION 226**
- 23 **COMPREHENSIVE GRADING**
- 24 **226-1 DESCRIPTION**
- 25 The work covered by this section consists of all elements of work covered by Sections 200,
26 225, 230, 235, 250, 500 and 560, except that the requirements of the above-referenced
27 sections pertaining to measurement and payment will not apply unless specific reference is
made to such.
- 28 **226-2 CONSTRUCTION METHODS**
- 29 Perform the work in accordance with Sections 200, 225, 230, 235, 250, 500 and 560.
- 30 **226-3 MEASUREMENT AND PAYMENT**
- 31 Seeding and mulching of all borrow sources will be measured and paid at the contract unit
32 prices for such items established in the contract.
- 33 Payment for material that the Engineer directs the Contractor to obtain from borrow sources
34 to backfill box culverts, drainage structures or structure bents will be made in accordance with
35 Article 104-7.
- 36 Payment for material that the Engineer directs to be removed beyond the limits of the original
37 slope stakes will be made in accordance with Article 104-3.
- 38 *Grading* will be paid at the contract lump sum price. Partial payments will be equal to the
39 percentage of such item that is complete as estimated by the Engineer. No separate payment
40 will be made for clearing and grubbing, shoulder and fill slope material or draining borrow
41 sources as such work will be incidental to the work covered by this section.