

PART II -- EARTHWORK

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Section 201

Clearing and Grubbing

201.01 DESCRIPTION. This work consists of required clearing, grubbing, removing and disposing of vegetation and debris within the limits of the right-of-way and easement areas, except such items that are designated to remain or to be removed under other items.

This work consists of cutting trees, logs, brush, stumps and debris; excavating and removing stumps, roots, submerged logs, snags, and other vegetative or objectionable material; disposing of removed material in accordance with Subsection 202.02; and cleaning the area. When fencing or utility relocation is required, an area 10 feet (3.0 m) wide, adjacent to and inside the right-of-way line, shall be cleared and grubbed.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication entitled "Application of Quality Assurance Specifications for Embankment and Base Course."

Erosion control shall be in accordance with Section 204.

201.02 GENERAL CONSTRUCTION REQUIREMENTS. The engineer will designate trees, shrubs, plants and other items to remain. The contractor shall preserve the items designated to remain. Equipment, materials and supplies shall not be stored in proximity of items designated to remain. Trees shall be removed without damaging items marked to remain. The contractor shall, at no direct pay, use a licensed landscape arborist to repair damage to bark, trunks, limbs or roots of vegetation marked to remain using horticultural and tree surgery practices published by the American Association of Nurserymen (AAN). Trees shall not be felled outside of the right-of-way. Damage outside the right-of-way caused by the contractor's operations shall be the contractor's responsibility.

201.03 CLEARING AND GRUBBING. Clearing and grubbing shall be done within the construction limits and to a point in fills 15 feet (4.5 m) beyond the toes of foreslopes and in cuts 15 feet (4.5 m) beyond the tops of backslopes, when width of right of way permits, or to the limits shown on the plans; also from areas required for outfall ditches and channel changes. Trees, stumps, roots and other protruding vegetative obstructions not designated to remain shall be cleared and grubbed (including mowing when required by the engineer). Some loose limbs and roots approximately 2

inches x 2 feet (50 mm x 600 mm) and smaller may be allowed to remain, however excessive amounts will not be allowed.

Explosives, when used, shall be in accordance with Subsection 107.11.

Stump holes and other holes left from clearing and grubbing shall be filled by blading the area or backfilling with existing materials or soil complying with Subsection 203.06(a) and compacted to at least the density of the surrounding soils.

Burning of material shall be under the constant care of watchmen. Burning of materials shall not jeopardize anything designated to remain on the right-of-way, the surrounding forest cover, or other adjacent property. The contractor shall be responsible for burning in accordance with all laws and ordinances, including, but not limited to, the current regulations of the Louisiana Department of Environmental Quality and Subsections 107.13 and 107.14.

Materials and debris which cannot be burned and materials which are not burned shall be removed from the right-of-way and disposed of in accordance with Subsection 202.02.

Merchantable timber in the area to be cleared, which has not been removed from the right-of-way prior to the beginning date stipulated in the Notice to Proceed, shall become the property of the contractor.

Low hanging branches and unsound or unsightly branches on trees or shrubs designated to remain shall be removed as directed at no direct pay. Branches of trees extending over the roadbed shall be trimmed to a height of 20 feet (6.0 m) above the pavement. Trimming shall be done in accordance with accepted horticultural and tree surgery practices published by AAN.

201.04 MEASUREMENT. No measurement of area will be made for payment.

201.05 PAYMENT. When a pay item is included in the contract, payment for clearing and grubbing will be made at the contract lump sum price. Partial payment will be limited to 10 percent of the original total contract amount until the contractor has earned 40 percent of the original total contract amount. When clearing and grubbing consists of more than 50 percent of the contract amount, payment will be made for the work completed.

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Payment will be made under:

Item No.	Pay Item	Pay Unit
201-01	Clearing and Grubbing	Lump Sum

Section 202

Removing or Relocating Structures and Obstructions

202.01 DESCRIPTION. This work consists of the removal or the relocation of structures, facilities or obstructions, hereinafter referred to as "structures" from the project right-of-way unless specified otherwise.

The removal of a structure from the project right-of-way is the razing, demolishing, and disposal of the structure after salvageable parts, components, and materials, as designated on the plans, have been recovered by the contractor.

The relocation of a structure from the project right-of-way is its movement, resiting, reassembly, restoration, reconstruction or equivalent replacement at a new location outside of, and adjacent to, the project right-of-way including all service connections, appurtenances and accessories as directed.

For the purposes of this section, structures may include buildings, floor slabs, foundations, fuel tanks, septic tanks, fences, pipes, bridges, drainage structures, pavements, walks, curbs, abandoned pipelines and other similar facilities or obstructions not designated or permitted to remain within the project right-of-way. This work also includes backfilling of resulting trenches, holes and pits. If structures or obstructions are encountered which differ materially from those ordinarily encountered, the provisions of Subsection 105.18 shall apply.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication entitled "Application of Quality Assurance Specifications for Embankment and Base Course."

Erosion control shall be in accordance with Section 204.

202.02 GENERAL CONSTRUCTION REQUIREMENTS. The contractor shall remove and dispose of all portions of structures or obstructions on the right-of-way, except utilities and those items for which other provisions have been made for removal or relocation. When specified, the contractor shall remove structures and appurtenances that extend beyond the right-of-way or that are entirely on private property. Specified salvageable material shall be removed, without unnecessary damage, in sections which may be readily transported. Salvageable material shall be stacked at specified storage areas by the contractor. When

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no storage sites are specified, salvaged materials shall be delivered to the nearest DOTD maintenance unit. Materials not specified to be salvaged shall be disposed of off the project outside the view of the traveling public with written permission of the property owner on whose property the material is placed. Copies of agreements with property owners shall be furnished to the engineer by the contractor prior to beginning of work. The agreement must contain language holding the Department harmless from any liabilities from the contractor or property owners, otherwise a Certificate of Release from the property owner will be required before final acceptance. Holes left by structure removal or the removal of materials associated with contaminated soils or sites, shall be filled by blading the area or backfilling with surrounding soil types or soil complying with Subsection 203.06(a) and shall be compacted as directed to at least the density of the surrounding soils.

If any fuel storage tanks or other environmentally sensitive or contaminated sites are located during construction, the contractor shall stop construction activity in the immediate vicinity of the environmentally sensitive or contaminated site and notify the project engineer who in turn will notify the Materials and Testing Section immediately for guidance. Testing and clean-up by the contractor shall be coordinated through the Materials and Testing Section.

The Department reserves the right to eliminate work items for the removal or relocation of any structures under these items. Such elimination shall not affect contract unit prices on remaining structures to be removed or relocated or unit prices on other items of the contract. The contractor will not be entitled to compensation due to such elimination.

202.03 REMOVING STRUCTURES. Unsalvageable materials in a structure designated for removal shall become the property of the contractor and shall be removed and disposed of by the contractor.

Appurtenances forming a part of a structure to be demolished, whether integral or not integral to the structure, shall be demolished and removed by the contractor. Washhouses, garages, cisterns, and other buildings and appurtenances used in conjunction with a structure shall be demolished and removed in the same manner as the structure. Existing yard fences, drives and walks, and shrubbery shall also be removed. The above are all considered part of the structure to be demolished and removed.

All abandoned wells shall be plugged and sealed in accordance with the "Water Well Rules, Regulations, and Standards, State of Louisiana."

Demolishing of a structure, any part of which is used as a service

station, shall include the removal of gasoline pumps, tanks, pipes, signs and other appurtenances. Underground fuel tanks will be removed in accordance with Subsection 202.05. Existing underground fuel tanks shall not be reused or used for other purposes.

Material in existing foundations, concrete or masonry floors, chimneys and other appurtenances, shall be removed and disposed of by the contractor.

Cattle pens, cane derricks, cattle guards or other such structures shall be removed and disposed of by the contractor.

(a) Pavement, Base Courses, Walks, and Curbs: Pavements, stabilized or treated base courses, walks, curbs, gutters, etc., designated for removal, shall be disposed of in accordance with these specifications and as directed. Unless otherwise noted, base materials under pavements shall be removed with the pavement at no additional pay.

When the existing shoulder underdrain at the pavement edge is to remain in place and in service and removal of the shoulder surfacing and base is required, the work shall be done in such manner as to avoid damaging the existing shoulder underdrains. Damaged shoulder underdrains shall be satisfactorily repaired at no direct pay.

(b) Pipe: Pipe to be relaid shall be removed and stored so that there will be no loss or undue damage before relaying. The contractor shall replace sections lost from storage or unduly damaged at no direct pay. When specified, pipe not to be relaid and considered usable shall be salvaged, cleaned of soils or other materials, stored and stacked.

(c) Bridges and Drainage Structures: Bridges, including approach slabs, and drainage structures in use by traffic shall not be removed until satisfactory arrangements have been made to accommodate traffic.

Unless otherwise directed or shown on the plans, substructures shall be removed to natural stream bottom and those parts outside the stream shall be removed to 1 foot (0.3 m) below natural ground surface. Existing structures within the limits of a new structure shall be removed as necessary to accommodate construction of the new structure.

Steel or wood bridges to be salvaged shall be dismantled without unnecessary damage. Dismantling shall include stripping all hardware. Structural members shall be match-marked before dismantling.

Explosives, when used, shall be in accordance with Subsection 107.11. Blasting or other operations necessary for removal of an existing structure or obstruction, which may damage new construction, shall be completed prior to placing the new work.

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202.04 RELOCATING STRUCTURES. Structures to be relocated shall be placed in their new locations as directed, and be restored to their original condition. Structures to be relocated shall be placed on foundations of the same type and character as the original foundations.

Appurtenances forming a part of a structure to be relocated, whether integral or not integral to the structure, shall be relocated in the same manner as the structure. Appurtenances associated with the structure shall be relocated or replaced as directed with appurtenances of the same size, type, and character as existed before the structure was relocated.

Sanitary sewers, water, gas, electric, television cable, and telephone service lines connected to structures being relocated shall be disconnected and reconnected as quickly as possible. The contractor shall be responsible for all notices to public utility companies and for all fees charged by them. The contractor shall also relocate existing yard fences, drives and walks and extend same as necessary. Existing shrubbery shall be removed and replanted at new locations as designated. All of the above shall be considered as appurtenances not integral to the structures to be removed and relocated.

Material in existing foundations, concrete or masonry floors, chimneys and other appurtenances, when not used in reconstruction of appurtenances, shall be removed and disposed of in accordance with Subsection 202.02. New material required in performing any of these operations shall be furnished by the contractor at no direct pay.

Contents of structures shall be relocated with the structure to its new site. When not feasible to relocate structures with contents therein, the contents shall be removed from the structure at its original location, properly stored, and replaced in the relocated structure without damage or loss to contents.

Cattle pens, cane derricks, cattle guards or other such structures, shall be relocated on or beyond the right-of-way line as directed. Materials in structures suitable for reuse may be utilized in their reconstruction. New materials required shall be similar in kind to that in place and shall be furnished by the contractor at no direct pay, including foundations.

Prior to removal of butane or propane gas tanks, the contractor shall obtain the written approval of the Louisiana Liquefied Petroleum Gas Commission. Existing underground butane or propane gas tanks shall not be reused or used for other purposes. The contractor will be reimbursed for the cost of the new tank upon presentation of the original receipted bill.

The contractor shall furnish the engineer a Certificate of Release from each property owner, and in case of separate ownerships of structure and

property, a Certificate of Release from each owner shall be furnished. This certificate shall state that the relocated structures are in an acceptable condition and that said owner waives all claims for damages to the property and structures relocated. When the contractor is unable to secure a Certificate of Release from the property owner, the contractor shall submit an executed Form 671-A, Contractor's Affidavit, to the engineer.

202.05 REMOVING ENVIRONMENTALLY SENSITIVE MATERIALS. When removal or remediation of any environmentally sensitive or contaminated sites is required during construction, the contractor's operations shall be coordinated through the Materials and Testing Section. If the contractor fails to follow the guidelines of the Materials and Testing Section, and subsequently causes or increases harm or damage to the environment, then all resulting fines and clean-up costs shall be the responsibility of the contractor.

(a) Non-Friable Asbestos: When a structure contains non-friable asbestos, the contractor shall carefully remove the asbestos without excessive breakage or crushing before removal, relocation or demolition of the structure. The non-friable asbestos material shall be disposed of at an approved industrial landfill.

(b) Friable Asbestos: When a structure contains friable asbestos, the contractor shall immediately notify the Department of Environmental Quality (DEQ), Air Quality Division and request that DEQ provide a confirmation letter with an Asbestos Disposal Verification Form (ADVF). The contractor shall complete the ADVF within 90 calendar days from the date of issue. When this information is available, the Department will indicate on the plans which structures contain friable asbestos. Only contractors or subcontractors certified by DEQ as Asbestos Abatement Entities shall remove friable asbestos from structures. The asbestos removal shall be performed before removal, relocation or demolition of the structure. Friable asbestos removal, handling and disposal shall be performed in accordance with the latest requirements for asbestos abatement of the DEQ, Air Quality Division.

The contractor shall maintain, and furnish to the engineer, within 21 calendar days, Chain of Custody verification records for the friable asbestos from the work site to the disposal site. These records will become part of the permanent project records.

(c) Underground Fuel Tanks: Before removal, underground fuel tanks shall be registered with the DEQ by the Materials and Testing Section as abandoned underground storage tanks. The contractor shall

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notify the project engineer in writing at least 45 calendar days prior to removal of tanks. The engineer will immediately notify the Materials and Testing Section. All site activities, including the collection of closure samples and tank removal, as defined in the latest DEQ Underground Storage Tank (UST) regulations, shall be performed by a DEQ approved contractor. Closure test results, all documentation, and all necessary forms shall be submitted by the contractor to the Materials and Testing Section to be approved and forwarded to DEQ. The contractor and/or the subcontractor shall note that all contact and/or coordination with the DEQ is to be the responsibility of the Materials and Testing Section.

The contractor shall take all necessary precautions to prevent the infiltration of water into tanks and tank excavations during the work.

During routine site closure, the removal, transportation and disposal of tanks, and the handling of contaminated soil and contaminated fluid shall be in accordance with all local, state, and federal laws and regulations. Limits of excavation and quantities of contaminated soil and contaminated fluid to be removed, transported and disposed shall be as specified.

When underground storage tanks (UST) have been filled with concrete, sand, or other such material and are designated on the plans for removal, the contractor or certified UST subcontractor shall remove, transport and dispose of such tanks in accordance with the recommendations of the American Petroleum Institute (API) and the requirements of the Louisiana Department of Environmental Quality (DEQ) or other regulatory agency of jurisdiction. When such UST are discovered during construction and removal is necessary to achieve soil compaction or to meet other construction requirements, the contractor shall stop construction activity in the immediate vicinity of the UST and notify the project engineer in accordance with this subsection. The DOTD Materials and Testing Section will verify the closure status of such filled UST discovered during construction prior to any UST site activity by the contractor or certified UST subcontractor.

The contractor or certified UST subcontractor shall collect and submit for laboratory analysis, a representative sample of the storage tank fill material for landfill acceptance. The results of the laboratory analysis shall be used to determine the disposition of the UST fill material. The contractor or certified UST subcontractor shall provide a copy of all laboratory analyses to the Department's Materials and Testing Section for verification prior to profiling materials for landfill acceptance.

(d) Contaminated Soils: Soil contaminated with Benzene, Toluene, Ethyl Benzene, Xylene (BTEX), Total Petroleum Hydrocarbons-

Gasoline (TPH-G), Total Petroleum Hydrocarbons-Diesel (TPH- D), Total Petroleum Hydrocarbons-Oil (TPH-O), or other identified toxic materials, in areas of underground fuel tanks or other areas, at levels above the regulatory limits and is non-protective of groundwater shall be excavated by the contractor as shown on the plans or as directed. Determination of groundwater protection shall be through the use of the Synthetic Precipitation Leachate Procedure (SPLP) or as directed.

The contractor shall remove the overburden above the contaminated soil to the dimensions shown on the plans or as directed. The contractor shall also excavate the contaminated soil at the locations shown on the plans or as directed. The contaminated soil shall be loaded into approved hauling vehicles by the contractor and be disposed of in a disposal site approved by the Department of Environmental Quality. The contractor shall furnish the engineer, within 21 calendar days, Chain of Custody verification records for the contaminated soil. The Materials and Testing Section will verify that all contaminated soil has been removed.

While the excavation is open, the contractor shall construct and maintain a soil berm around the excavation to prevent surface water runoff from entering the excavation. The removed overburden may be used to construct the berm and backfill the excavation.

Removal and disposal of contaminated soils will be in accordance with all local, state and federal laws and regulations.

(e) Contaminated Fluids: Contaminated fluid in underground fuel tanks, in areas of underground fuel tanks or other areas as shown on the plans or as directed shall be removed and disposed of by the contractor.

The Department will determine the quantity of contaminated fluid to be removed.

The contractor shall pump the contaminated fluid into approved hauling vehicles. Contaminated fluid in underground fuel tanks shall be removed before tank removal.

The contaminated fluid shall be disposed of in a disposal site approved by the Department of Environmental Quality. The contractor shall furnish the engineer, within 21 calendar days, Chain of Custody verification records for the contaminated fluid.

The Department will verify the removal of the contaminated fluid.

Removal and disposal of contaminated fluids will be in accordance with all local, state and federal laws and regulations.

(f) Paint Containing Lead or Other Hazardous Materials on Metal Surfaces: Steel members of structures protected by paint containing lead or other hazardous materials as shown on the plans or as

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discovered in the field shall be removed and prepared for transport by methods approved by the Department.

Such steel members shall be delivered to a licensed recycling center capable of processing steel members coated with paint identified by the Resource Conservation and Recovery Act (RCRA) as hazardous.

Prior to removal, transport, treatment or disposal of any steel members, the contractor shall submit the following to the engineer.

- (1) Plan of removal of steel members.
- (2) Plan for transport of steel members.
- (3) Name and address of the licensed recycling center.

All steel members shall be transported in accordance with all federal, state and local laws. Certificates of Disposal, Chain of Custody forms, or other applicable documents shall be provided within 21 calendar days following each shipment.

(g) Treated Timber: Creosoted and other treated timber or lumber shown on the plans or discovered in the field shall be removed and prepared for transport by methods approved by the Department. All materials that are not designated to be salvaged by the Department or salvaged by the contractor are to be disposed of in an appropriate landfill. Certificates of Disposal, Chain of Custody forms, or other applicable documents shall be provided within 21 calendar days following each shipment.

(h) Universal Wastes: Universal wastes are hazardous wastes defined in LAC Title 33, Part V, Chapter 38, Section 3813 to include batteries, pesticides, thermostats, lamps and antifreeze. Universal wastes shall be removed by the contractor in accordance with the plans and shall be stored and prepared for transport as specified in LAC Title 33, Part V, Chapter 38 and herein.

A lamp is the bulb or tube portion of an electric lighting device. Universal waste lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metallic halide. Such lamps shall be removed and stored in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps. Such containers shall remain closed and lack evidence of leakage, spillage or damage that could cause releases of mercury or other hazardous constituents to the environment under reasonably foreseeable conditions. The containers shall be clearly labeled or marked with the words "Universal Waste – Lamps" and with the earliest date that any lamp in the container was discarded as waste. If a container develops a leak, it shall be placed into an over-pack container.

The contractor shall immediately clean up any leakage and place in a container any lamp that shows evidence of breakage, leakage, or damage.

Universal waste lamps will not be allowed to accumulate for a period longer than one year from the date the lamps were discarded. The waste lamps shall be delivered to a universal waste disposal site or destination facility by a Universal Waste Transporter in accordance with the applicable U.S. Department of Transportation Regulations, 49 CFR, Parts 172-180.

The contractor shall be responsible for informing all employees who handle universal wastes of the proper handling and emergency procedures appropriate to the type of waste.

202.06 PLUGGING OR RELOCATING EXISTING WATER WELLS. All abandoned wells shall be plugged and sealed at the locations shown on the plans, or as directed by the engineer, in accordance with the "Water Well Rules, Regulations, and Standards, State of Louisiana." Well abandonment must be accomplished by a DOTD licensed water well contractor. Relocated wells shall conform to the Sanitary Code of the State of Louisiana as prepared and promulgated by the Louisiana State Board of Health.

202.07 MEASUREMENT. Removing structures and obstructions will be measured on a lump sum basis or by the unit as stipulated in the contract and shall include appurtenances, foundations, etc. When the contract stipulates that payment will be made for removal of structures and obstructions on a lump sum basis, the pay item will include all required removal of structures and obstructions.

Hauling salvaged materials to specified storage sites will not be measured for payment.

When an item is included for removal of bridges, the removal of the approach slabs, superstructure, and substructure will be considered part of the work unless otherwise specified or shown on the plans.

Removing or relocating structures will be measured by the unit stipulated in the contract. Each principal structure with its associated appurtenances, whether integral or not integral to the structure being removed or relocated, will be considered as a separate unit including its associated appurtenances.

Plugging of existing abandoned water wells or relocating water wells will be measured per each well plugged and accepted or relocated.

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Measurement for removal of contaminated soil and non-contaminated overburden will be by the cubic yard (cu m) using the in-place quantities as determined by cross-sections.

Measurement for contaminated fluid will be by the gallon (L).

Removing steel members of structures protected by paint containing lead or other hazardous materials, or creosoted timbers or lumber, and transporting them to the designated recycling center or landfill will be considered part of the work when shown on the plans and will not be measured for payment.

When a structure to be removed or relocated is shown on the plans to contain universal wastes, the removal, storage and transport of the universal waste to an approved disposal site or destination facility will not be measured for payment but will be included in the structure to be removed or relocated.

202.08 PAYMENT. Payment for removal of structures or specific obstruction items stipulated for removal and disposal under unit price or lump sum pay items will be made at the contract price per unit or lump sum as specified. This will include demolishing, removing and disposing of such items and the excavation and backfill incidental to their removal when required. When the removal is in an area to be excavated and payment for excavation is made under other items, no deduction will be made from the excavation quantities. The price shall also include salvage of materials, their custody, preservation, storage on the right-of-way or as designated on the plans, and disposal.

Payment for the removal of bridges will include removal of the approach slabs, superstructure, and substructure.

Payment for the relocation of structures will be made at the contract unit price which will include all costs for moving, resiting, reassembly, restoration, reconstruction or equivalent replacement of the structures.

Payment for plugging and sealing existing abandoned water wells or relocating existing water wells will be made at the contract unit price which will include all labor, material, tools, equipment, and incidentals necessary to complete the work.

If a structure is to be removed or relocated as a unit under Pay Items 202-01, 202-02, or 202-03 and the contractor enters into an agreement with a property owner for disposition of the structure other than as shown on the plans; or if it is subsequently determined that said structure can remain in place, in whole or in part, with or without minor adjustments, and the contractor enters into an agreement with the property owner incorporating

such revised determination and any accompanying adjustments regarding said structure, including any damages for leaving the structure in place; the contractor shall furnish such agreement to the engineer for approval. If approval is given by the engineer, the contractor shall furnish the Department with a Certificate of Release from the property owner for the unit. In case of separate ownership of structure and property, a Certificate of Release from each owner shall be furnished. This certificate shall state that said owner waives all claims for damages to the property and structure to be removed, relocated, left in place or otherwise handled to the owner's satisfaction. The contractor will be paid for removing, relocating or other handling of the structure at the contract unit price as listed under Pay Items 202-01, 202-02, or 202-03. If a determination to allow the structure to remain in place involves a decrease in cost to the contractor, including any allowance for damages to the property owner and other adjustment of the contract amount for removal, relocation or other handling of said unit under Pay Items 202-01, 202-02, or 202-03, an allowance will be made in such amount as the engineer deems equitable.

When a structure has been identified on the plans as containing friable or non-friable asbestos, the price for asbestos removal and disposal will be included in the bid price for removal, relocation or demolition of the structure. When a structure is found to contain friable or nonfriable asbestos and it has not been identified on the plans as containing asbestos, payment for the removal and disposal of the asbestos will be made in accordance with Subsection 109.04, including the cost of all testing.

Payment for removal, transportation, and disposal of contaminated soils and fluids will be in accordance with rates specified in applicable appendices (currently Appendices A and B) of the "Louisiana Motor Fuels Underground Storage Tank Trust Fund Cost Control Guidance Document" as maintained and updated by the Louisiana Department of Environmental Quality (DEQ). The DEQ cost control guidance document can be obtained at www.deq.state.la.us/financial/usttf/index.htm. All payments under this item will be in accordance with industry standards, which include all equipment, labor, and materials necessary to complete the work, including backfilling any excavation. Payment for work not covered in the cost control guidance document, or any disputed payments, will be negotiated and resolved prior to performance of work. The Department will reimburse the contractor monthly for the incurred cost. The contractor shall furnish documentation with the request for reimbursement. The provisions of Subsection 109.04 regarding percentage markup for the contractor shall not apply to this reimbursement.

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Payment for removing steel members of a structure identified on the plans as being protected by paint containing lead or other hazardous materials, or creosoted timbers or lumber, and transporting them to the designated recycling center or landfill, will be included in the bid price for removal or relocation of the structure. When a structure is found to have steel members protected by paint containing lead or other hazardous materials, or creosoted timber or lumber, and it has not been identified on the plans as such, payment for removal and transport of the members to a licensed recycling center or landfill will be made in accordance with Subsection 109.04.

Unless otherwise directed or shown on the plans, the contractor will be allowed to retain any steel member protected by paint containing lead or other hazardous materials provided the paint is not damaged during removal of the member and a Chain of Custody form or other applicable documentation is submitted to the engineer within 21 calendar days.

When the plans show that a structure to be removed or relocated contains a universal waste, payment for the removal of the universal waste will be included in the contract unit price for the removal or relocation of the structure which will also include all equipment, labor, and materials required for the removal, storage, and transport of the universal waste in accordance with LAC Title 33, Part V, Chapter 38. When a structure to be removed or relocated is found to contain a universal waste and it is not identified as such on the plans, payment for the removal, storage and transport of such universal waste in accordance with LAC Title 33, Part V, Chapter 38 will be made in accordance with Subsection 109.04.

Payment will be made under:

Item No.	Pay Item	Pay Unit
202-01	Removal of Structures and Obstructions	Lump Sum
202-02	Removal of _____	Each
202-03	Relocation of _____	Each
202-04	Excavation, Disposal and Backfilling of Non-Contaminated Overburden	Cubic Yard (Cu m)
202-05	Excavation, Disposal and Backfilling of Contaminated Soil	Cubic Yard (Cu m)
202-06	Removal and Disposal of Contaminated Fluid	Gallon (L)
202-07	Plugging Existing Water Wells	Each

Section 203

Excavation and Embankment

203.01 DESCRIPTION. This work consists of excavation, disposal, placement and compaction of materials for which provisions have not been made under other sections of these specifications. This work shall include excavation and embankment construction for roadways and other structures, excavation for ditches and channels, and other grading operations necessary for the work in accordance with these specifications and in conformity with the lines, grades, thicknesses and typical sections shown on the plans or established. When contaminated soils or underground tanks are encountered, handling shall be in accordance with Section 202.

Disposal of material shall be in accordance with Subsection 202.02.

The plans may include data regarding the boring and classification of existing materials. The Department does not guarantee that individual samples are representative of the entire project, and bidders are required to study, make interpretations and additional investigations, as necessary, at no direct pay.

The contractor shall comply with Subsection 107.09 for work in, over or adjacent to navigable waters and wetlands, and shall comply with Subsection 107.27 when cultural artifacts, historical sites or archaeological sites are encountered.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication entitled "Application of Quality Assurance Specifications for Embankment and Base Course."

Excavated material may be used in accordance with Subsection 203.06.

Erosion control shall be in accordance with Section 204.

203.02 GENERAL EXCAVATION. General excavation consists of the excavation of materials, as required by the plans, except drainage excavation and structural excavation. General excavation also includes unsuitable material in accordance with Subsection 203.04.

203.03 DRAINAGE EXCAVATION. Drainage excavation includes the excavation for drainage beyond the limits of the roadway section. Drainage excavation also includes inlet and outlet ditches to structures or roadways; changes in or deepening of channels of streams, berm ditches,

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ditches parallel or adjacent to the roadway beyond the limits of the roadway section; and material excavated from areas under bridges.

203.04 UNSUITABLE MATERIAL. Unsuitable materials are soils containing significant amounts of debris or organic matter including stumps, roots, logs, and humus, or other materials which will decay or produce subsidence, including highly saturated soils, which the engineer determines are not satisfactory for use in the embankment or other construction purposes. Unsuitable materials shall be removed and disposed of as general excavation. Unsuitable materials determined to be environmentally sensitive shall be removed and disposed of in accordance with Subsection 202.05.

203.05 BORROW. Borrow is defined as soils required for construction of embankments or other portions of the work in excess of soils obtained from excavation. Borrow shall be obtained from an approved source and shall be used in accordance with Subsection 203.06. The contractor shall make arrangements for obtaining borrow at no direct pay.

Securing of an exclusive option by a contractor on borrow areas or materials for the work will be considered a violation of Louisiana law and will be a basis for rejection of bids or such other action the Department deems advisable.

The contractor shall notify the engineer in writing a minimum of 30 calendar days in advance of borrow operations so that samples may be taken and soil tests completed prior to beginning borrow operations.

Prior to requesting the borrow pit to be bored, the contractor shall furnish the Department a written agreement with the property owner to allow the Department access to the property. The written agreement shall also state that the contractor has agreed to purchase the borrow material from the property owner for this particular site if the material meets contract specifications. A separate agreement shall be obtained from each property owner through which access will be necessary.

Sites from which material has been removed shall, upon completion of the work, be left in an acceptable condition.

Unless otherwise authorized in writing, borrow pits, gravel pits and quarry sites shall be located at least 300 feet (90 m) from the right-of-way.

When sources of borrow are located adjacent to a stream or river listed on the National System of Wild and Scenic Rivers or the Louisiana Natural and Scenic Rivers System, borrow pits, and any stockpiled materials shall be located at least 300 feet (90 m) from the natural stream or river bank.

The borrow pit and access shall be cleared to allow access for DOTD boring equipment. The borrow area shall be surveyed with a base line staked. Both the engineer and laboratory shall be furnished with a location plat and borrow pit plat. The contractor will not be permitted to begin borrow operations until materials are approved for use.

Sampling of soils from open excavations made by the contractor in lieu of borings will be allowed provided the open excavations display and allow sampling of each soil strata and the excavation is at no cost to the Department.

203.06 SOIL USAGE. The laboratory will test and classify soil in accordance with DOTD TR 423 from samples taken in the original location or from designated stockpiles. Soil shall be classified and approved prior to its being placed in embankments or other final positions on the project. Blending in the pit by approved methods to adjust percent silt or sand will be permitted. Soils which do not meet Liquid Limit or PI requirements shall not be blended to reduce Liquid Limit or PI. Soils may be treated with lime to reduce PI in accordance with Subsection 203.06(e).

Soil properties will be determined by the test methods shown in Table 203-1.

**Table 203-1
Soil Properties**

Property	Test Method
Plasticity Index (PI)	DOTD TR 428
Liquid Limit (LL)	DOTD TR 428
% Organic	DOTD TR 413
% Silt	DOTD TR 407
pH	DOTD TR 430

(a) Usable Soils: Usable soils shall have a maximum PI of 25 and a maximum organic content of 5 percent. Soils with a silt content of 50 percent or greater and also a PI of 10 or less will not be allowed.

(b) Selected Soils: Selected soils are natural soils with a maximum PI of 20, maximum Liquid Limit of 35, and a maximum organic content of 5 percent. Soils with a silt content of 50 percent or greater and also a PI of 10 or less will not be allowed. Soils to be used for in-place cement stabilization shall be in accordance with Subsection 302.02(a).

(c) Nonplastic Embankment: Nonplastic embankment shall be as specified in Subsection 203.09.

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(d) Headers: Headers are that portion of the embankment within 500 feet (150 m) of a bridge end. Headers shall be constructed for their full height with usable soils having a minimum PI of 11, a maximum PI of 25, and a maximum silt content of 65 percent. No lime treatment to the soil to meet the PI requirements will be permitted. Headers shall be compacted to 98 percent of maximum dry density in accordance with Subsection 203.07.

(e) Embankments other than Headers:

(1) Embankments shall be constructed with usable soils, except soil with a PI greater than 25 and less than 35 will be permitted when treated with a minimum of 6 percent lime, by volume, provided the organic content and silt requirements given in Heading (a) are met. If the contractor uses lime treatment, it will be at no direct pay. Lime treatment shall be Type E Treatment conforming to Section 304.

(2) The contractor may request in writing that usable soils for temporary detour roads have a PI not to exceed 45 and a maximum silt content of 75 percent provided:

a. This material will be removed and not become part of the permanent embankment.

b. The contractor agrees to take responsibility for any additional maintenance required.

(f) Plastic Soil for Slopes:

(1) Embankment Material: The outside layer of embankment (fill sections) will consist of a plastic soil blanket in accordance with Subsection 203.10. Sampling in the pit may be allowed if an identifiable strata can be isolated. Otherwise, sampling will be from dedicated stockpiles.

(2) Cut Slopes, PI Less than 10: When soils having a PI less than 10 exists on cut slopes, the contractor shall undercut 12 inches (300 mm) and place a plastic soil blanket conforming to Subsection 203.10.

(3) Cut Slopes, PI 10 or Greater: When soils having a PI of 10 or greater but with a pH less than 5.5, or greater than 8.5, exist on cut slopes, the contractor shall undercut and place a plastic soil blanket complying with Subsection 203.10. In lieu of furnishing a plastic soil blanket, the soil may be modified in place so that the pH of the soil complies with the requirements of Subsection 203.10, at the option of the engineer and concurrence of the contractor. In such case payment will be in accordance with existing items or Subsection 109.04, as applicable, not to exceed the cost of undercut and replacement.

(g) Usable Soils for Slope Adjustments and Shoulder Widening: When the thickness of embankment material used for slope adjustment is less than 12 inches (300 mm), a plastic soil complying with Subsection 203.10 will be required. If the thickness is greater than 12 inches (300 mm), the contractor will be allowed to substitute plastic soil for usable soil, provided the widening is not directly below a paved shoulder.

203.07 GENERAL REQUIREMENTS. Excavation and embankment construction consists of constructing roadway embankments, including preparation of areas on which they are to be placed; constructing drainage excavation; backslope construction; constructing dikes, when required; placing and compacting approved material in areas where unusable material has been removed; placing and compacting embankment material in holes, pits and other depressions; and placing and compacting embankment materials for backfilling structures. Prior to beginning excavation, grading or embankment operations in an area, all necessary clearing and grubbing in that area shall have been completed. Prior to any embankment operations in an area, all corresponding roadside ditches shall be cut to facilitate drainage in that area. Embankment materials shall not be placed or spread on portland cement concrete or asphaltic concrete pavements. Pavement surfaces, edges and joints shall not be damaged during embankment operations.

Final excavation and embankment slope lines shall be uniform in appearance. Measurements shall be made as necessary to assure that the elevations at the top, bottom, and intermediate breaks in the slope are such that a minimum acceptable slope is achieved. The slopes shall be straight without valleys or humps, as determined by visual inspection. If an apparent discrepancy is discovered upon visual inspection, measurements shall be taken a minimum of every 10 feet (3.0 m) measured along the slope between theoretical break points in the embankment. When these measurements reveal slope variances by more than 0.03 ft/ft (0.03 m/m), too steep, or 0.15 ft/ft (0.15 m/m), too flat, the slopes shall be reworked by the contractor until these criteria have been met. The top of embankment shall not vary from the established grade by more than ± 0.1 foot (0.030 m).

Embankment material shall be in accordance with Subsection 203.06 and shall be placed in uniform layers not exceeding 12 inches (300 mm) of uncompacted thickness. Each layer shall be placed for the full width of embankment, blended as necessary to obtain a uniform material, brought to a uniform moisture content, and compacted by approved methods to a minimum of 95.0 percent of maximum dry density before the next layer is

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placed. Maximum dry density will be determined in accordance with DOTD TR 415 or TR 418 and percent in-place density in accordance with DOTD TR 401. The density of the embankment shall be such that the density of the type of base course being constructed as given in Table 301-1 shall be met. The moisture content at the time of compaction, tested in accordance with DOTD TR 403, shall be within a range of ± 2.0 percent of optimum moisture established in accordance with DOTD TR 415 or TR 418 or the lifts shall be reprocessed and recompacted until these requirements are met. Operations shall be conducted to prevent lamination between lifts. Laminations between lifts shall be corrected prior to placing additional lifts. Surfaces of excavated areas and embankments shall be smooth and uniform. Material outside construction limits shall not be disturbed.

Excavated material shall become the property of the contractor. Soils from excavation areas may be used when approved in embankments or other finished sections. Surplus or unusable excavated material shall be disposed of by the contractor in accordance with Subsection 202.02 or as provided in this Subsection.

Drainage excavation and rough grading shall be performed simultaneously, unless otherwise directed or permitted. Roots, stumps or other vegetative obstructions in sides and bottom of ditches and channel changes shall be cut to conform to required cross section and grade. Excavated material shall be placed sufficient to protect the integrity of the slope but in no case closer than 3 feet (1.0 m) from the edge of ditch.

When obliteration of old roadways is required, it shall include grading operations necessary to satisfactorily incorporate the old roadway into the new roadway and surroundings in order to provide a pleasing appearance and to allow drainage.

When preparing surface layers on which the embankment or base is to be placed, the engineer will require the contractor to attempt all normal earthwork construction methods before undercutting or modifying the soil with additives. Such construction methods may include, but are not limited to, the following and will be at no direct pay:

(a) Draining and drying of the surface until the material is within the limits of optimum moisture before compaction is attempted.

(b) Using lighter construction equipment for manipulating, disking, drying and compacting the material.

(c) Dumping successive loads of material in a uniformly distributed layer of a thickness necessary to support equipment while placing subsequent layers.

(d) Rerouting heavy construction equipment around the area until the embankment can support the equipment without damage to foundation soils.

Unstable materials shall be removed by undercutting, unless otherwise directed, and backfilled to required section with usable soils as directed.

When undercutting is required, the contractor shall conduct the operations in such manner that the engineer can make necessary measurements before backfill is placed.

When excavation and embankment construction results in surface soils having a PI less than 10 or pH less than 5.5 or greater than 8.5, the contractor shall place a plastic soil blanket complying with Subsection 203.10.

The contractor shall be responsible for the stability of embankments until final acceptance. Construction activities, which may lead to subsequent embankment damage will not be permitted.

When embankments are constructed on a surface sloping more than 6:1 from the horizontal, the slope of the ground on which the embankment is to be placed shall be cut into steps, as directed, before fill is placed.

When a new roadway is to be constructed on an existing roadbed, and the surface of the existing roadbed is within 2 feet (0.6 m) of finished sub-grade, the existing roadbed shall be scarified full width to a depth of not less than 9 inches (230 mm) and recompactd in accordance with this subsection.

When an embankment is to be constructed to a height of less than 5 feet (1.5 m), heavy sod and objectionable vegetation shall be removed from the area on which the embankment is to be placed. The area shall be scarified to a depth of approximately 9 inches (230 mm). This area shall be recompactd to at least 95.0 percent of maximum dry density. Maximum dry density will be determined in accordance with DOTD TR 415 or TR 418 and percent in-place density in accordance with DOTD TR 401. When height of fill is 5 feet (1.5 m) or more, removal of sod will not be required but the area on which embankment is to be placed shall be disked to the satisfaction of the engineer and recompactd before construction of embankment.

When embankment material is to be deposited only on one side of abutments, wing walls, piers, or culvert head walls, the area immediately adjacent to the structure shall not be compactd to the extent that it will cause excessive pressure against the structure. Fill adjacent to the end bent of a bridge shall not be placed higher than the top of the substructure until the superstructure is in place. When the embankment is to be deposited on

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both sides of a concrete wall or similar structure, operations shall be conducted so that the embankment is always at approximately the same elevation on both sides of the structure. Backfilling of structures shall be performed in accordance with Section 802.

When embankments are constructed in lakes, streams, swamps or other unstable areas and unstable material cannot be removed or the area drained, the requirement for placing material in layers as outlined above may be waived. When this requirement is waived, the embankment shall be placed by end dump or other approved methods to an elevation where normal construction methods can begin. Embankments placed above this elevation shall be constructed in layers as specified above. When a wave of unsuitable material is forced up in front of the end dumping operation, it shall become the property of the contractor and be removed as necessary, and will not be allowed to be trapped and be incorporated in the embankment except as part of plastic soil for slopes.

203.08 CUT AREA PREPARATION. The top 12 inches (300 mm) shall be scarified and compacted to such density that the compaction requirements of the type base course being constructed given in Table 301-1 shall be met. Construction, compaction, and testing requirements shall be in accordance with Subsection 203.07.

When unstable soils are encountered, the engineer will determine the limits to be undercut. The contractor shall excavate to a stable foundation or to the depth required by the engineer and backfill to existing grade. Undercut shall be constructed and tested in accordance with Subsection 203.07.

When a stable foundation cannot be reached, the embankment materials shall be "bridged-in" and the remaining embankment constructed in accordance with Subsection 203.07 to existing grade.

203.09 NONPLASTIC EMBANKMENT.

(a) Materials: Nonplastic embankment material shall comply with Subsection 1003.09 or the following, unless otherwise specified on the plans.

(b) General Requirements: Unsuitable material defined in Subsection 203.04 shall not be entrapped in the embankment. The contractor shall remove any such material at no direct pay.

Surcharge materials shall remain on the embankment for at least the specified number of days after approval of the increment. Damage to embankment increments due to the contractor's operations shall be

satisfactorily repaired by the contractor at no direct pay. The contractor will be permitted to remove excess surcharge materials after the surcharge period. Verification cross sections of the final embankment will be taken after removal of the surcharge. The Department will assume liability for subsidence after these cross sections are taken. After all embankment increments have been surcharged, excess surcharge material shall be satisfactorily disposed of in accordance with Section 202.02 at no direct pay.

Except for shell or stone embankments, the contractor shall furnish and place a plastic soil blanket complying with Subsection 203.10.

(c) Nonplastic Embankment Construction: Nonplastic embankments shall be constructed by mechanical methods.

Unless otherwise shown on the plans, material shall be placed in lifts not exceeding 15 inches (375 mm) uncompacted thickness after establishing a working table as directed. Each lift shall be compacted and tested in accordance with Subsection 203.07.

(d) Blended Calcium Sulfate Embankment Construction: Water shall be added or other suitable means shall be taken to prevent dust resulting from the transporting and placing of dry material. Blended embankment material shall be placed in lifts not exceeding 12 inches (300 mm) in thickness (loose) after establishing a working table as directed. Each lift shall be compacted to at least 95 percent of maximum dry density prior to placement of subsequent lifts. The maximum density shall be determined in accordance with DOTD TR 418 modified to include a drying temperature not to exceed 140°F (60°C). Field density testing shall be in accordance with Subsection 203.07 except that moisture content determinations for density corrections shall be determined by oven drying the material at 140°F (60°C) for a minimum of 24 hours. A forced draft type oven capable of maintaining this temperature shall be provided by the contractor. The contractor shall furnish and place a plastic soil blanket complying with Subsection 203.10.

Blended calcium sulfate shall not be placed within 10 feet (3.0 m) of metal drainage structures. The contractor will be allowed to substitute natural stone, flowable fill under Section 710, or other material in Subsection 1003.08 as approved by the Department.

203.10 PLASTIC SOIL BLANKET. Plastic soil blanket shall consist of soils having a minimum PI of 11, maximum PI of 35, a maximum silt content of 65 percent, and a pH not less than 5.5 or greater than 8.5, and a minimum organic content of 3 percent. The contractor will be allowed to

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blend organic materials to achieve the minimum 3 percent organic content. The plastic soil blanket shall support a satisfactory stand of grass in accordance with Sections 714 or 717. The minimum thickness of the soil blanket will be 12 inches (300 mm). Areas requiring a plastic soil blanket shall be approved prior to placement of the plastic soil blanket. After materials are placed and spread, lumps, stones, roots and other foreign matter shall be removed from the area. Soil blanket material shall be spread and rolled in a manner that leaves a uniform surface. Any remaining ridges or grooves, including cleat tracks from the dozer, will be parallel to the roadway during the period of time between placement and seeding.

Plastic soil blanket shall be placed in a timely manner to prevent erosion.

203.11 GEOTEXTILE FABRICS.

(a) General: This work consists of furnishing and placing geotextile fabric in accordance with these specifications and in conformance with the details shown on the plans.

(b) Materials: The geotextile fabric shall comply with Section 1019.

(c) Construction Requirements: Rolls of geotextile fabric shall be kept covered and protected from ultraviolet degradation at all times until use. Geotextile fabric that has been installed shall be covered with embankment within 7 calendar days. When ultraviolet damage occurs, the geotextile fabric shall be removed and replaced. The geotextile fabric shall be placed at the locations shown on the plans or as directed. Adjacent rolls of geotextile fabric will be overlapped or sewn. When rolls are overlapped, the overlap shall be a minimum of 18 inches (450 mm), or as specified in the plans, including the ends of the rolls. The top layer of the geotextile fabric shall be parallel with adjacent rolls and in the direction of embankment placement. When rolls are sewn, the contractor shall join adjacent rolls by sewing with polyester or kevlar thread. Field sewing shall employ the "J" seam or "Butterfly" seam with the two pieces of geotextile fabric mated together, turned in order to sew through 4 layers of fabric and sewn with 2 rows of Type 401, two-thread chain stitch. Factory seams other than specified may be submitted to the Materials and Testing Section for approval. Where the ground is covered with water or soil is saturated, sewing of the geotextile fabric will be required.

The geotextile fabric shall be placed as smooth as possible with no wrinkles or folds, except in curved road sections. For curved road sections, the geotextile fabric shall be folded to accommodate the curve. The fold

shall be in the direction of construction and pinned or stapled. Ruts that occur during construction shall be filled and compacted prior to placement of geotextile fabric.

Damaged geotextile fabric shall be either removed and replaced with new geotextile fabric or covered with a second layer of geotextile fabric extending 2 feet (0.6 m) in each direction from the damaged area.

203.12 QUALITY CONTROL. The contractor shall locate, select, and place material conforming to specification requirements. The contractor shall control his processes, including performing tests and making adjustments as necessary, to result in a uniform quality product meeting all the requirements of the plans and specifications. Tests for in-place moisture content shall be performed by the contractor in accordance with DOTD TR 403, at a frequency that will ensure that the material is within the tolerances of optimum moisture. Tests for in-place density shall be performed by the contractor in accordance with DOTD TR 401 at a frequency that will ensure that the compactive effort is producing a uniform product that conforms to specification requirements. The contractor shall control placement and finishing to ensure conformance with the lines, grades, thickness, and typical cross-sections shown on the plans or established.

Sections will be inspected prior to acceptance testing. Obviously deficient areas shall be corrected prior to acceptance testing.

203.13 ACCEPTANCE. The Department will perform inspection, sampling, and testing for acceptance. Any area that is deficient will require correction whether identified by inspection or testing.

The embankment (with surcharge, if required) will be approved in increments of 1,000 feet (300 m), except terminal increments which may be less than 1,000 feet (300 m).

Maximum density for earthwork will be determined in accordance with DOTD TR 415 or DOTD TR 418; in-place density will be determined in accordance with DOTD TR 401.

203.14 MEASUREMENT.

(a) General: Unless otherwise specified, borrow material in accordance with 203.05 and plastic soil for slopes in accordance with 203.06(f) will be considered incidental to the embankment and will not be measured separately, but will be measured as embankment.

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Measurement of undercut will be from subgrade or original ground, whichever is lower.

No measurement will be made for excavation for culverts or culvert headwalls.

When the grade line of a pipe or box culvert is raised or lowered more than 2 feet (0.6 m) from the grade line shown on the plans or is relocated to a site requiring an equivalent change in excavation, payment will be increased or decreased accordingly at the rate of three times the contract unit price for General Excavation (or Embankment if General Excavation is not a contract pay item). The volume to be used in the increase or decrease will be a rectangular solid the length of the pipe or box culvert, the outside width of the pipe or box culvert plus 3 feet (1.0 m), and the average change in invert elevation minus 2 feet (0.6 m).

(b) General Excavation, Embankment and Nonplastic Embankment:

The measurement of quantities will be computed by the average end area method and will be that area bound by (1) the original ground line established by location (plan) cross sections (if accurate) or new original cross sections obtained by the contractor, and (2) the final theoretical pay line as shown on the plans, or established by the engineer, adjusted for field changes.

After clearing and grubbing operations, the contractor will take original cross sections for the entire length of the project. All original cross sections shall be taken in the presence of a designated DOTD employee. Cross sections shall be taken at sufficient intervals to accurately determine earthwork quantities, not to exceed 100 linear feet (30 lin m). The cross sections shall be taken in accordance with DOTD procedures, and results must be furnished to the Department in a format satisfactory to the engineer. The Department reserves the right to take additional cross sections as needed to verify the contractor's cross sections. In the event the cross sections do not verify, the contractor will investigate and reconcile any differences.

The original cross sections will be used to determine the accuracy of the location cross sections by using random sections not farther apart than 1000 linear feet (300 lin m) and centerline elevations at intervals of 100 linear feet (30 lin m). The location cross sections will be considered to be usable if the average of the differentials do not exceed ± 0.3 foot (± 0.1 m). For significant portions of the project with obvious errors between location and original cross sections, the contractor's original field cross sections will

be used, and will not be part of the verification process. In all cases where location sections are unavailable, new originals are to be taken and used.

The final theoretical pay line shall be derived from the profile grade, typical section and ditch grades shown in the plans, along with approved plan changes and other field changes made by the engineer. No increase in quantities will be authorized for overbuilding unless directed by the engineer.

Pay lines for surcharged embankments will be the theoretical surcharge lines shown on the plans. No measurement will be made for removing and disposing of excess surcharge materials.

When payment is made for embankment in its final position, no additional quantity will be measured due to settlement, compaction, erosion or other cause.

Excavation and embankment for crossovers, turnouts, driveway approaches or other minor installations will not be included in the measurement.

A depth and width tolerance of ± 1.5 feet (± 0.5 m) will be allowed for excavation of unsuitable material. Overdepth and overwidth will be waived at no direct pay; however, no measurement for payment will be made for additional embankment material required to backfill areas beyond theoretical unsuitable material lines.

Measurement will be made by one or more of the following methods:

(1) Plan Quantity: The quantities of excavation and embankment will be those shown in the plans, provided the project is constructed essentially to the theoretical pay line.

When the plans have been revised or when disagreement exists between the contractor and the engineer as to the accuracy of the plan quantities for the entire project, or any substantial portion thereof, either party may require that quantities be revised. The party requesting the revision will be responsible for isolating and detailing the error in an easily understood format which may include cross sections, sketches, and computations. The revision will be verified and agreed to by the other party.

No payment will be made to the contractor to recompute new plan quantities.

(2) Final Field Cross Sections: When payment lines are not shown on the plans and cannot be established, in lieu of final theoretical pay lines, final field cross sections will be used to determine pay quantities for excavation and embankment.

(c) Drainage Excavation: After completion of excavation operations at each individual location, measurement will be made in

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accordance with Subsections 203.14(b)(1) or 203.14(b)(2). Elevations for underwater excavation will be determined in accordance with DOTD TR 426.

(d) Excavation and Embankment:

(1) Linear Measurement: When excavation or embankment is to be measured on a linear basis, the length will be measured along the centerline or the baseline used in the plans and includes performing the excavation, embankment and grading work necessary for construction of the project. It is the contractor's responsibility to determine quantities of earthwork necessary to complete this item.

(2) Lump Sum Measurement: When excavation and embankment is to be measured by the lump sum, this item includes performing the excavation, embankment, and grading work necessary for construction of the project. It is the contractor's responsibility to determine the correct quantities of earthwork required to complete this item. No adjustment in contract price will be made.

(e) Borrow (Vehicular Measurement): The material will be measured by the cubic yard (cu m) in approved hauling vehicles at the point of delivery in accordance with Subsection 109.01.

(f) Geotextile Fabric: Geotextile fabric will be measured by the square yard (sq m) of covered area in place.

203.15 PAYMENT. Payment for the accepted quantities will be made at the contract unit prices which includes furnishing the equipment, labor and materials necessary to complete the items.

Payment for roadway obliteration will be made under appropriate roadway removal and excavation items. Existing asphaltic pavement, 5 inches (125 mm) thick or less, will be paid for as general excavation. Removal of asphaltic pavement greater than 5 inches (125 mm) thick will be paid for under Section 202. Blading and shaping to drain will be considered incidental and will not be measured for pay. Excavation, other than blading and shaping, generally over 1 foot (0.3 m) in depth over a substantial area, will be paid as general excavation for the full depth of cut.

Payment for undercut will be as general excavation, and payment for required backfill will be made as embankment. In cases when undercut operations are separate from normal earthwork and separate records can be kept, undercut may be paid in accordance with Subsection 109.04 when requested by the contractor in advance, or if the project engineer has sufficient records, without an advance request.

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Plastic soil blanket will be included in the pay volume for the embankment.

No direct payment will be made for acquisition of borrow materials outside the right-of-way; acquisition of right-of-way and constructing haul roads; stockpiling and rehandling of materials; precautionary measures to protect private property and utilities; or furnishing necessary water and watering equipment.

Excavation for plastic soil blanket in cut sections, when required, will be made as general excavation and payment for the required plastic soil blanket will be made as embankment.

Payment will be made under:

Item No.	Pay Item	Pay Unit
203-01	General Excavation	Cubic Yard (Cu m)
203-02	Drainage Excavation	Cubic Yard (Cu m)
203-03	Embankment	Cubic Yard (Cu m)
203-04	Nonplastic Embankment	Cubic Yard (Cu m)
203-05	Excavation and Embankment	Lump Sum
203-06	Excavation and Embankment	Linear Foot (Lin m)
203-07	Borrow (Vehicular Measurement)	Cubic Yard (Cu m)
203-08	Geotextile Fabric	Square Yard (Sq m)

Section 204

Temporary Erosion Control

204.01 DESCRIPTION. This work consists of constructing and maintaining temporary erosion control features shown on the plans or as directed. Installation of temporary erosion control features shall be coordinated with construction of permanent erosion control features to the extent necessary to ensure economical, effective and continuous control of erosion and water pollution throughout the life of the contract.

The contractor shall comply with a Storm Water Pollution Prevention Plan (SWPPP) approved by the Department when conducting clearing or earthwork operations. The SWPPP shall include the erosion control features as shown on the plans, or as directed, in addition to other required components of the SWPPP specified by the US Environmental Protection Agency (EPA) and the Louisiana Department of Environmental Quality (LDEQ). The plan shall indicate the use of contract items and the coordination of this work with the scheduling of clearing and earthwork.

Quality assurance requirements shall be as specified in the latest edition of the Department's publication entitled "Application of Quality Assurance Specifications for Embankment and Base Course."

204.02 CONTROL OF ERODIBLE SOIL.

(a) General: The contractor shall prevent the transmission of soil particles into streams, canals, lakes, reservoirs or other waterways.

Except as necessary for construction, excavated material shall not be deposited into streams or impoundments, or in a position close enough to be washed in waterways by high water or runoff.

The contractor shall not disturb lands or waters outside the limits of construction, except as authorized.

(b) Adjacent to Waterways: Stream banks shall be kept in their natural state. The contractor shall not unnecessarily strip protective vegetation in the vicinity of stream banks and shall conduct operations without damage to banks. Banks shall not be excavated except as shown on the plans or as otherwise approved in writing. Work roads requiring bank cuts shall be approved by the project engineer prior to making such cuts. The banks shall be restored by the contractor to the satisfaction of the project engineer.

(c) Adjacent to Property: The location of, and method of operation in, borrow pits, material pits and disposal areas obtained by the contractor for waste material from the project (other than commercially operated sources) shall be the contractor's responsibility.

204.03 MATERIALS. Materials not covered by project specifications shall meet commercial grade standards and shall be approved before being incorporated into the project. No testing of materials used in temporary erosion control features will be required. Acceptance of temporary erosion control materials will be by visual inspection.

(a) Mulches: Mulch shall comply with Subsection 1018.19 and emulsified asphalt shall conform to Section 1002.

(b) Seeding: Grass shall be an approved quick-growing species suitable to the area, providing a temporary cover which will not compete with permanent grasses. Rye grass is the only acceptable grass for winter cover.

(c) Slope Drains: Slope drains may be constructed of pipe, fiber mats, rubble, portland cement concrete, asphaltic concrete, plastic sheets or other acceptable material.

(d) Fertilizer: Fertilizer shall comply with Subsection 1018.16.

(e) Silt Fencing: Silt fencing shall be wire-supported or self-supported systems. Other silt fencing systems may be used when approved.

(1) Wire-Supported: Wire-supported silt fencing shall consist of standard woven livestock wire, and minimum of 14-gage (2.0 mm diameter) wire, a minimum of 36 inches (900 mm) in height with a maximum wire spacing of 6 inches (150 mm). Posts shall be either wood or steel installed a minimum of 2 feet (0.6 m) in the ground. Filter material shall be burlap weighing approximately 7 1/2 ounces per square yard (0.25 kg per sq m), approved jute fabric or approved geotextile fabric. Geotextile fabric shall comply with Section 1019, Class F.

(2) Self-Supported: Self-supported silt fencing shall consist of an approved geotextile fabric suitably attached to posts of either wood or steel installed in accordance with plan details. Geotextile fabric shall comply with Section 1019, Class G.

(f) Lime: Agricultural lime shall comply with Subsection 1018.17.

(g) Temporary Construction Entrance: Temporary construction entrances shall consist of stone or recycled portland cement concrete complying with Subsection 711.02, 2 lb (1 kg) class placed on geotextile fabric complying with Section 1019, Class D. The geotextile fabric

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underliner shall be placed at the locations designated for temporary construction entrances before stone or recycled portland cement concrete is placed. The stone or recycled portland cement concrete shall be placed and compacted to the required thickness as directed. This work also includes additional measures required to remove mud from truck tires, such as wash racks, etc.

(h) Hay Bales: Hay or straw bales shall be rectangular bales, acceptable to the project engineer. The average length of bales shall be 34 inches (850 mm) minimum.

204.04 EXPOSURE OF ERODIBLE EARTH. The engineer may direct the contractor to provide immediate permanent or temporary erosion or pollution control measures to prevent contamination of streams, lakes, tidal waters, reservoirs, canals or other impoundments or prevent detrimental effects on property outside the right-of-way and damage to the project. Limitations of areas in which excavation and embankment operations are underway shall be commensurate with the contractor's capability and progress in keeping finish grading, temporary erosion control, and permanent erosion control measures in accordance with the accepted schedule.

204.05 INCORPORATION OF EROSION CONTROL FEATURES. Use of temporary erosion control features will be authorized to correct unforeseen conditions that develop during construction; to control erosion prior to the time it is practical to construct permanent control features; or to provide immediate temporary control of erosion that develops during normal construction operations but is not associated with permanent erosion control features. Permanent erosion control features shall be incorporated into the project at the earliest practical time.

Temporary erosion control features will be used as directed in areas where stage construction or other conditions not under control of the contractor preclude completion of a section of roadway in a continuous manner, or where subsequent construction operations will cause damage to permanent erosion control features.

204.06 CONSTRUCTION REQUIREMENTS. Temporary erosion control features shall consist of, but not be limited to, temporary seeding, temporary mulching, sandbagging, slope drains, sediment basins, sediment check dams, erosion checks, artificial coverings, berms, and stone entrances. The engineer may direct use of temporary erosion control

features or methods other than those included in the original contract. Soil deposits outside the right-of-way shall be immediately removed and the surface repaired at no direct pay. The engineer shall have the authority to require the contractor's operations to be discontinued until erosion deposits have been cleared and the area restored.

(a) Temporary Seeding: Seeding shall be done in accordance with Section 717, except that ground preparation will be limited to blading the area. Lime or fertilizer shall be applied in accordance with Section 718; however, lime or fertilizer may be omitted or the application rate reduced as directed.

(b) Temporary Mulching: Mulch and emulsified asphalt shall be furnished and applied in accordance with Section 716. Mulch may be omitted or the application rate reduced as ordered. When permanent seeding operations begin, temporary mulch materials shall be plowed under during ground preparation.

(c) Sandbagging: Sandbags shall be placed as directed.

(d) Baled Straw or Hay: Baled straw or hay shall be placed as directed to form checks or dams to control erosion and siltation. Bales shall be properly staked or otherwise secured as directed, as shown on the plans. The bales shall be buried as necessary to prevent scour under the bales. A minimum of 2 stakes shall be driven through each bale.

(e) Slope Drains: Slope drains shall be constructed with acceptable materials in accordance with plan details or as directed, if necessary to prevent scour. The discharge area shall be stabilized or protected by temporary riprap as directed. Cost of discharge area protection will be included under the slope drain item.

(f) Sediment Basins: Sediment basins shall be constructed in accordance with plan details or as directed.

(g) Sediment Check Dams: Check dams shall be constructed at locations shown on the plans or as directed. Check dams shall be constructed before clearing and grubbing or grading in the area is begun unless otherwise directed.

(h) Silt Fencing: Silt fencing shall be furnished and constructed at designated locations or other locations, as directed by the engineer.

(i) Berms: Earth berms shall be constructed as directed to divert the flow of water from erodible surfaces.

(j) Unforeseen Conditions: When unforeseen conditions are encountered, the engineer may direct the contractor to construct such temporary devices as required to control erosion during construction. Details may be developed jointly by the engineer and the contractor.

204.06

(k) Maintenance of Erosion Control Features: The contractor shall install, construct, repair, and maintain temporary erosion control features within 7 calendar days of being instructed to do so by the project engineer. Temporary erosion control features shall be inspected at least once every 14 calendar days and within 24 hours after a rainfall event of 0.5 inches or greater. The features are to be maintained as described below or replaced as directed at no direct pay.

(1) Temporary Seeding: The seeded areas showing erosion after inspection shall be reseeded if necessary.

(2) Mulches: Mulched areas showing erosion shall be repaired and the mulch reapplied if necessary.

(3) Straw or Hay Bale Barriers: The bale barriers shall be inspected after each rainfall and time frame as defined above and at least daily during prolonged rainfall. Close attention shall be paid to the repair of damaged bales, "end runs" and undercutting beneath bales.

(4) Slope Drains: Slope drains shall be inspected weekly and after each rainfall as defined above, and repairs made if necessary. The contractor shall avoid the placement of any material on and prevent construction traffic across the slope drain.

(5) Sediment Check Dams: Sediment deposits shall be removed when the deposits reach one-half the height of the check dam. Inspections shall be made to insure that the center of the dam is lower than the edges. Erosion around the edges shall be corrected immediately.

(6) Silt Fencing: Sediment deposits shall be removed when the deposits reach one-half the height of the fence. If the fabric on the silt fence decomposes or becomes ineffective, the fabric shall be replaced promptly.

(7) Temporary Stone Construction Entrance and/or Wash Racks: The construction entrance shall be maintained to allow for removal of mud from the tires. The sediment from the wash rack runoff shall be removed once the wash rack is no longer performing as intended.

(l) Removal of Temporary Erosion Control Features: Temporary erosion control features existing at the time of construction of permanent erosion control features shall be removed or incorporated into the soil in such manner that no detrimental effect will result. The engineer may direct that temporary features be left in place. Sediment in sediment basins, silt fences, check dams, and other catchment areas shall be removed, replaced with acceptable soils in accordance with Subsection 203.06, and compacted as directed at no direct pay.

204.07 PROTECTION DURING SUSPENSION OF OPERATIONS.

Prior to the suspension of operations, the contractor shall shape the top of the earthwork in such manner as to permit runoff of rainwater and shall construct earth berms along the top edges of embankments to intercept runoff water. Temporary slope drains shall be provided in the earth berm to carry runoff. When such preventive measures fail, the contractor shall immediately take other action as necessary to prevent erosion and siltation. The engineer may direct the contractor to perform other erosion control work during suspensions of contract time.

204.08 MEASUREMENT. When temporary erosion and pollution control measures are required due to the contractor's negligence or failure to install permanent controls, such work shall be performed by the contractor at no direct pay.

Required temporary erosion and pollution control work which is not due to the contractor's negligence will be measured as follows:

When separate items for temporary erosion control devices are included in the contract, and the work is ordered, the quantities to be paid for will be the weight in pounds (kg) of Temporary Seeding and in tons (Mg) of Temporary Mulching; the volume in cubic yards (cu m) of Sandbagging with the measurement of sand being made in a batch box or other satisfactory means; the number of hay bales placed; the length in feet (m) of Temporary Slope Drains measured along the ground surface and Silt Fencing measured along ground surface between end posts; the number of Sediment Basins and Sediment Check Dams acceptably constructed; the number of gallons (L) of emulsified asphalt, and the number of construction entrances.

Temporary erosion control items may be eliminated when conditions do not justify their use.

When temporary erosion control work is ordered and is not covered by contract items, the work shall be performed as extra work in accordance with Subsection 109.04 except that no extra work order will be required prior to starting work.

The construction of temporary earth berms along edges of the roadway to prevent erosion during grading and subsequent operations will not be measured for payment.

In case of failure of the contractor to control erosion, or siltation, the engineer may employ outside assistance or use his own forces to provide the necessary corrective measures, and the cost thereof will be deducted

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from payments for the work. Partial payments will be withheld until satisfactory temporary erosion control is established.

204.09 PAYMENT. Payment for temporary erosion control items that are included as contract items will be made at the contract unit prices. Payment for temporary mulching, emulsified asphalt and seeding will be made under Sections 716 or 717. Temporary erosion control work not covered by contract items that is ordered will be paid for in accordance with Subsection 109.04.

Temporary Sandbagging and Baled Hay or Straw will be paid for directly when used other than in construction of Temporary Slope Drains, Temporary Sediment Basins and Temporary Sediment Check Dams. When sandbags and baled hay or straw are used in construction of slope drains, sediment basins and sediment check dams, payment will be made under these items.

Payment for devices used to correct unforeseen conditions will be made at the contract unit price for similar devices shown on the plans, or as extra work if plan details are not applicable.

Payment will be made under:

Item No.	Pay Item	Pay Unit
204-01	Temporary Sandbagging	Cubic Yard (Cu m)
204-02	Temporary Hay or Straw Bales	Each
204-03	Temporary Slope Drains	Linear Foot (Lin m)
204-04	Temporary Sediment Basins	Each
204-05	Temporary Sediment Check Dams	Each
204-06	Temporary Silt Fencing	Linear Foot (Lin m)
204-07	Temporary Stone Construction Entrance	Each