

Section 617—Structural-Plate Structures

Description

617.01 Work. Furnish and install, or install only, structural-plate pipes, pipe arches, arches, boxes, and underpasses. Include joints and connections to pipes, catch basins, headwalls, stiffening ribs, thrust beams, and other appurtenances required to complete the structure.

Materials

617.02 Requirements. Ensure that materials meet the requirements specified in the following subsections:

Aluminum-Alloy Structural-Plate Structures	707.06
Asphalt-Coated Structural-Plate Structures	707.07
Backfill Material	704.03
High-Strength Nonshrink Grout	701.02
Reinforcing Steel	709.01
Repair of Damaged Coatings	707.15
Steel Structural-Plate Structures	707.05

Furnish concrete that meets the requirements specified in Subsection 602.03, method A or B, or as SHOWN ON THE DRAWINGS.

Construction

617.03 Excavation & Bedding. Excavate to the limits SHOWN ON THE DRAWINGS and in accordance with the requirements of Sections 206 and 206A.

Specific structure installation time restrictions and installation plan requirements are SHOWN ON THE DRAWINGS.

Provide bedding material that meets the same requirements as backfill material.

Bed the culvert in a compacted layer of bedding material with a thickness equal to at least 10 percent of the culvert height. Place the bedding material in layers that do not exceed 150 mm in depth when compacted. Shape and compact the bed to fit the culvert. Where applicable, recess the shaped foundation to receive the joints.

Do not place or backfill structure until the CO has approved the excavation and foundation.

617.04 Design & Fabrication. Submit four sets of shop drawings of the plate structure to the CO at least 21 days before planned construction. Accompany shop drawings with all calculations used to determine the size, shape, location, and spacing of stiffening ribs, thrust beams, or other special structural features.

Fabricate plates in accordance with AASHTO M 167 or M 219.

Form plates to provide lap joints. Stagger joints so that not more than three plates come together at any one point. Punch the bolt holes so that all plates with like dimensions, curvature, and the same number of bolts per meter of seam are interchangeable. Curve each plate to the proper radius so that the cross-sectional dimensions of the finished structure are as SHOWN ON THE DRAWINGS.

Cut plates for forming skewed or sloped ends to give the angle of skew or slope as SHOWN ON THE DRAWINGS. Place legible identification numerals on each plate to designate its proper position in the finished structure.

617.05 Erection. Provide a copy of manufacturer's assembly instructions before assembly. The instructions shall show the position of each plate and the assembly order.

Assemble the structural plates according to the manufacturer's instructions. Exercise care in the use of drift pins and pry bars to prevent damage to the structural plate and its coating. Torque all bolts before beginning the backfill. Repair damaged coatings according to Subsection 707.15. Ensure that the plates have a proper fit-up.

When aluminum alloys come in contact with other metals, coat the contacting surfaces with asphalt mastic according to Subsection 707.07 or a preapproved asphalt-impregnated caulking compound.

Torque steel bolts on steel plates to a minimum of 135 N•m and a maximum of 400 N•m.

Torque steel and aluminum bolts on 2.5-mm-thick aluminum plates to a minimum of 120 N•m and a maximum of 155 N•m.

Torque steel bolts and aluminum bolts on 3-mm-thick and heavier aluminum plates to a minimum of 155 N•m and a maximum of 180 N•m.

For long-span structures:

- (a) Tighten the longitudinal seams when the plates are assembled unless the plates are held in shape by cables, struts, or backfill. Properly align plates circumferentially to avoid permanent distortion from the design shape. Before backfilling, do not exceed 2 percent variation from the design shape.

- (b) Do not distort the shape of the structure by operating equipment over or near it.
- (c) Provide survey control on the structure to check structure movement when SHOWN ON THE DRAWINGS.
- (d) Check and control the deflection movements of the structure during the entire backfilling operation. Do not exceed the manufacturer's recommended limits.
- (e) Provide a manufacturer's representative onsite to assist in the erection and backfilling of the structure when SHOWN ON THE DRAWINGS.

617.06 Backfilling. Provide backfill meeting the material and placement requirements of Section 206 or 206A.

After preparing bedding and placing the structure, place backfill in layers not exceeding 150 mm loose thickness, and compact it under the haunches and alongside the structure. The material shall be readily compactible and free of frozen lumps, chunks of highly plastic clay, or other objectionable material. Do not use rocks larger than 75 mm in greatest dimension within 300 mm of the structure. Ensure that there is an area of compacted material at least as wide as one diameter of the structure or 3.5 m, whichever is less, on each side of the structure. Compact the backfill without damaging or displacing the structure.

When filling around and over arches before headwalls are in place, place the first embankment material midway between the ends of the arch, forming as narrow a ramp as possible, until reaching the top of the arch. Build the ramp evenly from both sides, and compact the embankment material as it is placed. After building the two ramps to the top of the arch, deposit the remainder of the embankment material from the top of the arch in both directions from the center to the ends, and as evenly as possible on both sides of the arch.

If headwalls are built before any embankment material is placed around and over the arch, first place the embankment material adjacent to one headwall until reaching the top of the arch. Then dump the embankment material from the top of the arch toward the other headwall, depositing the material evenly on both sides of the arch.

Follow the procedures specified above in multiple installations. Bring up the embankment material evenly on each side of each arch to avoid unequal pressure.

Ensure that backfill density exceeds 95 percent of the maximum density as determined by AASHTO T 99, method C or D.

Continue backfilling and compacting until the backfill is 300 mm above the top of the structure.

After bedding and backfilling, protect the structure with an adequate cover of compacted embankment, as indicated by manufacturer’s recommendation. Do this before permitting heavy equipment to cross during roadway construction.

Replace structure that is distorted by more than 5 percent of nominal dimensions, or that is ruptured or broken.

Ensure that backfilling materials, methods, and procedures meet the manufacturer’s requirements.

Measurement

617.07 Method. Use the method of measurement that is DESIGNATED IN THE SCHEDULE OF ITEMS.

The quantity of concrete or reinforcing steel used in thrust beams or additional structural metal or plates used in stiffening ribs or other special structural features will not be included in the quantities for payment.

Payment

617.08 Basis. The accepted quantities will be paid for at the contract unit price for each PAY ITEM DESIGNATED IN THE SCHEDULE OF ITEMS.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
617 (01) _____ structural-plate pipe, size _____, <i>Material</i> _____ -coated, _____ thickness	Meter
617 (02) _____ structural-plate pipe arch, _____ span, <i>Material</i> _____ rise, _____ -coated, _____ thickness	Meter
617 (03) _____ structural-plate arch, _____ span, <i>Material</i> _____ rise, _____ -coated, _____ thickness	Meter
617 (04) _____ structural-plate underpass, size _____, <i>Material</i> _____ -coated, _____ thickness	Meter

- 617 (05) _____ structural-plate box culvert, _____ span,
Material
 _____ rise, _____ -coated, _____ thicknessMeter
- 617 (06) _____ long-span structure, plate _____ -coated,
Material *Type*
 _____ span, _____ rise, _____ thicknessMeter
- 617 (07) Installation only Each

Section 618—Cleaning & Reconditioning Existing Drainage Structures

Description

618.01 Work. Clean and recondition existing pipe and appurtenant structures.

Materials

618.02 Requirements. Ensure that the materials used for repair or replacement meet the applicable requirements of sections SHOWN ON THE DRAWINGS or specified in the SPECIAL PROJECT SPECIFICATIONS.

Construction

618.03 Pipe Removed & Cleaned. Carefully remove the pipe and appurtenant structures and clean foreign material out of the barrel and at the jointed ends.

618.04 Pipe Cleaned in Place. Remove all foreign material inside the barrel by methods that do not damage the pipe. Take adequate measures to protect the drainage and prevent stream siltation or increased turbidity when hydraulically cleaning pipe in place.

If approved by the CO, all or part of the pipe designated to be cleaned in place may be removed, cleaned, and relaid in accordance with Sections 603, 603A, and 603B. In these cases, furnish all material required to replace damaged pipe and joints, perform all excavation and backfill, and relay the pipe.

618.05 Relaying or Stockpiling Salvaged Pipe. The locations of pipe and appurtenant structures to be removed, cleaned, and relaid will be SHOWN ON THE DRAWINGS. Relay the pipe in accordance with Sections 603, 603A, and 603B. Furnish all jointing material, and replace pipe that has been damaged during removing or handling, in sufficient lengths to complete the designated length to be relaid, without added compensation. Place salvaged pipe designated to be stockpiled where SHOWN ON THE DRAWINGS. Carefully remove and handle all pipe to avoid breaking or damaging it. Do not place pipe that has been structurally damaged in stockpiles. Dispose of damaged pipe at an approved location in accordance with Subsection 202.04.

618.06 Reconditioning Drainage Structure. Remove all debris, repair leaks, and replace broken or missing metalwork on all structures, such as manholes and inlets, that are SHOWN ON THE DRAWINGS as needing reconditioning. Leave these structures in operating condition.

Measurement

618.07 Method. Use the method of measurement that is DESIGNATED IN THE SCHEDULE OF ITEMS.

The quantity of pipe and appurtenant structures removed, cleaned, and relaid is the length in final position.

The quantity of pipe and appurtenant structures removed, cleaned, and stockpiled is the total length of all pipe acceptably removed, cleaned, and placed in the stockpile.

The quantity of pipe and appurtenant structures cleaned in place is the length along the flow line.

No additional payment will be made for material to replace damaged pipe and joints, excavation, relaying pipes, or backfill if pipe is removed for cleaning, when damage is the result of operation.

Payment

618.08 Basis. The accepted quantities will be paid for at the contract unit price for each PAY ITEM DESIGNATED IN THE SCHEDULE OF ITEMS.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
618 (01) Removing, cleaning, and stockpiling salvaged _____	Meter
618 (02) Removing, cleaning, and relaying salvaged _____	Meter
618 (03) Cleaning _____ in place	Meter
618 (04) Cleaning _____ in place	Each
618 (05) Reconditioning drainage structures	Each

Section 621—Corrugated Metal Spillways

Description

621.01 Work. Furnish and install, or install only, corrugated metal spillway inlet assemblies, outlet pipes, half-round outlet pipe, rectangular flumes, and other appurtenances for downdrains.

Materials

621.02 Requirements. Ensure that spillway inlet assemblies, outlets, and connectors are of the type and thickness SHOWN ON THE DRAWINGS and are constructed of corrugated sheet metal that meets the requirements specified in Subsection 603.02. Fillet weld or rivet bulkheads and connections for outlet pipes to the inlet chamber to form watertight joints. Rivet or weld anchors, lips, and skirts so they are secure. Ensure that connections for outlet pipes meet the requirements specified in Subsection 603.06.

Ensure that outlets are the type, size, and arrangement SHOWN ON THE DRAWINGS, and that they meet the requirements for corrugated metal pipe specified in Subsection 603.02. Furnish half-round pipe with end sections punched so that joints can be riveted in the field. Furnish elbows of the full-circle type.

Ensure that anchor assemblies for the downdrains and other components are as SHOWN ON THE DRAWINGS.

Ensure that coating for spillway inlet assemblies and outlet pipes meets the requirements for coated corrugated pipe specified in Subsection 603.02.

Install a gasket or equivalent material on circular pipe at the joints on each side of elbows and at each joint on the downdrain to make the connections watertight. Install gaskets on the entire circumference. Use gasket material of sponge rubber or synthetic rubber compound specifically designed for such installations and recommended by the coupling band fabricator. Approved joint compounds, such as Thiocaulk or Plastiflex, may be used instead of gaskets.

Construction

621.03 Performance. Place spillway inlets where SHOWN ON THE DRAWINGS. Compact the earth backfill in accordance with Subsection 603.08, method B.

Install outlet pipes in accordance with Section 603. Place outside laps so they face upstream.

Repair damaged coating on the inlet assemblies or pipe and all field rivet heads as required in Subsection 707.15.

Ensure that there are no reverse grades, and that no point varies from a straight line drawn from inlet to outlet by more than 2 percent horizontally and vertically of the spillway length, or 300 mm on the final installed alignment, whichever is less, unless otherwise SHOWN ON THE DRAWINGS.

Measurement

621.04 Method. Use the method of measurement that is DESIGNATED IN THE SCHEDULE OF ITEMS.

The quantity of outlet pipes shall be the length from end to end of each outlet pipe, excluding elbows and spillway assemblies.

Payment

621.05 Basis. The accepted quantities will be paid for at the contract unit price for each PAY ITEM DESIGNATED IN THE SCHEDULE OF ITEMS.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
621 (01) Spillway inlet assemblies	Each
621 (02) Spillway inlet assemblies with _____ coating	Each
621 (03) _____-mm half-round outlet pipe	Meter
621 (04) _____-mm half-round outlet pipe with _____ coating	Meter
621 (05) _____-mm flexible downpipe	Meter
621 (06) Anchors for downdrains for _____-mm pipe	Each
621 (07) _____-mm full-circle outlet pipe	Meter
621 (08) _____-mm full-circle outlet pipe with _____ coating	Meter
621 (09) Pipe elbow _____	Each

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- 621 (10) Pipe elbow, _____ -coated _____ Each
- 621 (11) _____ -mm pipe end section Each
- 621 (12) Starter section, type _____ Each
- 621 (13) Flume, type _____ Meter
- 621 (14) Anchor stakes _____ Each
- 621 (15) Energy dissipator, type _____ Each

Section 622—Paved Waterways

Description

622.01 Work. Pave ditches, gutters, spillways, and other similar waterways with concrete, grouted rubble, ungrouted rubble, mortared rubble, concrete and rubble, or a mixture of aggregate and bituminous material. Also construct a bed course.

Materials

622.02 Requirements. Furnish concrete that meets the requirements specified in Subsection 602.03, method A or B, as SHOWN ON THE DRAWINGS.

Ensure that materials meet the requirements specified in the following sections or subsections:

Bed Course	704.09
Bituminous Material	702
Cold Asphalt Concrete Pavement Aggregate	703.08
Low-Strength Grout	701.03
Reinforcing Steel	709.01

Ensure that materials and proportions for bituminous mixtures are as SHOWN ON THE DRAWINGS.

Provide rubble for pavement that is approved, sound, durable rock of the sizes SHOWN ON THE DRAWINGS. Inspect all rock before and after laying it, and remove all rejected material immediately.

Construction

622.03 Bed Course. Form the bed course to the required depth below and parallel with the finished surface of the waterway. Replace all soft, yielding, or otherwise unsuitable material with suitable material. Compact and finish the bed course to a smooth, firm surface.

Do not construct the paved waterway until the CO gives written approval of the bed.

622.04 Grouted Rubble. Place and compact bed course material to the required thickness when SHOWN ON THE DRAWINGS.

Place the pavement stones on the bed course with flat faces up and their longest dimensions at right angles to the centerline of the waterway.

Break joints so they are not wider than 25 mm. Ram the rocks until the surface is firm and reasonably true to the finished surface in grade, alignment, and cross section. Relay or replace any rock that causes an irregular or uneven surface. After the rocks are rammed into place and the surface is satisfactory, fill the spaces or voids between and around the stones with filler aggregate to within 100 mm of the surface. Then pour and broom cement grout into the spaces between the stones. Continue this operation until the grout is about 25 mm below the tops of the stones. Ensure that the grout flows readily into the spaces between the rocks, but is not so wet that solid matter separates from the water.

622.05 UngROUTED Rubble. Place the pavement rocks on the bed course with flat faces up and their longest dimensions at right angles to the centerline of the waterway. Break joints so they are not wider than 12 mm. Ram the rocks until the surface is firm and reasonably true to the finished surface in grade, alignment, and cross section. Relay or replace any rock that causes an irregular or uneven surface, or any rock that is not in reasonably close contact with adjacent rocks.

622.06 Mortared Rubble. Lay the pavement rocks with flat faces up and their longest dimensions parallel to the gutter line.

Break joints so they are not wider than 25 mm. After each rock is rammed into place and the surface is satisfactory, apply enough mortar on the exposed side so that when the adjacent rock is rammed into position, the mortar fills the interstices between the rocks to within 25 mm of the surface and does not protrude above their tops. Ensure the finished rock surface is free from mortar stain.

622.07 Reinforced Concrete & Rubble. Construct a reinforced concrete foundation upon a repaired foundation as SHOWN ON THE DRAWINGS. Construct it progressively by laying surface rocks and bedding them securely in the concrete before it hardens. Ensure that the faces of the rocks in contact with the concrete are clean and free of any defects that will impair their bond with the concrete.

Thoroughly wet rocks before laying them, allowing ample time for them to become nearly saturated. Fill joints between rocks with mortar. Keep the bedded reinforcement steel within the middle third of the depth of the concrete during construction.

622.08 Bituminous Mixture. Prepare the bituminous mixture, stake forms, and place the mixture as specified below.

(a) **Preparing Mixture.** Prepare the bituminous mixture by using either a rotary mixer or a pugmill, or by spreading the aggregate on a flat, firm surface off the area to be surfaced, and mix it using road-mix methods. Either batch- or continuous-type pugmills may be used.

Except when emulsified asphalt is used, ensure that the aggregate does not have a moisture content of more than 2 percent at the time it is mixed with the bituminous materials. However, if an approved additive is used, the aggregate may have a moisture content of up to 5 percent.

Apply bituminous material to the aggregate or introduce it into the mixture at the temperature at which the aggregate will be coated uniformly and completely.

When mixing is done in a mixer, mix for no less than 40 seconds from the time all materials are in the mixer until they are discharged. When road-mix methods are used, continue the mixing until all aggregate particles are uniformly coated with bituminous material.

(b) Forms. Securely stake all forms approved by the CO into position at the correct line and elevation.

(c) Placing Mixture. Place the mixture on the prepared bed only when the bed is sufficiently dry and weather conditions are suitable. Place and compact the mixture in one or more courses to the thickness SHOWN ON THE DRAWINGS. Smooth each course by raking or screeding and compact it thoroughly by rolling with a hand-operated roller weighing no less than 135 kg, or with an approved small power roller. Compact areas that cannot be reached with rollers by using hand tampers. Ensure that the surface is smooth and even, and that it has a dense texture after it is compacted.

622.09 Concrete Paving. Ensure that concrete paving is plain or reinforced, as SHOWN ON THE DRAWINGS, and that it meets the requirements specified in Section 602.

622.10 Finishing Work. Remove forms from paved waterways, and make necessary repairs to edges. Shape and compact the adjacent slopes and shoulders to the cross section SHOWN ON THE DRAWINGS.

Measurement

622.11 Method. Use the method of measurement that is DESIGNATED IN THE SCHEDULE OF ITEMS.

Base area computations upon surface measurements.

Payment

622.12 Basis. The accepted quantities will be paid for at the contract unit price for each PAY ITEM DESIGNATED IN THE SCHEDULE OF ITEMS.

Section 622

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
622 (01) Grouted rubble paved waterway	Square Meter
622 (02) UngROUTED rubble paved waterway	Square Meter
622 (03) Mortared rubble paved waterway	Square Meter
622 (04) Concrete and rubble paved waterway	Square Meter
622 (05) Bituminous paved waterway	Square Meter
622 (06) Concrete paved waterway	Square Meter
622 (07) Bed course material	Ton

Section 623—Monuments & Markers

Description

623.01 Basis. Furnish and install right-of-way monuments, milepost markers, underdrain markers, and culvert markers.

Materials

623.02 Requirements. Furnish materials for the various types of monuments and markers as SHOWN ON THE DRAWINGS.

Construction

623.03 Performance. Fabricate and install the various types of monuments and markers as SHOWN ON THE DRAWINGS, and also paint the posts, if required. Set each monument and post accurately at the required location and elevation.

Measurement

623.04 Method. Use the method of measurement that is DESIGNATED IN THE SCHEDULE OF ITEMS.

Payment

623.05 Basis. The accepted quantities will be paid for at the contract unit price for each PAY ITEM DESIGNATED IN THE SCHEDULE OF ITEMS.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
623 (01) Right-of-way monument	Each
623 (02) Milepost marker	Each
623 (03) Underdrain marker	Each
623 (04) Culvert marker	Each

Section 624—Topsoiling

Description

624.01 Work. Furnish, excavate, or remove topsoil from stockpiles; then haul, deposit, and spread it.

Materials

624.02 Source. Obtain topsoil from sources SHOWN ON THE DRAWINGS or specified in the SPECIAL PROJECT SPECIFICATIONS.

624.03 Quality. Ensure that topsoil meets the requirements specified in Subsection 713.01.

Construction

624.04 Spreading. Spread the topsoil to the depth and at the locations SHOWN ON THE DRAWINGS.

Do not spread topsoil when the ground or topsoil is frozen, excessively wet, or in a condition detrimental to the work.

Remove and dispose of large clods, rocks larger than 50 mm in any dimension, roots, stumps, and other litter as SHOWN ON THE DRAWINGS.

624.05 Hauling. Keep the roadbed surfacing clean during hauling operations. Remove topsoil or other soil from the surfacing before traffic compacts it.

624.06 Source Area Other Than Roadway. After stripping operations have been completed, rough grade the source area and remove refuse. Leave the area in a neat condition. Leave a minimum 75 mm of topsoil on the source, and seed the area as SHOWN ON THE DRAWINGS.

Measurement

624.07 Method. Use the method of measurement that is DESIGNATED IN THE SCHEDULE OF ITEMS.

Measure the topsoil provided by the Contractor and paid for by cubic meter in the vehicles at the point of delivery. Measure the volume of topsoil from designated stockpiles in the original stockpile.

When topsoil is paid for by the square meter, compute its quantity along slope dimensions.

Payment

624.08 Basis. The accepted quantities will be paid for at the contract unit price for each PAY ITEM DESIGNATED IN THE SCHEDULE OF ITEMS.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
624 (01) Furnishing and placing topsoil	Square Meter
624 (02) Furnishing and placing topsoil	Cubic Meter
624 (03) Placing topsoil	Square Meter
624 (04) Placing topsoil	Cubic Meter

Section 625—Seeding & Mulching

Description

625.01 Work. Prepare seedbeds, and furnish and place required seed, fertilizer, limestone, mulch, net, and blanket material.

Materials

625.02 Requirements. Ensure that materials meet the requirements specified in the following subsections:

Agricultural Limestone	713.02
Erosion Control Mats, Roving, & Geocell	713.07
Fertilizer	713.03
Mulch	713.05
Seed	713.04
Stabilizing Emulsion Tackifiers	713.12
Water	725.01(b)

Construction

625.03 Seeding Seasons. Observe the normal seasonal dates for seeding, as shown in the SPECIAL PROJECT SPECIFICATIONS. Do not apply seeding materials during windy weather or when the ground is excessively wet or frozen.

625.04 Soil Preparation. Finish the areas to be seeded, as required by other applicable sections, to the lines and grades SHOWN ON THE DRAWINGS. Restore areas that are damaged by erosion or other causes. Ensure that the surface soil is in a roughened condition favorable for germination and growth. When required, apply limestone uniformly at the rate given in the SPECIAL PROJECT SPECIFICATIONS, either before or after soil preparation.

625.05 Application Methods for Seed, Fertilizer, & Limestone. To control erosion, apply seed to disturbed soil and slopes within 30 days of disturbance. If the slopes have not been finished, apply the seed by the dry method as an interim erosion control measure. Apply fertilizer with the seed when specified in the SPECIAL PROJECT SPECIFICATIONS.

The following methods may be used to place material:

(a) Hydraulic Method. Mix the seed or seed and fertilizer with water in the amounts and mixtures shown in the SPECIAL PROJECT SPECIFICATIONS to produce a slurry, then apply it under pressure at the rates specified in the SPECIAL PROJECT SPECIFICATIONS. When wood cellulose or grass straw mulch materials are to be incorporated as an integral part of the slurry mix, add them after all other materials have been thoroughly mixed in the tank.

Use an inoculum for hydraulic seeding that is four times what is recommended for dry seeding.

(b) Dry Method. Use mechanical, landscape, or cultipacker seeders, seed drills, fertilizer spreaders, or other approved mechanical seeding equipment to apply the seed or seed and fertilizer in the amounts and mixtures shown in the SPECIAL PROJECT SPECIFICATIONS.

Spread dry fertilizer and ground limestone separately at the rates given in the SPECIAL PROJECT SPECIFICATIONS. Incorporate them in a single operation to the required depth in the areas SHOWN ON THE DRAWINGS.

Hand-operated seeding devices may be used to apply dry seed, fertilizer, and ground limestone.

625.06 Application of Mulch. The following methods may be used to apply mulch:

(a) Hydraulic Method. Hydraulic equipment that uses water as the carrying agent may be used to apply wood cellulose or grass straw fiber mulch, tackifier, and fertilizer in a single operation. Continuously agitate the materials to keep them in uniform suspension throughout the distribution cycle. Ensure that the discharge line evenly distributes the solution to the seedbed. Do not mulch where there is free surface water. Start application to areas SHOWN ON THE DRAWINGS at the top of the slope and work downward. If necessary, use extension hoses to reach the extremities of slopes. Apply at the rate specified in the SPECIAL PROJECT SPECIFICATIONS.

(b) Dry Method. After completion of seeding and fertilizing, unless otherwise indicated in the SPECIAL PROJECT SPECIFICATIONS, apply mulch uniformly at the rate specified in the SPECIAL PROJECT SPECIFICATIONS.

When a tackifier is used for mulch, apply the material at the rate specified in the SPECIAL PROJECT SPECIFICATIONS. Immediately distribute it evenly over the mulch. Prevent asphalt adhesive materials from marking or defacing structures, appurtenances, pavements, utilities, or plant growth.

625.07 Installation of Netting & Erosion Control Blankets. Install nettings and erosion control blankets as SHOWN ON THE DRAWINGS and in accordance with the manufacturer’s recommendations.

625.08 Care During Construction. Protect and care for seeded areas until the work is finally accepted. Repair all damage to seeded areas caused by construction, without additional compensation.

Measurement

625.09 Method. Use the method of measurement that is DESIGNATED IN THE SCHEDULE OF ITEMS.

Base area computations on surface measurements.

Seed used for interim erosion control will be paid for as Seed Mix and will be measured by the kilogram. When fertilizer is used for interim erosion control, it will be measured by the ton.

Payment

625.10 Basis. The accepted quantities will be paid for at the contract unit price for each PAY ITEM DESIGNATED IN THE SCHEDULE OF ITEMS.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
625 (01) Seeding, _____ method (without mulch)	Hectare
625 (02) Seeding, _____ method (with mulch)	Hectare
625 (03) Mulch (supplemental application)	Ton
625 (04) Fertilizer (supplemental application)	Ton
625 (05) Seed mix (supplemental application)	Kilogram
625 (06) Netting, type _____	Square Meter
625 (07) Erosion control blanket, type _____	Square Meter