

GENERAL SPECIAL PROVISIONS FOR ALL PROJECTS
2001 STANDARD SPECIFICATIONS

SECTION 103 - AWARD AND EXECUTION OF CONTRACT

1. 103.11 INSURANCE, is hereby modified by replacing the third and fourth paragraphs of Part (e) with the following paragraphs:

The contractual liability insurance requirements detailed in the Contract Documents, including Subsection 107.16, are to indemnify, defend, and hold harmless the Municipality(ies), the State, the Agency, and railroad(s), as applicable, and their officers, agents, representatives, and employees, with respect to any and all claims, causes of actions, losses, expenses, or damages that arise out of, relate to, or are in any manner connected with the Contractor's work or the supervision of the Contractor's work on this project.

Each policy shall name the Municipality(ies), the State, the Agency, and railroad(s), as applicable, as additional insureds for actions, losses, expenses, or damages that arise out of, relate to, or are in any manner connected with the Contractor's work or the supervision of the Contractor's work on this project.

SECTION 105- CONTROL OF THE WORK

2. 105.01 AUTHORITY OF THE ENGINEER, is hereby modified by adding the following paragraph:

As they appear in these specifications, phrases like "approval of the Engineer," "as ordered by the Engineer," "with the consent of the Engineer," and any similar phrase indicating acceptance or direction by the Engineer shall not supercede any requirement of the Contract that the Contractor meet all contractual obligations, including but not limited to, compliance with permit conditions and applicable laws, rules, regulations, ordinances and bylaws.

3. 105.05 COORDINATION OF PLANS, STANDARD SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, SPECIAL PROVISIONS, AND GENERAL SPECIAL PROVISIONS, is hereby deleted in its entirety and replaced with the following:

105.05 COORDINATION OF PERMITS, SPECIAL PROVISIONS, DETAIL PLANS, GENERAL SPECIAL PROVISIONS, STANDARD PLANS, SUPPLEMENTAL SPECIFICATIONS AND STANDARD SPECIFICATIONS. These Project Permits, Special Provisions, Detail Plans, General Special Provisions, Standard Plans, Supplemental Specifications, Standard Specifications, and all supplemental documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, precedence of the Contract Documents will be determined in the following order:

Contract Document Precedence

- (a) Project Permits
- (b) Special Provisions
- (c) Detail Plans
 - (1) Calculated Dimensions
 - (2) Scaled Dimensions
- (d) General Special Provisions

- (e) Standard Plans
 - (1) Calculated Dimensions
 - (2) Scaled Dimensions
- (f) Supplemental Specifications
- (g) Standard Specifications

The Contractor shall take no advantage of any apparent error or omission in the Contract Documents. In the event that the Contractor discovers an error or omission, the Contractor shall immediately notify the Engineer.

The Engineer will make such corrections and interpretations as deemed necessary for fulfilling the intent of the Contract Documents. When there is an apparent absence or mention of any detail or an apparent omission of a detailed description relative to any point or feature in the Contract Documents, the detail or description shall be interpreted/understood in accordance with the best general engineering and construction practice.

Other specifications (e.g. ASTM, NDS, CRSI, ACI) cited by reference shall become effective only if the work or material covered by them is not included in the Contract Documents. Specifications so referenced shall be the latest revision in effect on the date of advertisement for bids.

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

4. 107.01 LAWS TO BE OBSERVED, is hereby modified by adding the following paragraphs:

The Contractor, by signing this Contract, agrees to comply with the Americans with Disabilities Act of 1990 and to assure that individuals with disabilities have equal access to the services, programs and employment activities/opportunities offered by the Contractor under this Contract.

The Contractor, by accepting and signing the Contract, agrees to fully comply with the provisions of 9 V.S.A. Chapter 102, also referred to as Act No. 74 of 1991 or the Prompt Payment Act, as amended.

On all federal-aid and state funded contracts, the Contractor, during the life of the Contract and on a monthly basis, shall submit electronically, a listing of payments to subcontractors on the form specified by the State and made available at: <http://www.aot.state.vt.us/dbe/>. Electronic reports shall be filed with the VAOT Office of Civil Rights by an authorized representative and received in the VAOT Office of Civil Rights on or before the tenth working day after month end. Contractors without access to the internet shall obtain and submit manual reports to the VAOT Office of Civil Rights.

Manual reports shall be signed by an authorized representative, sent to the VAOT Office of Civil Rights, and postmarked on or before the tenth working day after month end. There shall be no direct compensation allowed the Contractor for this work, but the cost thereof shall be included in the general cost of the work.

In accordance with 9 V.S.A. Section 4003, notwithstanding any contrary agreement, payments made to subcontractors after seven days from receipt of a corresponding progress payment by the State to the Contractor, or seven days after receipt of a subcontractor's invoice, whichever is later, violate this agreement.

Violations shall be reported to the VAOT Office of Civil Rights for review. Failure to resolve disputes in a timely manner may result in a complaint made to the VAOT Pre-qualification Committee. In the Committee's judgment, appropriate penalties may be invoked for failure to comply with this specification. Penalties may include suspension, reduction or revocation of the Contractor's pre-qualification rating.

This clause shall be included in the prime Contractor's Contract made with all of its subcontractors.

5. 107.16 RESPONSIBILITY FOR DAMAGE CLAIMS, text is hereby deleted in its entirety and replaced with the following:

The Contractor shall defend, indemnify and save harmless the Municipality(ies), the State, the Agency, and railroad(s) and all their officers, agents, and employees from all suits, actions, or claims of any character, name, and description brought for or on account of any injuries or damages received or sustained by any person, persons, or property that arise out of, relate to, or are in any manner connected with the Contractor's work or the supervision of the Contractor's work on the project; or by or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or by or on account of any act of omission, neglect, or misconduct of the Contractor; or by or on account of any claims or amounts recovered for any infringement of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the Workers Compensation Act, or any other law, bylaw, ordinance, order or decree. So much of the money due the Contractor under and by virtue of the Contract, as shall be considered necessary by the Agency for such purpose, may be retained for the use of the State. If no money is due, the Contractor's surety shall be held until such suit or suits, action or actions, or claim or claims for injuries or damages, as aforesaid, shall have been settled and suitable evidence to that effect furnished to the Agency.

6. 107.24 INTEREST, is hereby made a new subsection of SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC as follows:

107.24 INTEREST. Notwithstanding any statutory or other provisions to the contrary, interest on monies owed pursuant to the Contract shall be paid as follows:

- (a) Escrowed monies. When the Contractor or State is deemed entitled to some or all of the monies deposited in an escrow account pursuant to an escrow agreement, the Contractor or State shall be entitled to a pro rata share of the interest earned in the account.

- (b) Claim for adjustment or dispute - pre-decision or judgment.
Interest shall be allowed the Contractor on a decision or judgment for money in a claim for adjustment or dispute. Pre-decision or judgment interest shall be calculated from twenty-one (21) days after the date the money would have been paid in a biweekly or final estimate, or the date of the claim, whichever is later, but for the failure of the Agency to make the payment to the date of decision or judgment, at a simple rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding the date of the decision or judgment.
- (c) Claim for adjustment or dispute - post-decision or judgment.
Interest shall be allowed the Contractor on a decision or judgment for money in a claim for adjustment or dispute. Post-decision or judgment interest shall be calculated from the date of decision or judgment to the date of payment at a simple rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding the date of the decision or judgment.

SECTION 108 - PROSECUTION AND PROGRESS

7. 108.11 DETERMINATION OF EXTENSION OF CONTRACT TIME FOR COMPLETION, is hereby modified by deleting the first paragraph of the subsection and inserting the following:

When a definite date for completion or a fixed number of days is specified in the proposal and Contract, and when the Contractor finds it impossible to substantially complete the work within the Contract time specified due to unforeseen conditions beyond the control and without fault or negligence of the Contractor, the Contractor may submit the appropriate extension of time forms. The Contractor will be supplied these forms within 90 calendar days of the acceptance date. The forms can be completed and returned to the Finals Engineer within 60 calendar days of the date of the letter accompanying the forms. Failure to respond within 60 calendar days shall constitute a waiver to apply for an extension of time, and the Contractor will be assessed liquidated damages as prescribed in the Contract documents. Upon written order by the Engineer establishing a substantial completion date prior to the anticipated completion date, no request for an extension of time by the Contractor will be necessary.

8. 108.11 DETERMINATION OF EXTENSION OF CONTRACT TIME FOR COMPLETION, is hereby further modified by deleting Part (f) of the second paragraph and inserting the following Part (f):

(f) If satisfactory completion of the Contract with any authorized extension and increases requires the performance of work in greater quantities than those set forth in the proposal, the Contract time allowed for performance of the work will be increased in the same ratio that the total cost of the work actually performed bears to the total cost in the proposal. However, when additional time is added to the Contract by change order/supplemental agreement, the number of days added will be deducted from the number of days calculated in the method above. Also, if more days are added by change order/supplemental agreement than would have been by the previously mentioned method, the Contractor will not have the excess days deducted. In the event that a change order is done adding work to the Contract, but does not contain any additional time, the Contractor will be granted additional time as described above. Additional time may be allowed for unusual circumstances when cost alone is not a determining factor in time required to perform the additional work. Any change in the final Contract time shall be computed to the nearest full day.

9. 108.14 EMERGENCY TERMINATION OF CONTRACT, is hereby deleted in its entirety and replaced with the following subsection:

108.14 TERMINATION OF CONTRACT FOR CONVENIENCE. The Agency may, by written order to the Contractor, terminate the Contract or any portion thereof when such termination would be in the best interest of the Agency. In the event such termination occurs without fault and for reasons beyond the control of the Contractor, all completed items of work as of the date of termination will be paid for at the Contract bid price. Payment for partially completed work will be made either at agreed prices or by force account methods provided elsewhere in the Contract. Items which are eliminated in their entirety by such termination shall be paid for as provided in Subsection 109.07 - Eliminated Items. The Contractor shall make all work records available to the Agency upon request regarding payment under this Subsection.

Acceptable materials, obtained by the Contractor for the work but which have not been incorporated in the work, may, at the option of the Agency, be purchased from the Contractor at actual cost delivered to a location prescribed by the Engineer, or otherwise disposed of as mutually agreed.

After receipt of Notice of Termination from the Agency, the Contractor may submit a claim for additional damages or costs not covered above or elsewhere in the Contract within 60 days of the effective termination date. Such claim may include such cost items as bidding and project investigative costs, overhead expenses attributable to the project terminated, legal and accounting charges involved in claim preparation, subcontractor costs not otherwise compensated, idle labor cost and idle equipment time for work —stopped in advance of the termination date using properly adjusted "Blue Book" rates, guaranteed payments for private land usage as part of original Contract, and any other cost or damage for which the Contractor believes reimbursement should be made.

The intent of negotiating this claim is to reach a settlement equitable to both the Contractor and the Agency. In no event, however, will loss of anticipated profits be considered as part of any settlement.

The Contractor agrees to make all cost records available to the Agency to the extent necessary to determine the validity and amount of each item claimed.

Termination of the Contract, or portion thereof, shall not relieve the Contractor of its contractual responsibilities for the completed work, and it shall not relieve the Contractor's Surety of its obligation for and concerning any just claim arising out of the work performed.

SECTION 203 - EXCAVATION AND EMBANKMENTS

10. 203.09 DISPOSAL OF SURPLUS MATERIAL, is hereby deleted in its entirety and replaced with the following:

203.09 DISPOSAL OF SURPLUS EXCAVATION AND WASTE MATERIAL. All surplus excavation and waste material shall be deposited as shown on the Plans or as authorized in writing by the Engineer. Excavated material shall not be wasted unless directed by the Engineer. Compaction requirements for surplus or waste material used to flatten slopes outside the embankment limits shown on the Plans may be waived; however, placement procedures shall ensure a stable fill slope.

Disposal of all surplus or waste material shall be in accordance with Subsections 105.23 through 105.29.

Disposal of surplus or waste material will not be paid for directly but shall be considered as incidental work pertaining to the grading or excavation Contract item from which the material was obtained.

When sufficient on-site disposal areas are not shown on the Plans or directed by the Engineer, it shall be the responsibility of the Contractor to locate disposal areas in accordance with Subsections 105.23 through 105.29.

SECTION 204 - EXCAVATION FOR STRUCTURES

11. 204.13 METHOD OF MEASUREMENT, is hereby modified by deleting Subparts (1) and (2) of Part (a) in their entirety and replacing these subparts with the following:

- (1) The horizontal dimensions for excavation for culverts and pipes (excluding underdrain and carrier pipe) shall be the distance between vertical planes 500 mm (18 inches) outside of the interior lines of the culvert or pipe.
- (2) The horizontal dimensions for drop inlets, manholes, end sections, and other minor structures shall be 500 mm (18 inches) outside the exterior lines of the structure.

SECTION 625 - SLEEVES FOR UTILITIES

12. 625.02 MATERIALS, text is hereby deleted in its entirety and replaced with the following:

Materials shall meet the requirements of the following Subsections:

Bituminous Concrete Pavement.....	406.02
Portland Cement Concrete Pavement.....	408.02
Brick.....	705.01
Mortar Type II.....	707.02
Preformed Joint Filler, Cork and Asphalt-Treated Felt.....	707.08
Reinforced Concrete Pipe.....	710.01
ABS Plastic Pipe.....	710.05
PVC Plastic Pipe.....	710.06
Corrugated Steel Pipe, Pipe Arches and Underdrains.....	711.01
Corrugated Aluminum Alloy Pipe, Pipe Arches, and Underdrains.....	711.02

All wood blocks (skids) shall be oak or maple structural lumber #2 Grade or better. Stainless steel strapping shall meet the requirements of ASTM A 666.

For utilities greater than 50 mm (2 inches) diameter, the inside diameter of sleeves shall be at least 300 mm (12 inches) larger than the largest diameter of the carrier pipe, conduit or conductor being installed, except the minimum inside diameter of sleeves for utilities 50 mm (2 inches) and smaller shall be as follows:

Power Lines:	150 mm (6 inches)
Telephone Lines:	150 mm (6 inches)
Cable TV Lines:	150 mm (6 inches)
Water Pipe:	150 mm (6 inches)
Water service Lines, DN20 - DN25 (3/4" - 1"):	50 mm (2 inches)
Sewer Pipe:	150 mm (6 inches)
Gas Pipe:	150 mm (6 inches)

Sleeves for power, telephone, cable TV, and metal pipes shall be nonmetallic.

13. 625.05 BASIS OF PAYMENT, text is hereby deleted in its entirety and replaced with the following:

The accepted quantities of Sleeves for Utilities will be paid for at the Contract unit price per meter (linear foot). Payment will be full compensation for fabricating, furnishing, transporting, handling saw cutting, and placing all materials, including pull wire and end caps, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

Blocking (skids), stainless steel straps, bituminous concrete pavement, portland cement concrete pavement, reinforcing steel, emulsion, subbase materials, brick end walls, and other materials required in conjunction with sleeves will be considered incidental to the Contract item Sleeves for Utilities.

Excavation and backfill of trenches and boring or jacking pits for the placement of sleeves for utilities will be considered incidental to the Contract item Sleeves for Utilities.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
625.10 Sleeves for Utilities	Meter (Linear Foot)

SECTION 631 - FIELD OFFICE

14. 631.02 FIELD OFFICE, ENGINEERS, text is hereby deleted in its entirety and replaced with the following:

631.02 FIELD OFFICE, ENGINEERS.

(a) Design.

- (1) General. The field office shall be available to the representatives of the State and the Federal Government throughout the duration of the work on the project, shall be independent of other buildings or office space used by the Contractor, and shall be removed when released by the Engineer. The field office, equipment, and supplies shall be maintained in good condition and adequate quantities at all times.

The field office shall be provided with adequate light, heat, potable water, ventilation, and electrical or gas connections as required. The method of heating shall be such that a minimum temperature of 20 °C (68 °F) can be maintained at all times.

The Contractor shall furnish all labor and materials for winterizing field offices.

Sanitary facilities consisting of a flush toilet, chemical, or other approved type shall be furnished by the Contractor with proper sewage disposal as is necessary to comply with the requirements and regulations of the State and local Boards of Health and VOSHA. Sanitary facilities shall have adequate facilities for washing hands and shall have adequate lighting.

Entrances shall be provided with a 1.2 by 1.2 m (4 × 4 foot) minimum size deck with appropriate steps and railings meeting the requirements of VOSHA Safety and Health Standards for Construction.

Each field office shall be equipped with an exterior security light of 400 W minimum.

- (2) Field Office. The field office shall be a commercial type field office trailer of standard commercial quality, or a building, in good condition as determined by the Engineer with a minimum of 33 m² (360 square feet) of floor space, with a minimum width of 3 m (10 feet). The fully equipped field office shall be available for use from the day that work is commenced by the Contractor until 30 days after acceptance of the project, unless otherwise directed by the Engineer.
 - (3) Foundation. The field office shall be constructed on a firm foundation, vibration free and shall not be adversely affected by frost action or water runoff.
 - (4) Outside Doors. The field office shall have a minimum of two outside doors equipped with dead bolt locks. All keys shall be in the possession of the Engineer or the Engineer's representatives.
 - (5) Windows. The field office shall have a minimum of four side windows, one front window, and one rear window, all glassed and screened with provisions for opening and locking. All windows shall be equipped with adjustable louvered blinds.
 - (6) Electrical System. The field office shall be equipped with a 110 V AC, 60 Hz, single-phase electrical system with service entrance equipment suitable for power company attachment and with at least twelve properly positioned interior electrical duplex outlets. The materials and installation methods of all electrical wiring, connections, switches, and grounds shall conform to the provisions of the National Electrical Safety Code and shall be in accordance with all State and local electrical ordinances.
 - (7) Interior Lights. The field office shall be provided with a minimum of five 1200 mm (48 inch) long fluorescent lighting fixtures, or equivalent, on the ceiling.
 - (8) Air Conditioner. The field office shall be equipped with an air conditioner of adequate capacity, unless otherwise specified in the Contract.
 - (9) Fire Extinguishers. The field office shall be equipped with at least two fire extinguishers. Each shall be a Halon fire extinguisher, equal in fire fighting capacity to a 2.27 kg (5 pound) carbon dioxide fire extinguisher.
- (b) Office Equipment. Office equipment shall be standard commercial quality office equipment. Substitutes may be provided when approved by the Engineer. This office shall be provided with at least the following office equipment:
- 1 Standard office desk with drawers, locks, and keys, 1500 by 750 mm (60 × 30 inches) (minimum dimensions).
 - 2 Adjustable, ergonomic office chairs that provide extra support and comfort to the lower back, have height adjustment to fit chair user, and have rolling casters.
 - 1 Standard drafting table, 1 by 2 m (37 1/2 × 72 inches) (minimum dimensions).

- 2 Adjustable drafting stools.
- 1 Fire resistant, four-drawer, legal-size file cabinet, rated to withstand a one-hour fire, with lock and two keys.
- 1 Storage cabinet, 600 by 600 by 900 mm (2 x 2 x 3 feet) (minimum dimensions).
- 1 Metal, five-drawer, Plan file, 500 h by 710 d by 1010 w mm (20 h x 28 d x 40 w inches) (minimum dimensions).
- 1 Plan rack, 600 by 600 by 600 mm (2 x 2 x 2 feet) (minimum dimensions).
- 1 Locker or closet of sufficient size for storage of surveying equipment.
- 1 Electronic printing calculator, four-function, ten-column with memory.
- 1 Telephone, touch tone dial, compatible with the local telephone service available.

The Contractor shall arrange for the connection to the system and pay the installation charge as part of the Contract item Field Office. The Contractor shall also pay the monthly service bill. Upon presentation of the paid monthly service bill to the Engineer, the Engineer will pay the Contractor the cost of the service bill under the Contract item 631.25 - Field Office Telephone. Connected to the telephone shall be a good quality telephone answering device capable of receiving and storing messages.

- 1 Electric clock having a dial face of at least 200 mm (8 inches) in diameter.
- 1 Outdoor thermometer with an easy to read weatherproof thermometer having a minimum scale range of -40 to 40 °C (-40 to 100°F) in graduations of 1 or 2 degrees.
- 2 110 L (30 gallon) trash cans.
- 1 Potable water system consisting of a sink with faucet within the office, with a continuous supply of pressurized clean potable water for the duration of the project; or (when clean potable water is not available) a commercial bottled drinking water system installed in the office trailer complete with necessary disposable drinking cups (215 ml (8 oz.) size or larger), cup dispenser, and continuous water supply furnished for the duration of the project. The system shall be capable of supplying both hot and cold water. The system and the bottled water shall be furnished by a commercial water service on a regular basis agreeable to the Engineer.
- 1 First Aid Kit Conforming to ANSI Z308.1-1978
- 1 Dry copying machine with the capability of copying at least legal size paper full size and a rated capacity of at least 1,000 copies per month. It shall have an automated paper feed system. The Contractor shall supply all the paper and shall provide all other necessary supplies and maintenance to keep the copier working during the life of the Contract.

- 1 Color Inkjet Printer, furnished, complete and working for use in the Engineer's Field Office for the duration of the contract. Equipment and supplies shall be provided as follows:
 - a. A color Inkjet Printer, compatible with Microsoft Windows XP and Microsoft Windows 2000, having 2 MB RAM minimum, 600 by 600 dpi black and white resolution, a tray capacity of at least 50 sheets, a print speed of at least 10 pages per minute, and parallel/USB interface capability.
 - b. A Bi-directional PC - type parallel printer cable or USB printer cable - 4.5 meters (15 feet) long.
 - c. A printer stand providing a minimum horizontal space for the printer of 900mm by 600mm (3 feet by 2 feet).
 - d. An anti-static vinyl dust cover.
 - e. A good quality commercial surge suppresser to protect against:
 1. chronic high and low voltage, and
 2. dangerous voltage spikes and radio frequency interference traveling on the AC power circuits.
 - f. Spare ink cartridges, both color and black.
 - g. Appropriate software drivers and documentation for the printer.
- 1 Digital Camera with the following requirements:
 - a. At least 2 Megapixel resolution
 - b. Both a LCD and Optical viewfinders
 - c. At least 32 Megabyte storage capacity
 - d. USB Interface capability
 - e. Storage case
 - f. Windows XP/2000 Compatible
- 1 Plain paper facsimile machine meeting the following requirements:
 - a. CCITT Group Compatibility - Groups III, II, I
 - b. Transmission Time - 20 seconds per page, maximum Automatic Feed
 - c. Minimum 10 Page Stock Capacity
 - d. Pulse/Tone Dialing
 - e. Speed Dialing - 50 locations, minimum
 - f. Single Touch Dialing - 10 locations, minimum
 - g. Automatic redial - up to 5 times
 - h. Capacity to distinguish between a fax phone call and a telephone call

A combination Copier/Printer/Fax Machine meeting the requirements of the Copier, Printer and Fax Machine described above may be substituted with the permission of the Resident Engineer.

Paper for the fax machine, copier and printer shall be furnished by the Contractor, to the Resident Engineer as required during the term of the project.

Two telephone lines shall be provided. Telephone jacks will be located at each end of the field office for both telephone lines. The jacks shall be located above the surface of the desks.

The cost of furnishing these separate telephone lines, including installation and removal, will not be paid for directly, but will be considered incidental to the item of Field Office - Engineers. The monthly service charges will be paid as part of the item of Field Office Telephone.

All furnished equipment shall be maintained in good working order and replacement equipment shall be provided within 48 hours for all equipment that is damaged, stolen or becomes inoperative in any way.

The Contractor shall provide training to the Resident Engineer in the use of the furnished equipment.

SECTION 651 - TURF ESTABLISHMENT

15. 651.02 MATERIALS, is hereby modified by adding the following references:

Liquid Lime.....755.05A
Fiber Mulch.....755.06(e)

16. 651.08 SEEDING, is hereby modified by adding the following paragraph after the second paragraph:

When seeding is done by the hydraulic method, liquid lime may be substituted for agricultural limestone at a rate of 4.2 liters (1.1 gallons) of liquid lime to 227 kilograms (500 pounds) of agricultural limestone or at such other rate as recommended by the manufacturer and approved by the Resident Engineer.

17. 651.08 SEEDING, is further modified by adding the following paragraph after the fifth paragraph:

When seeding is done by the hydraulic method, fiber mulch may be substituted for hay mulch at a rate of 1 unit of fiber mulch to 3.1 units of hay mulch or at such other rate as recommended by the manufacturer and approved by the Resident Engineer.

18. 651.12 METHOD OF MEASUREMENT, is hereby modified by adding the following paragraph after the third paragraph:

When seeding is done by the hydraulic method, liquid lime and fiber mulch will be measured for payment in equivalent units of Agricultural Limestone and Hay Mulch.

SECTION 675 - TRAFFIC SIGNS

19. 675.02 MATERIALS, text is hereby deleted in its entirety and replaced with the following:

Materials shall meet the requirements of the following subsections:

Paint for Traffic Signs.....	708.06
Bar Reinforcement.....	713.01
Sign Posts.....	750.01
Extruded Aluminum Panels.....	750.02
Flat Sheet Aluminum.....	750.03
High Density Overlaid Plywood.....	750.06
Acrylic Plastic Reflectors.....	750.07
Reflective Sheeting.....	750.08
Demountable Characters.....	750.09
Plastic Lettering Film.....	750.10
Extruded Aluminum Molding.....	750.11
Assembly Hardware.....	750.12

If the Contract does not specify a particular type of sign material, the Contractor may furnish any one of the following materials:

- (a) Type A sign with an area 2 square meters (20 square feet) or less:
 - (1) Flat sheet aluminum.
 - (2) Extruded aluminum panels (if attached to a Type B sign).
- (b) Type B sign with an area greater than 2 square meters (20 square feet):
 - (1) Extruded aluminum panels.
 - (2) High density overlaid plywood.

Concrete shall conform to the requirements of Section 501 for Concrete, Class B.

All new signs installed shall be marked on the back with the following information:

	<u>Examples</u>	
(State) or (Town)	VAOT	Swanton
Month and Year of Sign Fabrication	01/00	09/85
Route Where Sign Installed	US 5	TH 13

The letters and numbers of the text shall be 25 mm (1 inch) high.

Either stick-on letters and numbers or silk-screened letters and numbers will be allowed as long as they are applied in such a way that they remain intact during the life of the sign. If stick-on letters and numbers are used, all the letters and numbers to be placed on a sign shall come from the same stick-on sheet. Individual stick-on letters or numbers will not be allowed.

Type III, Type IV, Type V, Type VIII or Type IX reflective sheeting shall be used wherever Type III sheeting is shown on the Plans.

Type VI reflective sheeting shall be used on traffic cones or barrels.

20. 675.03 EXTRUDED ALUMINUM PANELS, is hereby modified by adding the following paragraph at the end of the subsection:

If a Type A sign is attached to or part of a Type B sign, it shall be fabricated from extruded aluminum panels.

21. 675.06 GALVANIZED FLAT SHEET STEEL and 675.07 FORMED GALVANIZED STEEL PANELS, are hereby deleted in their entirety.

22. 675.09 APPLICATION OF REFLECTIVE SHEETING, is hereby modified by replacing the third paragraph of the subsection with the following paragraph:

Reflective sheeting shall be applied to the face of an extruded aluminum by a squeeze roller applicator. Reflective sheeting shall be applied to flat sheet aluminum, embossed letter frames, and high density overlaid plywood by vacuum heat applicator at 95 °C (200 °F), or by squeeze roller applicator. After aging 48 hours at 20 °C (68 °F), adhesion of the reflective sheeting to the sign surface shall be strong enough to resist stripping when tested with a stiff putty knife.

23. 675.17 METHOD OF MEASUREMENT, is hereby modified by replacing the second paragraph of the subsection with the following paragraphs:

The quantity of flanged channel traffic sign posts to be measured for payment will be the actual measured meters (linear feet) from the tops of the posts to the bottom of the posts, installed in the complete and accepted work. No added allowances will be made for anchors and overlaps.

The quantity of square tube sign posts and anchors to be measured for payment will be the actual measured meters (linear feet) from the tops of the posts to the bottom of the anchors, installed in the complete and accepted work. No added allowances will be made for overlaps.

The quantity of other traffic sign posts to be measured for payment will be the number of kilograms (pounds) of each type of post installed in the complete and accepted work, as determined by the lengths and the standard mass per meter (weight per linear foot) of the specified material.

24. 675.18 BASIS OF PAYMENT, is hereby modified by deleting the following pay item from the pay item list:

<u>Pay Item</u>	<u>Pay Unit</u>
675.30 Flanged Channel Sign Posts	Kilogram (Pounds)

25. 675.18 BASIS OF PAYMENT, is further modified by adding the following pay items to the pay item list:

<u>Pay Item</u>	<u>Pay Unit</u>
675.301 Flanged Channel Sign Post	Meter (Linear Foot)
675.341 Square tube Sign Posts and Anchor	Meter (Linear Foot)

SECTION 700 - GENERAL

26. 700.03 DEFINITION OF TERMS, is hereby modified by adding the following:

THIN AND ELONGATED PIECES - One in which the ratio of the length to the thickness of its circumscribed rectangular prism is greater than five to one.

SECTION 704 - AGGREGATES

27. 704.10 AGGREGATE FOR BITUMINOUS CONCRETE PAVEMENT, is hereby deleted in its entirety and replaced with the following:

704.10 AGGREGATE FOR MARSHALL BITUMINOUS CONCRETE PAVEMENT. Coarse aggregate for Marshall bituminous concrete pavement shall consist of clean, hard, crushed stone or crushed gravel, and be uniformly graded. The blending of crushed stone and crushed gravel may be permitted only in the binder course if, in the opinion of the Engineer, the materials to be blended are equal in quality and are compatible. All aggregate shall be free from dirt, deleterious material, and pieces that are structurally weak. "Coarse Aggregate" shall mean that portion of material coarser than the 2.36 mm (No. 8) sieve.

Fine aggregate for bituminous concrete pavement shall consist of stone screenings or a combination of stone screenings, screened natural and/or manufactured sands, and other fine aggregates, such that at least 95 percent of any individual stockpile of the fine aggregate shall pass a 9.5 mm (3/8 inch) sieve. The minimum percentage, by mass (weight), of the blended material passing the 2.36 mm (No. 8) sieve that must be stone screenings shall be as shown in the "Design Criteria" table of Subsection 406.03(b), unless otherwise authorized in writing by the Engineer.

Manufactured Sand may be substituted for stone screenings when 100 percent of the material passing the 2.36 mm (No. 8) sieve has two or more fractured faces as determined in accordance with ASTM C 295 Modified.

(a) Grading.

1. Coarse aggregate. Coarse aggregate shall be furnished in at least three nominal sizes for Mix Type I and in at least two nominal sizes for Mix Types II and III.

The gradation of the coarse aggregate shall be such that when combined with the fine aggregate, the composite gradation shall meet the specified gradation requirements for bituminous concrete in Subsection 406.03(a). The process of blending coarse and fine aggregates shall be accomplished through the use of separate bins. Blending in the stockpile shall not be permitted.

2. Fine Aggregate. The gradation of the fine aggregate shall be such that, when combined with a coarse aggregate, the composite aggregate shall meet the specified gradation requirements for bituminous concrete as specified in Subsection 406.03(a). The process of blending the fine and coarse aggregates shall be accomplished through the use of separate bins. Blending in the stockpile shall not be permitted.

The percentage of fine aggregate passing the 2.36 mm (No. 8) sieve shall remain uniform within a tolerance of ± 15 percent for any one mix design. Material produced that does not meet this tolerance may be stockpiled separately and used after an appropriate change is made in the mix design.

3. Recycled Asphalt Pavement. When recycled asphalt pavement (RAP), is used to produce bituminous concrete pavement, the resulting mixture will meet all specification requirements for the type(s) of mix specified.

The bitumen component of the RAP shall be free of significant contents of solvents, tars, or other contaminating substances that will make the RAP unacceptable for recycling as determined by the Engineer.

Should the characteristics of any proposed material for recycling be such that an acceptable mixture cannot be produced and/or maintained, the recycled mix will not be allowed for use on the project.

The Contractor may blend, crush, or prepare the proposed RAP(s) into one or more homogenous stockpiles.

When a bituminous concrete pavement is proposed using RAP, the Contractor shall submit, with the mix design information, an analysis of the RAP material. The analysis of the RAP material shall include an extracted aggregate gradation, coarse aggregate specific gravity, fine aggregate specific gravity, asphalt content, and recovered binder values. The recovered binder values will be obtained by AASHTO M 320 testing for the designated project PG grade. The M 320 testing will consist of Dynamic Shear Rheometer (DSR) values tested under Original, Rolling Thin Film Oven (RTFO) residue and Pressure Aging Vessel (PAV) residue parameters, and Bending Beam Rheometer (BBR) values. The recovered asphalt will be aged with the RTFO and the PAV for this testing. A minimum of four samples shall be analyzed (or tested) to produce design data. The analysis shall be valid for a twelve-month period.

The gradation of the RAP shall be such that, when combined with a coarse and fine aggregate, the composite aggregate shall meet the specified gradation of bituminous concrete in Subsection 406.03(a). The process of blending the RAP, fine aggregate, and coarse aggregate shall be accomplished through the use of separate bins. Blending of these materials in the stockpiles shall not be permitted.

- (b) Percent of Wear. When the coarse aggregate is composed of crushed stone or crushed gravel, the percent of wear of the aggregate shall be not more than 35 percent when tested in accordance with AASHTO T 96. When the aggregate is composed of crushed igneous rock, the percent of wear of the aggregate shall be not more than 50 percent when tested in accordance with AASHTO T 96.
- (c) Fractured Faces. When crushed gravel is used as coarse aggregate, at least 75 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve shall have at least two fractured faces.
- (d) Thin and/or Elongated Pieces. Not more than 10 percent, by mass (weight), of the material coarser than the 4.75 mm (No. 4) sieve from each stockpile shall consist of thin and/or elongated pieces.
- (e) Mineral Filler. The mineral filler shall consist of approved limestone dust, talc dust, or other approved materials and shall be added to the aggregate if required.
- (f) Soundness. The soundness shall conform to the requirements of Subsection 704.01(d), except the percentage of loss shall be not more than 12 percent, by mass (weight), and shall apply to wearing course aggregates only.
- (g) Control of Aggregate Stockpiles. Before the start of bituminous concrete paving operations and throughout the duration of the paving operation, the cold feed aggregate stockpiles shall each contain at least 1000 metric tons (1000 tons) of accepted aggregate, or the amount required for the job when less than 1000 metric tons (1000 tons).

The addition of unacceptable material to an accepted stockpile shall result in the rejection of the entire stockpile.

The stockpiles shall be separated by partitions or otherwise separated to the satisfaction of the Engineer to prevent intermixing of the stockpiles.

All stockpiles shall be maintained at the mixing plant site, unless otherwise authorized in writing by the Engineer.

The respective sources of all aggregates to be used in the wearing course shall remain the same for the entire project, unless otherwise authorized in writing by the Engineer.

28. 704.10 AGGREGATE FOR SUPERPAVE BITUMINOUS CONCRETE PAVEMENT, is hereby made a new subsection of SECTION 704 - AGGREGATES as follows:

704.10A AGGREGATE FOR SUPERPAVE BITUMINOUS CONCRETE PAVEMENT. Coarse aggregate for Superpave bituminous concrete pavement shall consist of clean, hard, crushed stone, crushed gravel, or crushed igneous rock, and be uniformly graded. The blending of crushed stone, crushed gravel, and/or crushed igneous rock may be permitted only in the binder course if, in the opinion of the Engineer the materials to be blended are equal in quality and are compatible. All aggregate shall be free from dirt, deleterious material and pieces which are structurally weak. "Coarse Aggregate" shall mean that portion of material coarser than the 2.36 mm (No.8) sieve.

Fine aggregate for Superpave bituminous concrete pavement shall consist of stone screenings or a combination of stone screenings, screened natural sand and/or manufactured sands, and other fine aggregates, such that at least 95 percent of any individual stockpile of the fine aggregate shall pass a 9.50 mm (3/8 inch) sieve. "Fine Aggregate" shall mean that portion of material finer than the 2.36 mm (No.8) sieve.

(a) Grading.

1. Coarse Aggregate. Coarse aggregate shall be furnished in at least three nominal sizes for Mix Type IS and in at least two nominal sizes for Mix Types IIS and IIIS.

The gradation of the coarse aggregate shall be such that when combined with the fine aggregate, the composite gradation shall meet the specified gradation requirements for superpave bituminous concrete pavements in Subsection 490.03(a). The process of blending coarse and fine aggregates shall be accomplished through the use of separate bins. Blending in the stockpile shall not be permitted.

2. Fine Aggregate. The gradation of the fine aggregate shall be such that, when combined with a coarse aggregate, the composite aggregate shall meet the specified gradation of bituminous concrete in Subsection 490.03(a). The process of blending fine and coarse aggregates shall be accomplished through the use of separate bins. Blending in the stockpile shall not be permitted.

The percentage of fine aggregate passing the 2.36mm (No.8) sieve shall remain uniform within a tolerance of plus or minus 15 percent for any one mix design. Material produced which does not meet this tolerance may be stockpiled separately and used after an appropriate change is made in the mix design.

3. Recycled Asphalt Pavement (RAP). RAP shall be permitted to be used in Superpave bituminous concrete pavements. The percentage of RAP, when stated as a percentage of the total mix, shall be limited to a maximum of 15.0 percent, for both design and production purposes.

When RAP is used to produce Superpave bituminous concrete pavement, the resulting mixture will meet all specification requirements for the type of mix specified.

The bitumen component of the RAP shall be free of significant contents of solvents, tars, or other contaminating substances that will make the RAP unacceptable for recycling as determined by the Engineer.

Should the characteristics of any proposed material for recycling be such that an acceptable Superpave bituminous concrete pavement cannot be produced and/or maintained, the recycled mix will not be allowed for use on the project.

The Contractor may blend, crush, or prepare the proposed RAP(s) into one or more homogenous stockpiles.

When a Superpave bituminous concrete pavement is proposed using RAP, the contractor shall submit, with the mix design information, an analysis of the RAP material. The analysis of the RAP material shall include an extracted aggregate gradation, coarse aggregate specific gravity, fine aggregate specific gravity, asphalt content, and recovered binder values. The recovered binder values will be obtained by AASHTO M 320 testing for the designated project PG grade. The M 320 testing will consist of Dynamic Shear Rheometer (DSR) values tested under Original, Rolling Thin Film Oven (RTFO) residue and Pressure Aging Vessel (PAV) residue parameters, and Bending Beam Rheometer (BBR) values.

The recovered asphalt will be aged with the RTFO and the PAV for this testing. A minimum of four samples shall be analyzed (or tested) to produce design data. This analysis shall be valid for a twelve-month period.

The gradation of the RAP shall be such that, when combined with a coarse and fine aggregate, the composite aggregate shall meet the specified gradation of Superpave bituminous concrete in Subsection 490.03(a). The process of blending the RAP, fine, and coarse aggregates shall be accomplished through the use of separate bins. Blending in the stockpile shall not be permitted.

- (b) Percent of Wear. When the coarse aggregate is composed of crushed stone or crushed gravel, the percent of wear of the aggregate shall be not more than 35 when tested in accordance with AASHTO T 96. When the coarse aggregate is composed of crushed igneous rock, the percent of wear of the aggregate shall not be more than 50 when tested in accordance with AASHTO T 96.

- (c) Fractured Faces. For Superpave bituminous concrete pavements the following design criteria must be met:

Angularity.

1. Coarse Aggregate. Coarse aggregate angularity criterion relates to one or two fractured face count, as a percentage, by mass (weight), of material coarser than the 4.75 mm (No. 4) sieve based on traffic (ESALs) and usage (depth) in the pavement structure. A fractured face for this purpose is defined as an angular, rough or broken surface of an aggregate created by any means. A face is considered a "fractured face" only if it has a projected area at least as large as 25 percent of the maximum projected area when viewed directly on and the face has sharp and well defined edges. Measurement is made using test method ASTM D 5821 "Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate." Measurement is based on the blended aggregate and is used for design and field control to monitor aggregate production.

Coarse Aggregate Angularity Criteria (Minimum) - Fractured Face Count

Traffic (ESALs)	Depth From Surface	
	<= 100 mm (4 inches)	> 100 mm (4 inches)
< 300,000	55/--	--/--
300,000 to < 3,000,000	75/--	50/--
3,000,000 to < 10,000,000	85/80 ⁽¹⁾	60/--
10,000,000 to < 30,000,000	95/90	80/75
>= 30,000,000	100/100	100/100

⁽¹⁾ 85/80 denotes that 85 percent of the coarse aggregate has one (1) fractured face and 80% has two (2) or more fractured faces.

Note 1: If less than 25 percent of a layer is within 100 mm (4 inches) of the surface, the layer may be considered to be below 100 mm (4 inches) for mixture design purposes.

2. Fine Aggregate. Fine aggregate angularity criteria is defined as the percent of air voids in loosely compacted aggregate that passes the 2.36 mm (No.8) sieve based on traffic (ESALs) and usage (depth) in the pavement structure. Measurement is made using AASHTO Standard: "Standard Test Method for Uncompacted Void Content of Fine Aggregate; T 304, Method A", and is based on the blended aggregate. Results are used for design purposes, not as a field control tool.

Fine Aggregate Angularity Criteria (Minimum) - Uncompacted Void Content

Traffic (ESALs)	Depth From Surface	
	<= 100 mm (4 inches)	> 100 mm (4 inches)
< 300,000	--	--
300,000 to < 3,000,000	40	40
3,000,000 to < 10,000,000	45	40
10,000,000 to < 30,000,000	45	40
>= 30,000,000	45	45

Note 1: If less than 25 percent of a layer is within 100 mm (4 inches) of the surface, the layer may be considered to be below 100 mm (4 inches) for mixture design purposes.

- (d) Thin and Elongated Pieces. For Superpave bituminous concrete pavements not more than 10 percent, by mass (weight), of the blended material coarser than the 4.75 mm (No.4) sieve shall consist of aggregates which have a ratio of maximum to minimum dimensions greater than five (5). Measurement is made using test method ASTM D 4791 "Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregates, Section 8.4." This criterion is used for design and field control to monitor aggregate production.
- (e) Mineral Filler. The mineral filler shall consist of approved limestone dust, talc dust, or other approved materials, and shall be added to the aggregate if required.
- (f) Soundness. The soundness shall conform to the requirements of Subsection 704.01(d), except the percentage of loss should be not more than 12 percent by mass (weight) and shall apply to wearing course aggregate only.
- (g) Control of Aggregate Stockpiles. Before the start of bituminous concrete paving operations and throughout the duration of the paving operation, the cold feed aggregate stockpiles shall each contain at least 1000 metric tons (1000 tons) of accepted aggregate, or the amount required for the job when less than 1000 metric tons (1000 tons).

The addition of unacceptable material to an accepted stockpile shall result in the rejection of the entire stockpile.

The stockpile shall be separated by partitions or otherwise separated to the satisfaction of the Engineer to prevent intermixing of the stockpiles.

All Stockpiles shall be maintained at the mixing plant site unless otherwise specified in writing by to Engineer.

The respective sources of all aggregate to be used in the wearing course shall remain the same for the entire project unless otherwise specified in writing by the Engineer.

- (h) Clay Content. Clay content criterion is a measure of the amount of clay material in the portion of blended aggregate finer than the 4.75 mm (No. 4) sieve based on traffic (ESALs). Measurement is made using the test method AASHTO Standard "Plastic Fines in Graded Aggregates and Soils by Use of the Sand Equivalent Test; T-176." Results are used for design purposes and field control to monitor aggregate production.

Clay Content Criteria (Minimum) - Sand Equivalent

Traffic (ESALs)	Sand Equivalent
< 300,000	40
300,000 to < 3,000,000	40
3,000,000 to <10,000,000	45
10,000,000 to < 30,000,000	45
> 30,000,000	50

29. Subsection 704.15 QUARTZITE OR GRANITE AGGREGATE USED IN PAVEMENTS, is hereby made a new subsection of SECTION 704 - AGGREGATES as follows:

704.15 QUARTZITE OR GRANITE AGGREGATE USED IN PAVEMENTS. The Agency has identified a potential stripping problem with some granite and quartzite aggregates used in the production of bituminous concrete pavement. Until additional research can determine a more finite evaluation of the problem or identify optional corrective alternatives, any material supplied under items 303, 406, 409, or 490 that contains aggregates from monomineralic (a rock consisting essentially of one mineral) quartzite sources or granite sources will require the addition of a minimum of 0.5% (by percentage of asphalt weight) of an anti-strip additive.

Anti-strip additives shall comply with the requirements of Subsection 702.07. The Agency reserves the option to require the use of an anti-strip additive at any time that a potential stripping problem is observed.

SECTION 750 - TRAFFIC SIGNS

30. 750.01 SIGN POSTS, is hereby modified by deleting Part (a) of the subsection and replacing it with the following:

- (a) Steel Post and Anchors. Steel posts and anchors shall conform to the following requirements:
- (1) Structural steel tubing shall conform to Subsection 714.11 of the Standard Specifications for Construction. Steel posts consisting of standard rolled steel structural shapes shall conform to the requirements of AASHTO M 270M/M 270, Grade 250 (Grade 36). After fabrication, these posts shall be galvanized in accordance with the requirements of AASHTO M 111M/M 111.

- (2) Steel posts consisting of flanged channels shall conform to the mechanical requirements of ASTM A 499, Grade 60 and the chemical requirements of the 42.2 to 56.6 kg/m (85 to 114 lbs/yard) rail class in ASTM A 1. They shall conform to the details indicated on the plans as to size, shape, weight, hole punching, hole drilling, and other details. After fabrication, these posts shall be galvanized in accordance with the requirements of AASHTO M 111M/M 111.
- (3) Steel posts and anchors consisting of welded mechanical square tubes formed from hot rolled carbon steel sheet shall conform to the mechanical and chemical requirements of ASTM A 1011/A 1011M, Grade 380 (Grade 55). They shall conform to the details indicated on the Plans as to size, shape, weight, hole punching, hole drilling, and other details. The posts shall be fabricated in accordance with ASTM A 787, Type 2, and shall be galvanized with a G165 coating in accordance with ASTM A 653/A 653M or the posts shall be fabricated in accordance with ASTM A 787, Type 3, and shall be galvanized in accordance with AASHTO M 111M/M 111.

31. 750.08 REFLECTIVE SHEETING, Part (b) is hereby modified by adding the following ASTM D 4956 specification classification references for reflective sheeting:

- (7) TYPE VII. A super-high-intensity retroreflective sheeting having highest retroreflectivity characteristics at long and medium road distances. This sheeting is typically an unmetallized microprismatic retroreflective element material.
- (8) TYPE VIII. A super-high-intensity retroreflective sheeting having highest retroreflectivity characteristics at long and medium road distances.
- (9) TYPE IX. A very-high-intensity retroreflective sheeting having highest retroreflectivity characteristics at short road distances.

SECTION 755 - LANDSCAPING MATERIALS

32. SECTION 755 - LANDSCAPING MATERIALS, is hereby modified by adding the following new subsection:

755.05A LIQUID LIME. Liquid lime shall be a commercially formulated calcium carbonate lime mixture.

- (a) Packaging. Labels shall be clearly marked with the following:

- Manufacturer's name.
- Type
- Mass (Weight)
- Guaranteed analysis

- (b) Certification. A Type A Certification shall be furnished in accordance with Subsection 700.02.

33. 755.06 MULCH MATERIALS, is hereby modified by adding the following part:

- (e) Fiber Mulch. Fiber mulch shall be a commercially fabricated product as approved by the Resident Engineer.