THE VERMONT AGENCY OF TRANSPORTATION "POLICIES AND PROCEDURES FOR PREQUALIFICATION, BIDDING, AND AWARD OF CONTRACTS", LATEST EDITION, IS HEREBY INCORPORATED IN THESE SPECIFICATIONS AND THE CONTRACT BY REFERENCE.

DIVISION 100

GENERAL PROVISIONS

SECTION 101 - DEFINITIONS AND TERMS

101.01 ABBREVIATIONS. Wherever the following abbreviations are used in these Specifications or on the Plans, they are to be construed the same as the respective expressions represented:

A	Ampere(s)
A	Arch (Section 601)
ABS	Acrylonitrile-Butadiene-Styrene
ADA	Americans with Disabilities Act
AAN	Americans Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway Transportation Officials
ACI	American Concrete Institute
AGC	Associated General Contractors of America
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
Amp(s)	Ampere(s)
AMRL	AASHTO Materials and Reference Laboratory
ANR	Agency of Natural Resources
ANSI	American Railway Association
AREA	American Railway Engineering Association
AREMA	American Railway Engineering and Maintenance–of–Way Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASR	Alkali-Silica Reactivity
ASTM	American Wood-Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association

BTU	British Thermal Unit
ºC	Degrees Celsius
CAAP	Corrugated Aluminum Alloy Pipe
CCRL	Cement and Concrete Reference Laboratory
CF, FT^3, ft^3	Cubic Foot (Feet)
CFR	Code of Federal Regulations
CIP	Cast Iron Pipe
CM, M^3or m^3	Cubic Meter(s)
CPEP	Corrugated Polyethylene Pipe
CPM	Critical Path Method
CRSI	Concrete Reinforcing Steel Institute
CSP	Corrugated Steel Pipe
CWT	Hundredweight
CY, YD^3, yd^3	Cubic Yard(s)
DIP	Ductile Iron Pipe
DN	Diameter nominal for metric pipes
DTA	District Transportation Administrator
EA	Each
EPA	Environmental Protection Agency
ES	End Section (Section 601)
ºF	Degrees Fahrenheit
FAA	Federal Aviation Administration, US Department of Transportation
FHWA	Federal Highway Administration, US Department of Transportation
FRA	Federal Railroad Administration, US Department of Transportation
FSS	Federal Specifications and Standards (General Services Administration)
FTA	Federal Transit Administration, US Department of Transportation
G or g	Gram(s)
Gal or gal	Gallon(s)
HA or ha	Hectare(s)
HDPE	High Density Polyethylene
Hz	Hertz
in^2	Square Inch(es)
ISEA	International Safety Equipment Association
ISO	International Standards Organization
ITE	Institute of Transportation Engineers
J	Joule(s)
KG or kg	Kilogram(s)
kips	Thousand pounds
KM or km	Kilometer(s)
kN	Kilonewton(s)

kPa	Kilopascal(s)
Kw	Kilowatt(s)
lbf	Pounds of Force
L	Liter(s)
Lb(s) or lb(s)	Pound(s)
LF	Linear Foot (Feet)
LRFD	Load and Resistance Factor Design
LS	Lump Sum
LU	Lump Unit
M or m	Meter(s)
mm	Millimeter(s)
MC	Medium Curing
MS	Medium Set
MFBM	Thousand Feet Board Measure
MGAL	Thousand Gallons
MNL	Manual
MPa	Megapascal(s)
MUTCD	Manual on Uniform Traffic Control Devices for Streets and Highways
NBFU	National Board of Fire Underwriters
NCHRP	National Cooperative Highway Research Program
NDS	National Design Specification
NDT	Nondestructive Testing
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NETC	New England Transportation Consortium
NHS	National Highway System
NIST	National Institute of Standards and Technology
NPS	Nominal Pipe Size
NSBA	National Steel Bridge Alliance
NSPE	National Society of Professional Engineers
OSHA	Occupational Safety and Health Administration
Pa	Pascal(s)
PCA	Portland Cement Association
PCC	Portland Cement Concrete
PCCSP	Polymeric Coated Corrugated Steel Pipe
PCI	Precast/Prestressed Concrete Institute
PI	Paved Invert
PSI or psi	Pounds Per Square Inch
PVC	Polyvinyl Chloride
QA	Quality Acceptance
RAP	Recycled Asphalt Pavement

RCP	Reinforced Concrete Pipe
RC	Rapid Curing
RS	Rapid Set
ROW or R.O.W	Right-Of-Way
RT	Refined Tar
SAE	Society of Automotive Engineers
SF, FT^2, ft^2	Square Foot (Feet)
SM, M^2 or m^2	Square Meter(s)
SI	The International System of Units. The version of the metric system used in these Specifications.
SL	Smooth Lined
SSPC	Steel Structures Painting Council
SY, YD^2, yd^2	Square Yard(s)
T	Metric Ton
UL	Underwriters' Laboratories, Inc.
µm	Micrometer
µW	Microwatt
USC or U.S.C.	United States Code
UTO	Uniformed Traffic Officer(s)
V	Volt(s)
VAOT, AOT or VTrans	Vermont Agency of Transportation
VCP	Vitrified Clay Pipe
VOSHA	Vermont Occupational Safety and Health Act
VSA or V.S.A.	Vermont Statutes Annotated
W	Watt
YD or yd	Yard(s)

All standard recognized abbreviations may be used in connection with the Contract.

101.02 DEFINITIONS. Wherever in these Specifications or in other Contract Documents the following terms or pronouns in place of them are used, the intent and meaning shall be interpreted as follows:

ACCEPTANCE DATE - Date noted in the Completion and Acceptance memorandum on which designated responsible Agency personnel have accepted the completeness and quality of all material incorporated in and work performed to complete the project(s).

ACTUAL COMPLETION DATE – Date noted in the Completion and Acceptance memorandum on which designated responsible Agency personnel have reviewed the project(s) and determined that all Contract work is completed and all Contract requirements have been met.

ACT OF GOD - An "Act of God" means an earthquake, flood, cyclone, or other cataclysmic phenomena of nature beyond the ability of a prudent Contractor to foresee and make preparation to defend against damage.

AGENCY - Agency of Transportation, State of Vermont (VAOT or VTrans).

AGGREGATE - Inert material such as sand, gravel, crushed gravel, broken stone, or crushed stone, or a combination thereof.

APPROVED PRODUCTS LIST (APL) – A listing of products and materials that have been tested and/or evaluated by the Materials and Research Section and have been deemed satisfactory for use on Agency projects without additional certification requirements.

AUTHORIZED REPRESENTATIVE

> Contractor's – An individual registered with the Office of Contract Administration having the legal authority to sign Contract documents on behalf of the Contractor.
>
> Agency's – The Director of Program Development's Duly Authorized Representative(s) who are responsible for engineering supervision of the construction project.

BASE COURSE - The layer or layers of specified or selected material of designed thickness on a subbase to support a surface course.

BOARD - Transportation Board of the State of Vermont or its successor.

BRIDGE - A structure, including supports, erected over a depression or an obstruction such as water, a highway, or a railway, having a track or passageway for carrying traffic or other moving loads and having a clear span of more than 6.1 m (20 feet) [1.8 m (6 feet) on Non-Federal-Aid projects] measured along the center of the roadway between abutments, spring lines of arches, extreme ends of openings for multiple boxes, or multiple pipes where the clear distance between openings is less than 50 percent of the smaller contiguous opening.

Bridge Length - The dimension of a structure measured along the center of the roadway between backs of abutment backwalls or between the ends of a bridge floor, whichever is greater.

Bridge Width - The clear dimension of structure measured at right angles to the center of the roadway between the inner faces of parapet or railing.

CALENDAR DAY - Any day shown on the calendar, beginning and ending at midnight.

CHANGE ORDER/SUPPLEMENTAL AGREEMENT - A written agreement made and entered into by and between the Contractor and the Agency covering work not otherwise provided for in the Contract, revisions in or amendments to the terms of the Contract, an increase to the original quantities as set forth in the original Contract proposal or conditions specifically described in these Specifications as requiring a change order or Supplemental Agreement. Change Orders/Supplemental Agreements constitute amendments to the original Contract once properly signed and executed.

CHANNEL - A natural or artificial water course.

CHIEF ENGINEER - See DIRECTOR OF PROGRAM DEVELOPMENT.

CHIEF OF UTILITIES AND PERMITS – The Agency's authorized representative to perform all liaison and negotiation between utility companies and the Agency to ensure conflicting utility facilities are relocated as part of transportation projects.

CLAIM

Contractor's Claim - A claim by the Contractor for adjustment or dispute under Subsection 105.20.

Damage Claim - A claim by an individual or entity for damage to property or for personal injury.

Labor and Materials Claim - A claim by a subcontractor, supplier, or other entity covered by 19 V.S.A. Section 10(9) for monies claimed to be due and payable.

CLEAR ZONE - The roadside border area starting at the edge of the traveled way available for use by errant vehicles. Specified clear zones are as shown in the Plans.

COLLUSION - A secret agreement among two or more persons for a deceitful or fraudulent purpose.

CONDUIT - A tube used for carrying, holding, and protecting electrical or other utilities.

CONSTRUCTION AREA - The entire portion of a project site within the right-of-way and easement limits during construction.

CONSTRUCTION EASEMENT - See EASEMENT

CONSTRUCTION ENGINEER - The duly authorized representative of the Agency responsible for engineering supervision of a specific project after the Contract has been signed and until project completion and final acceptance.

CONSTRUCTION ENVIRONMENTAL ENGINEER – The Agency's authorized representative of the Construction Section to provide guidance and technical assistance to Resident Engineers and Contractors in order to maintain compliance with environmental regulations. This representative is responsible for reviewing, approving and, as necessary, submitting information related to erosion prevention and sediment control to the Agency of Natural Resources Water Quality Division for authorization.

CONSTRUCTION SERVICES ENGINEER – The duly authorized representative of the Construction Engineer for the purposes of providing expertise in matters of claims, specifications, policy, procedures, and Contract finals.

CONTRACT - The written agreement between the Agency and the Contractor setting forth the obligations of the parties relative to the performance of the work.

The Contract includes the invitation for bids, proposal, Contract agreement, Contract bonds, Project Permits, Special Provisions, Contract Plans, General Special Provisions, Standard Drawings, Supplemental Specifications, *the Standard Specifications for Construction,* Notice to Proceed, and any supplemental agreements that are required to complete the work in an acceptable manner.

CONTRACT BONDS - The approved forms of security, signed and furnished by the Contractor and the Contractor's surety or sureties, guaranteeing complete performance of the Contract, compliance with the Contract, and the payment of all legal debts pertaining to the construction of the project or work.

CONTRACT COMPLETION DATE - The calendar date by which the work shall be completed. If the Contract is a duration type Contract, the Notice to Proceed shall also indicate the Contract Completion Date.

CONTRACT DOCUMENTS - See CONTRACT.

CONTRACT DURATION - The number of working days or calendar days allowed for completion of the Contract.

CONTRACT ITEM - A specific unit of work for which a price is provided in the Contract.

CONTRACTOR - The individual, partnership, firm, corporation, any acceptable combination thereof, or a joint venture which is a party to the Contract with the Agency which is undertaking the performance of the work under the terms of the Contract and acting directly or through its agent(s) or employee(s). The term "Contractor" means the prime Contractor as differentiated from a subcontractor. All Contractors must be registered with the Secretary of State.

CONTRACT PLANS - The Contract drawings that show the location, character, and dimensions of the work, including layouts, profiles, cross-sections, and other details. Also: Plans.

DETOUR - A temporary route to carry traffic.

DIAMETER NOMINAL (DN) — The metric version of nominal pipe size (NPS), applying to all plumbing, gas, oil, drainage, and other piping used in the project.

DIRECTOR or DIRECTOR OF PROGRAM DEVELOPMENT – Director of the Program Development Division of the Agency.

Wherever the terms "Director," "Chief Engineer," "Director of Engineering and Construction," "Director of Construction and Maintenance," or "Director of Project Development" appear in the Contract Document, they shall be read as, and shall mean, "Director of Program Development."

DISTRICT TRANSPORTATION ADMINISTRATOR (DTA) - The duly authorized representative of the Agency for a maintenance district subdivision of the State who is responsible for maintenance of State transportation facilities.

DRAINAGE - The system of pipes, drainage ways, ditches, and structures by which surface or subsurface waters are collected and conducted from the project area or a transportation facility.

EARTH – See SOIL.

EASEMENT (RIGHT-OF-WAY) - A right acquired to use or control property outside of the established right-of-way limits for a designated purpose.

EMBANKMENT - That portion of a filled area situated between the previously existing ground level and the subgrade (roadbed).

ENCROACHMENT - Use of highway right-of-way or easement unlawfully and/or without authority or permission.

ENGINEER – See RESIDENT ENGINEER.

ENGLISH – Other than when referring to the English language, the U.S. Customary Units of Measurement.

EQUIPMENT - All machinery, instruments, tools, vehicles, and apparatus together with the necessary supplies for upkeep and maintenance, for the proper construction and acceptable completion of the work.

EXTRA WORK - An item of work not provided for in the Contract as awarded but determined by the Engineer to be essential to the satisfactory completion of the Contract. Extra Work shall be performed at agreed upon prices or on a force account basis as provided in the Contract.

EXTRA WORK ORDER - A form used to provide for the performance of work or furnishing of materials involving Extra Work.

FEDERAL AVIATION ADMINISTRATION - The agency within the US Department of Transportation, Washington, D.C., with authority concerning airports and aviation.

FEDERAL HIGHWAY ADMINISTRATION - The agency within the US Department of Transportation, Washington, D.C., with authority concerning highways.

FEDERAL RAILROAD ADMINISTRATION - The agency within the US Department of Transportation, Washington, D.C., with authority concerning railroads.

FEDERAL TRANSIT ADMINISTRATION - The agency within the US Department of Transportation, Washington, D.C., with authority concerning public transit.

FINAL ESTIMATE - A compilation of item quantities prepared upon completion of the Contract stating the whole amount of work done by the Contractor and the final amount to be paid under the Contract.

FINALS ENGINEER – The duly authorized representative of the Construction Engineer responsible for handling all issues related to finalizing a Contract.

FORCE ACCOUNT - Prescribed work paid for on the basis of actual costs, including appropriate extra work, as defined in Subsection 109.06.

GENERAL SPECIAL PROVISIONS - Additions and revisions to the *Standard Specifications for Construction* approved pursuant to the Specification approval process.

GRADE SEPARATION - A crossing of two or more transportation facilities at different elevations.

HAZARDOUS MATERIALS AND WASTE COORDINATOR – The Agency's duly authorized Hazardous Materials and Waste Coordinator.

HOLIDAYS - In the State of Vermont, "Holidays" occur on:

New Years Day	January 1
M.L. King's Birthday	Third Monday in January
President's Day	Third Monday in February
Town Meeting Day	First Tuesday in March
Memorial Day	Last Monday in May
Independence Day	July 4
Bennington Battle Day	August 16
Labor Day	First Monday in September
Columbus Day	Second Monday in October
Veteran's Day	November 11
Thanksgiving Day	Fourth Thursday in November
Christmas Day	December 25

If a Holiday falls on a Sunday, the following Monday shall be considered the Holiday; if a Holiday falls on a Saturday, the Friday immediately preceding shall be considered the Holiday.

INSPECTOR - An authorized representative of the Engineer assigned to make detailed inspections of Contract performance.

LABORATORY - The Agency's Materials and Research Section Central Laboratory or any other testing laboratory which may be designated by the Engineer.

LIQUIDATED DAMAGES - The charge assessed to the Contractor pursuant to the Contract because the Contractor did not complete the Contract within the Contract time or by the Contract completion date, not as a penalty but as an assessment of damages that are impossible or difficult to determine with accuracy.

LOAD TICKET - A ticket accompanying a load of material and indicating the gross weight of the load less the tare weight of the delivery vehicle, and other information as specified and/or as required by the Engineer.

MASS - The words "mass" and "weight" are used interchangeably. Mass must be converted to force (by multiplying by gravity) before computing structural reactions, shears, moments, or internal stresses.

MATERIALS - Any substance(s) specified for use in the construction of the project and its appurtenances.

MATERIALS AND RESEARCH ENGINEER - The duly authorized representative of the Agency responsible for the supervision, research, and approval of materials specified in contracts or to be added to the approved products list.

MEDIAN - Unless different in context, the portion of a divided highway separating opposing traveled ways.

METRIC TON - A unit of measure equivalent to 1000 kg, denoted in the Contract Documents as "Metric Ton" or "T." See also TON.

NON-PARTICIPATING - Designates work in which the cost is not shared by the Federal and/or State Government.

NOTICE TO PROCEED - Written notice to the Contractor stipulating the date on which the Contractor can begin on-project construction and from which date Contract duration can be charged.

PAY ITEM - See CONTRACT ITEM.

PAVEMENT STRUCTURE - The combination of subbase, base course, and surface course (wearing course or travel course) placed on a subgrade to support the traffic load and distribute it to the roadbed.

PLANS - The plans and drawings that show the location, character, sequence, and dimensions of the work, including layouts, profiles, cross-sections, and other details.

Contract Plans - See CONTRACT PLANS.

Standard Drawings – See STANDARD DRAWINGS.

PLANT INSPECTOR - An authorized representative of the Agency assigned to perform detailed inspections of methods and materials at plants, including bituminous, concrete, and structural steel assembly plants.

PROFESSIONAL ENGINEER - A qualified registered Professional Engineer licensed in the State of Vermont or eligible to practice engineering in the State of Vermont under the transient practice provisions of Title 26 VSA Section 1181a.

PROFILE GRADE - The trace of a vertical plane intersecting the top surface of the proposed wearing surface, usually along the longitudinal centerline. Depending on the context, "profile grade" means either the elevation at one or more points or the gradient of such trace.

PROJECT - The specific portion(s) of transportation facility infrastructure on which work is to be performed under one or more contracts.

PROJECT MANAGER – The duly authorized representative of the Director of Program Development responsible for the development of project design and management of project costs.

QUALIFIED PRODUCTS LIST (QPL) – A listing of protective coatings for new and 100% bare existing steel for bridges that have been tested and/or evaluated by the North East Protective Coating Committee (NEPCOAT) and have been deemed satisfactory for use on Agency projects without additional certification requirements.

REGIONAL CONSTRUCTION ENGINEER - The duly authorized representative of the Agency for a Construction regional subdivision of the State who is responsible for administering and overseeing construction contracts.

RESIDENT ENGINEER or ENGINEER - The duly authorized representative of the Agency and Director of Program Development who is responsible for engineering supervision of one or more specific projects.

RIGHT-OF-WAY - The land or property, or interests therein, devoted to transportation purposes.

ROADBED - The graded surface prepared as a foundation for the pavement structure and shoulders of a transportation facility. (Also: "SUBGRADE").

ROADSIDE - The area adjoining the outer edge of the traveled way or shoulder of a highway. Extensive median areas between the roadways of a divided highway may also be considered roadside.

ROADWAY - The portion of a highway within limits of construction.

ROADWAY, TRAFFIC, AND SAFETY ENGINEER – The Agency's duly authorized representative responsible for the design aspects of roadway, traffic, and safety projects. (Sometimes referred to as the "Roadway Program Manager").

SAFETY OFFICER

> Contractor's - An individual designated by the Contractor charged to assure that all construction operations under the Contract are performed safely and according to all VOSHA regulations.
>
> Agency's - The Agency's duly authorized Occupational Safety Coordinator whose job duties include safety inspection of Agency construction projects.

SCHEDULE OF WORK - The approved CPM chart or other work schedule prepared and submitted by the Contractor.

SECRETARY - The appointed head of the Agency of Transportation of the State of Vermont.

SHOULDER - The portion of the roadway contiguous with the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of base and surface courses.

SIDEWALK - That portion of the roadway primarily constructed for the use of pedestrians.

SLOPES - The inclined areas extending from the shoulders to the previously existing surface of the ground.

SOIL (EARTH) - Sediments or other unconsolidated accumulations of solid particles produced by the chemical and physical disintegration of rocks and which may or may not contain organic matter.

SPECIAL PROVISIONS - Additions and revisions to the *Standard Specifications for Construction*, Supplemental Specifications, and General Special Provisions applicable to the Contract, as well as other provisions specific to the Contract.

SPECIALTY ITEM - Work that requires highly specialized knowledge, ability or equipment not ordinarily available in contracting organizations qualified to bid on the Contract as a whole; in general specialty items are limited to minor components of the overall Contract.

SPECIFICATIONS - The compilation of provisions and requirements for the performance of prescribed work including the *Standard Specifications for Construction*, Supplemental Specifications, General Special Provisions, Special Provisions, and other requirements included in the Contract.

STANDARD DRAWINGS - Agency approved drawings used for typical repetitive use, showing details to be used where appropriate.

STANDARD SPECIFICATIONS or STANDARD SPECIFICATIONS FOR CONSTRUCTION - The book entitled *Standard Specifications for Construction*, as approved for general application and repetitive use in Agency construction contracts.

STATE - Unless different in context, the State of Vermont acting through its Agency of Transportation and authorized representative(s).

STRUCTURAL CONCRETE ENGINEER – The Agency's duly authorized representative of the Materials and Research Section responsible for the supervision of plant inspectors utilized at concrete plants and for the evaluation of portland cement concrete mix designs.

STRUCTURAL EMBANKMENT AREA - The cross-sectional area of an embankment situated between the lines projected downward from the

outer edges of the subgrade on a 1:1.5 (vertical:horizontal) slope to the intersection with the previously existing ground.

STRUCTURES ENGINEER - The Agency's duly authorized representative responsible for structural engineering supervision of the project. (Sometimes called the "Structures Program Manager.")

SUBBASE - The layer or layers of specified or selected material of designated thickness placed to support a base and/or surface course.

SUBCONTRACTOR - An individual or legal entity to whom or which the Contractor sublets part of the work.

SUBGRADE - The graded surface prepared as a foundation for the pavement structure and shoulders of a transportation facility. (Also called "ROADBED.")

SUBSTANTIAL COMPLETION DATE - The date when, in the opinion of the Engineer, the work to be performed pursuant to the Contract has been sufficiently completed to enable use of the project or facilities for the intended purpose.

SUBSTRUCTURE - All of that part of a structure below the bearings of simple and continuous spans, skewbacks of arches, and tops of footings of rigid frames; included are backwalls, wingwalls, and wing protection railings.

SUPERINTENDENT - The Contractor's authorized representative in responsible charge of the work.

SUPERSTRUCTURE - All that part of a structure supported by the substructure, excluding the approach slabs.

SUPPLEMENTAL AGREEMENT- See CHANGE ORDER/ SUPPLEMENTAL AGREEMENT.

SUPPLEMENTAL SPECIFICATIONS - Specifications so designated that are not included in the Standard Specifications, General Special Provisions, or Special Provisions.

SURETY - The individual, partnership, firm, or corporation, or any acceptable combination thereof, other than the Contractor, executing the bond or bonds furnished by the Contractor. Surety Companies must be authorized to do business in the state of Vermont [See 19 VSA Section 10 (8)].

SURFACE COURSE - The uppermost component of a pavement structure, also called the wearing course or travel surface.

TON - The word "ton" by itself is a unit of measure equivalent to 2000 pounds. See also "METRIC TON."

TRAFFIC ENGINEER – See ROADWAY, TRAFFIC, AND SAFETY ENGINEER.

TRAVELED WAY - The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

UNIT PRICE - The Contract price for one unit of work, as defined by the Contract.

UTILITY - The privately, publicly, or cooperatively owned lines, facilities, and systems for producing, transmitting, or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway drainage, and other similar commodities, including publicly owned fire and police signal systems and street lighting systems, which directly or indirectly serve the public or any part thereof. The term "utility" shall also mean the utility company, inclusive of any wholly owned or controlled subsidiary.

WEIGHT - In these Specifications, the words "weight" and "mass" are used interchangeably.

WEIGHTS AND MEASURES – The Vermont Department of Agriculture, Division of Weights and Measures.

WORK - The furnishing of all labor, materials, equipment, and incidentals necessary or convenient to the successful completion of the project and carrying out of the duties and obligations imposed by the Contract.

WORKING DAY - A calendar day on which construction operations could proceed as determined by the Engineer; unless excepted, "Working Day"" excludes Saturdays, Sundays, Holidays, and the period from December 1 to April 15, exclusive.

WORKING DRAWINGS - Supplemental design sheets or similar data which the Contractor is required to submit to the Engineer such as stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, and bending diagrams for reinforcing steel.

WRITTEN ORDER - A statement in writing from the Resident Engineer to the Contractor that:

(a) Authorizes or directs work to be done that is not part of the Contract, including method of payment.

(b) Informs the Contractor of work that is not being accomplished according to the Plans and these Specifications, and directs corrective action.

(c) Documents quantities to be paid for designated Contract items.

(d) Directs that safety, environmental, or other requirements or measures be followed.

(e) Directs that certain work or all work be stopped or discontinued.

(f) Brings to the Contractor's attention any other information or concerns that the Engineer may wish to emphasize.

101.03 INTENTION OF TERMS.

(a) By/To the Engineer. In order to avoid cumbersome and confusing repetition of expressions in these Specifications, whenever anything is, or is to be, done if, as, when, or where "contemplated, required, determined, directed, specified, authorized, ordered, given, designated, indicated, considered necessary, deemed necessary, permitted, reserved, suspended, established, approval, approved, disapproved, acceptable, unacceptable, suitable, accepted, satisfactory, unsatisfactory, sufficient, insufficient, rejected, or condemned," it shall be read and understood as if the expression were followed by the words "by the Engineer" or "to the Engineer."

(b) As Ordered/Directed by the Engineer. When the phrases, "as ordered by the Engineer," "as directed by the Engineer," or similar phrases are used in the Contract, they shall be understood to provide the Engineer latitude to meet field conditions, but in no case shall these phrases be construed to permit changing the intent of the Contract Documents.

(c) Furnish and Provide. "Furnish," "provide," and words of similar meaning when used in relation to the "Contractor," shall mean at the Contractor's expense unless otherwise specifically provided in a Contract item.

(d) Headings and Caption of Sections, Subsection and Paragraphs. All headings and captions are inserted for convenience and identification only and are in no way intended to define, limit, or expand the scope and intent of the Contract.

(e) Approval of/Ordered by/Consent of Engineer. 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 the acceptance or direction by the Engineer shall not supersede 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.

Construction/Interpretation of Contract Documents. The Contract and its provisions shall not be construed or interpreted for or against the Agency because the Agency drafted or caused its representative(s) to draft its provisions.

SECTION 102
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SECTION 103 – TAXES AND INSURANCE

103.01 CONSTRUCTION EQUIPMENT TAX. The Contractor shall pay all construction equipment tax assessed under Title 32 VSA Section 3603 for machinery and other personal estate; the provisions of Title 32 VSA Section 3603 are made a part hereof by reference.

103.02 WITHHOLDING OF TAXES. The Contractor shall comply with the requirements of subchapter 4 of Chapter 151 of Title 32 VSA relating to the withholding of taxes from employees, and all taxes withheld

pursuant to subchapter 4 shall be reported and paid to the Commissioner of Taxes.

103.03 STATE SALES TAX. Contractors are not required to pay the Vermont sales tax for materials incorporated into a state funded project completed on property owned or held in trust for the benefit of any governmental body or agency and used exclusively for public purposes or owned or held in trust for the benefit of any organization holding a valid Exemption Certificate [see Vermont Sales and Use Tax Regulations No. 226-2 and 226-7 and 32 V.S.A. Section 9743(4)] and used exclusively in the conduct of its business or purpose, or for materials incorporated in a rail line in connection with the construction, maintenance, repair, improvement or reconstruction of the rail line [see 32 V.S.A. Section 9741(44)].

Therefore, no sales tax shall be included in the cost of these materials.

Contractors are responsible for maintaining records sufficient to justify eligibility for sales tax exemption. Forms for maintaining these records are available from the Vermont Department of Taxes.

103.04 INSURANCE REQUIREMENTS. Insurance obtained by the Contractor to cover the below-listed requirements shall be procured from an insurance company registered and licensed to do business in the State of Vermont. All insurance coverage for property damage shall provide coverage for "Replacement" cost. Before the Contract is signed and becomes effective, the Contractor shall file with the Agency a certificate of insurance, in duplicate, executed by an insurance company or its licensed agent(s), on a form satisfactory to the Agency, stating that with respect to the Contract awarded, the Contractor carries insurance in accordance with the following requirements. Renewal certificates for keeping the required insurance in force for the duration of the Contract shall also be filed as specified above.

No warranty is made that the coverages and limits listed herein are adequate to cover and protect the interests of the Contractor and any subcontractor for the Contractor's and any subcontractor's operations. These are solely minimums that have been established to protect the interests of the State.

(a) Workers Compensation Insurance. With respect to all operations performed the Contractor shall carry Workers Compensation Insurance in accordance with the laws of the State of Vermont, 21 V.S.A. Chapter 9. The Contractor shall also ensure that all subcontractors carry Workers Compensation Insurance in

accordance with 21 V.S.A. Chapter 9 for all work performed by them.

(b) Commercial General Liability Insurance. With respect to all operations performed by the Contractor and subcontractors, the Contractor shall carry Commercial General Liability Insurance on an occurrence form providing all major divisions of coverage, including but not limited to:

Premises - Operations
Independent Contractor's Protective
Products and Completed Operations
Personal Injury Liability
Contractual Liability applying to the Contractor's obligations under Subsection 107.16, Broad Form Property Damage
Collapse and Underground (CU) Coverage
Explosion (X) Coverage, unless this requirement is waived in writing by the Agency of Transportation

Limits of Coverage shall be not less than:

$1,500,000	Each Occurrence
$2,000,000	General Aggregate applying, in total, to this project only
$2,000,000	Products/Completed Operations Aggregate
$ 250,000	Fire Damage Legal Liability

(c) Automobile Liability Insurance. The Contractor shall carry Automobile Liability Insurance covering all motor vehicles, including owned, hired, borrowed, and non-owned vehicles, used in connection with the project. Limits of Coverage shall be not less than:

Bodily Injury:	$1,000,000 Each Person, $1,000,000 Each Occurrence
Property Damage:	$ 500,000 Each Occurrence

OR

Combined Single Limit:	$1,500,000 Each Occurrence

(d) Railroad Protective Liability Insurance. When the Contract involves work on, over or under the right-of-way of any railroad, the Contractor shall carry, with respect to operations performed by the Contractor and/or by the Contractor's subcontractors, Railroad Protective Liability Insurance in a form and amount as required by the railroad company and as specified in the Special Provisions and/or Supplemental Specifications for the project. If not available from insurance companies registered and licensed to do business in the State of Vermont, this insurance may be procured from Eligible Surplus Lines Companies approved by the Vermont Department of Banking, Insurance, Securities, & Health Care Administration (BISHCA).

The Contractor shall file the original Railroad Protective Policy and one duplicate policy with the Agency. The Agency will transmit the original Railroad Protective Policy to the railroad concerned.

The Contractor shall cooperate with and allow the railroad company or its agents free and full access to the project during construction along with all materials and equipment necessary in order that their duly authorized employees or agents may do any and all railroad construction, inspection, flagging and watching.

The Contractor shall defend, indemnify, and save harmless the railroad and all of its officers, employees, and agents against any claim or liability arising from or based on any delay to the Contractor as a result of railroad construction or maintenance, whether by the railroad company, its employees, or agents.

(e) General Insurance Conditions. The insurance specified under parts (a), (b), and (c) above shall be maintained in force until acceptance of the project by the Agency.

Under part (b) above, Products and Completed Operations Coverage shall be maintained in force for at least one year from the date of acceptance of the project.

Under part (d) above, the Railroad Protective Policy shall remain in force until all work required to be performed on railroad property is completed to the satisfaction of the Railroad and of the Director of Program Development of the Agency.

The contractual liability insurance requirements detailed in the Contract Documents, including Subsection 107.16, are to

indemnify, defend, and hold harmless the Municpality(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, except the Workers Compensation Policy, shall name the Municipality(ies), the State, the Agency, and railroad(s), 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.

Umbrella Excess Liability Policies may be used in conjunction with primary policies to comply with any of the limit requirements specified above.

"Claims-made" coverage forms are not acceptable without the prior written consent of the agency.
The Contractor shall investigate and the Contractor and/or insurance company shall either adjust or defend all claims against the insured for damages covered, even if groundless.

Each policy furnished shall contain a rider or non-cancellation clause reading in substance as follows:

> *Anything herein to the contrary notwithstanding, no cancellation, termination, or alteration of this policy by the company or the assured shall become effective unless and until notice of cancellation, termination, or alteration has been given by registered mail to the Director of Program Development of the Vermont Agency of Transportation, National Life Building, Montpelier, Vermont 05633-5001, at least 30 calendar days before the effective cancellation, termination, or alteration date unless all work required to be performed under the terms of the Contract is satisfactorily completed as evidenced by the formal, final acceptance of the project by the Agency.*

There shall be no directed compensation allowed the Contractor on account of any premium or other charge necessary to take out and keep in effect such insurance or bond; the cost thereof shall be considered included in the general cost of the work.

SECTION 104 - SCOPE OF WORK

104.01 INTENT OF CONTRACT. The intent of the Contract is to provide for the construction and completion in every detail of the work described. The Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the Plans, Specifications, and other provisions of the Contract.

104.02 ALTERATION OF PLANS OR CHARACTER OF WORK. To suit conditions disclosed as the work progresses, the Engineer may, without notice to the Sureties on the Contractor's bonds, make alterations in the design, in type of materials, in the quantities or character of the work or materials required, in the cross-sections, in dimensions of structures, in length of project, in locations, and any other ways deemed appropriate. Alterations will not constitute a change in other parts of the Contract or a waiver of any condition of the Contract, and shall not invalidate any of the provisions of the Contract Documents.

Payment for work occasioned by changes or alterations will be made according to Subsections 109.04 and 109.05. If the altered or added work is of sufficient magnitude to require additional time in which to complete the project, a time adjustment will be made pursuant to Subsection 108.11.

104.03 EXTRA WORK. The Contractor shall perform extra or unforeseen work for which there is no quantity and price included in the Contract according to the Contract or as directed by the Engineer whenever it is deemed necessary or desirable by the Engineer in order to complete the work as contemplated; payment will be made pursuant to Subsection 109.06.

104.04 MAINTENANCE OF TRAFFIC.

(a) All Roadways Safe and Passable. All roadways to be used by the traveling public, including temporary highways, bridges, and approaches as necessary to accommodate the traffic diverted from the roadway undergoing improvements, shall be provided and maintained in a safe and passable condition. All traffic control plans and devices shall conform to the latest edition of the MUTCD.

(b) Service Shall Be Maintained. During working hours, at a minimum, one-lane traffic will be maintained. Working hours will be limited to the period between sunrise and sunset. At a

minimum, one-lane traffic highway facilities shall be open to the unrestricted two-way flow of traffic, unless otherwise shown on the Plans or directed by the Engineer. Wherever one-way traffic is being maintained by the Contractor, the traveling public shall not be delayed more than 10 minutes. However, two-way traffic shall be re-established during all holiday periods, temporary shutdowns, and any other periods designated by the Engineer.

(c) Traffic Control Plan; Alternate Plan. When the Plans contain an Agency designed traffic control plan that includes, but is not limited to, references to Standard Drawings, the Contractor may submit an alternate traffic control plan for the project. This alternate plan may be for the entire traffic control plan of the project or for one or more phases of the Agency's design in the Plans, including the specific location of the lanes where the traffic will be maintained. The submitted alternative must include complete construction details, including all facets of traffic control, to the same extent as provided in the Agency design. The Agency shall have 30 calendar days to review the proposed alternative and to make changes before it is implemented.

(d) Detours and Temporary Bridges. Detours necessary for public travel which are not contiguous to the work will be designated by the Agency unless otherwise provided. When contiguous to the work, detours shall be constructed and maintained by the Contractor and no compensation will be allowed to the Contractor except as provided in the Contract. If the Contractor elects to construct a temporary bridge on a detour contiguous to the work over which traffic is to be maintained while a culvert or bridge is being constructed, the temporary bridge shall be constructed according to Section 528. The expense of the construction, maintenance, and removal of a temporary bridge and its approaches and all incidental work pertaining thereto shall not be paid directly, but shall be incidental to all other Contract items. The Contractor shall be responsible to the public for the structural adequacy and safety of these structures and approaches. The Contractor shall provide, erect, and maintain all necessary barricades, lights, signs, signals, other traffic control devices and flaggers required in accordance with Subsections 107.08 and 107.09.

(e) Winter Maintenance On Active Projects. If conditions on active projects (not closed down for the winter) require snowplowing, sanding, or salting of the highway, including temporary

highways, detours, and bridges, the Contractor shall perform such snowplowing, sanding, and salting. The costs for snowplowing and sanding will be paid for under the Contract item Roadway Patrol Maintenance, and salting will be paid for under the Contract item Dust and Ice Control with Calcium Chloride.

(f) Winter Maintenance On Closed Projects. When a project is closed down for the winter season, the Contractor shall leave the project in a satisfactory condition for the traveling public and in a condition suitable for normal and satisfactory winter maintenance. The full depth of subbase shall be placed over portions of the road under construction and used by the traveling public unless otherwise shown on the Plans or directed by the Engineer. During the period that the project is officially closed down for the winter season, the State, a political subdivision thereof, or other properly designated entity will assume responsibility for snowplowing, salting, and sanding. This shall not relieve the Contractor of any other responsibilities regarding public convenience and safety as specified in this Section, from the liabilities as specified in Section 107, or as specified elsewhere in the Contract. If unsatisfactory travel conditions or ruts develop in the traveled way or other construction defects or conditions dangerous to the traveling public develop, whether arising from the execution or non-execution of the work, the Contractor may be directed to return to the construction site and carry out necessary measures to satisfactorily remedy the situation; the cost for said work will be included as part of the cost of the items in the Contract, with no additional payment. If the Contractor fails to carry out the measures to satisfactorily remedy the situation immediately, the Engineer may cause the work to be performed and deduct the cost from any monies due or to become due to the Contractor. If the closing of a project is due to the Contractor's inability to complete the Contract before the Contract completion date, the Contractor shall bear all costs associated with making the project acceptable to the Engineer for winter shut down.

(g) Closed Projects; Temporary Traffic Control Devices. When a project is closed down for the winter season or for any other reason, the Contractor shall erect and maintain temporary guardrail, guide posts, barricades, warning signs, and other traffic control devices throughout the length of the project as directed by the Engineer. These temporary installations shall conform to requirements for the permanent items except that

approved, used material may be substituted; they shall be removed when the Engineer indicates they are no longer required. The installation, maintenance and removal of temporary guardrail, guide posts, barricades, warning signs, and other traffic control devices will not be paid for directly, but will be incidental to other items in the Contract.

(h) Closed Projects; Guardrail. When the Contract specifies that the base course or the binder course of pavement be placed prior to suspension of work for the winter season, permanent, rather than temporary, guardrail shall be installed in accordance with the Plans. No payments will be made for adjustments to these permanent installations in order to accomplish work when construction resumes in the spring.

(i) Suspension of Work; Contractor Responsibility. If, regardless of the cause, construction is suspended on the project before the completion, acceptance, and termination of the Contractor's responsibility as defined under Subsection 108.15, the Contractor shall take precautions against injury or damage to the work and shall reinstall any damaged work as specified under Subsection 107.18.

(j) Traffic Control Devices. All traffic control devices shall be presented to the Engineer for approval prior to placement on the project. At no time will traffic control devices that do not have the specified reflectivity sheeting or are dirty, damaged, or unacceptable to the Engineer be placed or remain on the project.

All traffic control devices, including but not limited to signs, pavement markings, pavement marking removals, temporary traffic barrier, barricades, reflectorized plastic drums, cones, flashing arrow boards, and detours shall conform to the latest edition of the MUTCD, shall be approved by the Engineer, shall be installed to the satisfaction of the Engineer, and shall be functioning prior to the beginning of work.

(k) Reflectorized Sheeting; Cleaning; Costs. All reflectorized sheeting on the project shall be cleaned on a bi-weekly basis unless more frequent cleaning is directed by the Engineer. The cost of this work will not be paid for directly, but will be incidental to all other Contract items.

(l) Traffic Control Devices During Construction; Costs. Costs involved in covering, uncovering, and otherwise adjusting the

signing and traffic control devices during construction to conform to the changing requirements of traffic flow around and through various construction operations will not be paid for directly, but will be incidental to all other Contract items.

(m) Suspension of Work; Treatment of Signing; Costs. Costs involved in covering or removing signs at the beginning of a suspension of work, including winter shutdown, and in uncovering or re-installing the signs at the end of a suspension of work will not be paid for directly, but will be incidental to all other Contract items. Such signing adjustments shall be performed as directed by the Engineer.

104.05 REMOVAL AND DISPOSAL OF STRUCTURES AND OBSTRUCTIONS. The Contractor shall remove any existing structure, parts of structure, or other obstructions which interfere in any way with the new construction or which is shown on the Plans to be removed.

Unless otherwise provided, all salvageable material being removed shall become the property of the Contractor and shall be disposed of and/or recycled as authorized by the Engineer. Salvage generated by utility relocation shall remain the property of the applicable utility.

104.06 USE OF MATERIALS FOUND IN THE ROADWAY; AUTHORIZATION; PAYMENT.

(a) General. With the written approval of the Engineer the Contractor may use stone, gravel, sand, or other materials found in the excavation for other construction items for the project provided the materials meet the requirements of the Contract.

The Contractor will be paid for the removal of such materials used for the project at the proper Contract unit price for items of excavation.

The Contractor shall not excavate or remove any material that is not within the slope and grade lines of an excavation as shown on the Plans without written authorization from the Engineer. If the Engineer allows over-excavation for the use of the Contractor, the State will be compensated for the quantity of material removed, and the replacement of material, if necessary, shall be done at no additional cost to the Agency and shall conform to the requirements of embankment construction as specified in the Contract. The over-excavation, if allowed by the Engineer, shall only occur within the State's right of way.

(b) Quantities. Whenever any material, except granular borrow, is removed from excavation and used in the construction of other items in the Contract, the total quantity measured for payment of these items shall be multiplied by 1.15, and the resulting quantity deducted from the total quantity of the Contract item Earth Borrow. If the final quantity of Earth Borrow is zero, no deductions will be made for material used for other items.

Whenever material meeting the requirements for granular borrow is taken from excavation on the project and used for Contract item Granular Borrow, its removal and use shall be paid for by single payment under the appropriate excavation item in Section 203.

104.07 FINAL CLEANING UP FOLLOWING COMPLETION OF PROJECT.

(a) Cleanup of Project. Upon completion of the work, before acceptance, and before final payment will be made, the Contractor shall satisfactorily and completely clean and remove from the right-of-way and grounds occupied by the Contractor in connection with the work all equipment, falsework, surplus and discarded materials, rubbish, temporary structures, buildings, tools, lumber, refuse, and other unsightly material.

(b) Restoration of Property. The Contractor shall restore in an acceptable manner satisfactory to the Engineer all property, both public or private, which has been damaged during the prosecution of the work; replace or renew any fences damaged; leave the waterways unobstructed; and leave the construction area in a neat and presentable condition throughout the entire length of the work.

(c) Drainage Structures and Ditches. The removal and disposal of silt, debris, and other material from drainage structures and ditches, whether deposited prior to or during construction under the Contract, shall be accomplished prior to acceptance of the project as ordered by the Engineer.

(d) Closure of Material Supply and Disposal Areas. Material supply and disposal areas shall be closed in accordance with Subsection 105.28.

(e) Costs. Costs involved with final cleanup following completion of the project will either be paid for under specific pay items or be incidental to all other Contract items.

104.08 DIFFERING SITE CONDITIONS.

(a) During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those specified in the Contract or if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the Contract, are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

(b) Upon written notification, the Engineer will investigate to determine if the conditions materially differ and will cause an increase or decrease in the cost or time required for the performance of any work under the Contract. The Contractor will be notified of the Engineer's determination, whether or not an adjustment of the Contract is warranted. If an adjustment is warranted, the Contract will be modified in writing accordingly. Any adjustment made will exclude loss of anticipated profits.

(c) No Contract adjustment that results in a benefit to the Contractor will be allowed unless the Contractor has provided the required written notice.

(d) No Contract adjustment will be allowed under this clause for any effects caused on unchanged work.

SECTION 105 - CONTROL OF THE WORK

105.01 AUTHORITY OF THE ENGINEER.

(a) General. The Engineer shall decide all questions which arise concerning the quality and acceptability of materials furnished, the manner of performance of the work, the rate of progress of the work, and compliance with the requirements of the Contract; the Engineer shall decide all questions concerning interpretation of the Contract.

(b) Quantities; Orders; Disputes; Rejection of Materials, Work; Suspension of Work. The Engineer shall determine the amount and quantity of the work performed and materials furnished that are to be paid for under the Contract. The Engineer shall have authority to enforce and make effective decisions and orders the Contractor fails to carry out promptly. In case of any dispute arising between the Contractor and the Engineer as to materials furnished or the manner of performing the work, the Engineer has the authority to reject the materials and/or to suspend the work until the dispute is decided by the Director of Program Development. The Engineer is not authorized to revoke, alter, enlarge, relax, or release any requirements of the Contract Documents. The Engineer has authority to suspend the work or withhold payment of all estimates due the Contractor when necessary to secure proper compliance with the Contract.

(c) Performance of Work by Engineer; Setoff. If the Contractor fails to perform work ordered by the Engineer, the Engineer may, upon written notice, proceed to perform the work as deemed necessary; the cost of the work will be deducted from any monies due or which may become due the Contractor under the Contract.

(d) Advice by Engineer. Advice given the Contractor by the Engineer shall not be construed as binding the Agency in any way, or releasing the Contractor from any obligations under the Contract.

105.02 DIRECTOR OF PROGRAM DEVELOPMENT TO BE REFEREE.

(a) General. The Director of Program Development shall act as referee in all questions of dispute arising under the terms of the Contract. If the Contractor is aggrieved by the decision of the Director, the Contractor may appeal the decision in writing to the Transportation Board via the Director. Included with the notice of appeal shall be a complete outline of the nature and extent of the question or questions appealed together with any supporting documentation.

(b) Limitation of Time to Appeal. Notwithstanding any other provision of law, case law, regulation, or the Contract, all appeals shall be made within 30 calendar days of the decision to which the Contractor is aggrieved, and not thereafter.

105.03 PLANS AND WORKING DRAWINGS. A complete description of the work requires both the Plans, which are furnished to the Contractor by the Agency, and Working Drawings, which are submitted to the Agency by the Contractor or the Contractor's suppliers. The Plans and Working Drawings will be provided as follows:

(a) Contract Plans. The Agency will furnish Plans, consisting of general drawings and details that are necessary to give a comprehensive description of the construction contemplated. The Plans will show general features of all structures, alignment, grades, typical cross-sections, and specific cross-sections.

The Agency will furnish the Contractor one copy of a signed set of the Plans, two complete full size sets of the Plans, and four complete half scale sets of the Plans.

Additional full sets or partial sets requested by the Contractor or a subcontractor, Fabricator, or supplier will be furnished at the standard current rates charged by the Agency. The Contractor shall keep one set of complete Plans available on the project at all times.

(b) Working Drawings.

(1) General. Certain items and construction activities require plans, drawings, procedures, and other information to document the Contractor's proposed actions to conform with Contract requirements.

Drawings and procedures shall be submitted sufficiently in advance of the anticipated work to allow for review(s), comment(s), and correction(s).

The cost of furnishing Working Drawings, including obtaining any necessary design or field measurements, shall be included in the Contract unit price for the item involved.

When a Contract item requires calculations to be submitted, the calculations shall be included with the submittal of the Working Drawings. Manufacturer's engineering data for prefabricated materials, including that for falsework and forms, shall be submitted with each set of Working Drawings.

All submittals shall be addressed to the Vermont Agency of Transportation, National Life Building, Drawer 33, Montpelier, Vermont 05633-5001.

(2) Required Submittals.

a. Submittals for Approval. The Contractor or Fabricator shall not begin work without approval of the drawings and/or procedures. One set of "approved" or "approved as noted" drawings and/or procedures will be returned to the Contractor or Fabricator. Agency approval of drawings and/or procedures indicates concurrence with the information presented and does not relieve the Contractor or Fabricator of compliance with all specifications and code requirements. The Agency assumes no responsibility for error(s) and/or omission(s) in the drawings and procedures.

Drawings and procedures identified "approved as noted" indicate that specific clarification or conditional changes have been identified and take precedence over submitted information. Withholding of approval by the Agency for selected details or procedures shall not constitute a basis for delay of performance of a non-related item of work that has approval to proceed.

After approval of the drawings and/or procedures, no changes shall be made without the written approval of the Engineer. The Contractor or Fabricator shall assume all risk for materials ordered or work performed prior to approval by the Engineer

b. Submittals for Documentation Only. When the submittal is for documentation purposes only, the Agency will review the submittal for compliance with the requirements of the specification. The Contractor shall submit the required drawings and/or procedures a minimum of 21 calendar days in advance of

the proposed work. The Contractor is entirely responsible for the work associated with these submittals; the Agency will not be responsible for errors in dimensions, incorrect erection procedures, design requirements, or successful completion of the work.

The Contractor shall follow the means and methods specified for Construction Drawings and/or procedures in subpart (b)(3)b of this Subsection. In the event that any condition requires a change to the Construction Drawings of record, the Contractor is required to submit updated Construction Drawings prior to performing the work.

(3) Categories of Working Drawings.

a. Fabrication Drawings.

1. General. Fabrication Drawings shall be submitted for approval. Fabrication Drawings are required for work performed by or in conjunction with materials furnished by a Fabricator or supplier. They shall consist of complete details developed from information in the Plans, Contract Documents, and field measurements to define dimensions, sizes, procedures, and materials necessary to complete fabrication and installation or erection of the work specified.

2. Number of Sets. Unless otherwise specified, five sets of drawings and procedures will be required for approval. For projects of normal complexity, the Fabricator or supplier shall anticipate a review time of four weeks.

3. Size. Drawing and detail sheets shall be 841 mm (36 inches) horizontal by

594 mm (22 inches) vertical. A 30 mm (1 1/2 inch) margin shall be provided on the left and 15 mm (1/2 inch) margins on the remaining three sides. A title block shall be provided in the lower right hand corner and shall include the following:

Town(s) in which project is located

Project name and number

Route number and location information

Prime contractor or Fabricator's name and address

Sheet title or identification of details shown

Name of supervisor in charge

Detailer's and checker's name

Date

Sheet number____ of _____.

4. Ownership; Delivery; Procedures. Original Fabrication Drawings shall be the property of the Agency. Prior to processing the final estimate, all Fabrication Drawings shall be submitted to the Agency as set forth in subpart 5 below. Original drawings shall be on mylar film or black on white original computer plots on bright white engineering bond paper with a minimum thickness of 24 #. All "approved as noted" changes must be transferred to the originals prior to transmittal to the Agency.

5. Required Fabrication Drawings. The following Sections require Fabrication Drawings:

Section	Forward To
506 Structural Steel	Structures Engineer
510 Prestressed Concrete	Structures Engineer
511 Structural Plate Pipes and Arches	Structures Engineer
516Expansion Devices	Structures Engineer
522 Lumber and Timber (Structural Timber as required)	Structures Engineer
525 Railings	Structures Engineer
531 Bearing Devices	Structures Engineer
540 Precast Concrete	Structures Engineer
629 Water Systems (pipe insulation)	Chief of Utilities and Permits
677 Overhead Traffic Sign Supports	Structures Engineer
678 Traffic Control Signals	Roadway, Traffic, and Safety Engineer
679 Street Lighting	Roadway, Traffic, and Safety Engineer

b. Construction Drawings.

1. General. For an item or element of work that permits the Contractor optional details, procedures, and materials that affect structural capacity, safety, and/or the results of the work, the Contractor shall prepare and submit, for either approval or for documentation purposes only, as specified, detailed drawings and procedures of how the Contractor proposes to perform and control the work. Construction Drawings and procedures shall be prepared, stamped, and signed by a qualified Licensed Professional Engineer. The

Professional Engineer is responsible for the design, performance of the designed element, and preparation of the Construction Drawings and procedures.

2. Number of Sets. Unless otherwise specified, three sets of drawings and procedures will be required for approval. For work of normal complexity, the Contractor shall anticipate a review time of two weeks.

3. Size. Drawings shall conform to ISO Designation A-1 or A-4 (8 1/2 × 11 inches or 36 × 22 inches), shall have appropriate scale and detail, and shall convey sufficient information to provide for successful prosecution and inspection of the proposed work. Each sheet shall include a title block with the same information as specified for Fabrication Drawings.

4. Required Construction Drawings. The following Sections require Construction Drawings:

Section	Forward To	Submittal
204 Excavation for Structures (structure excavation support)	Construction Engineer	Documentation Only
208 Cofferdams	Construction Engineer	Documentation Only
501 HPC Structural Concrete (e.g., false work and form work plans - when shown on the Plans or directed by the Engineer)	Construction Engineer	For Approval
502 Shoring Superstructure	Structures Engineer	For Approval
505 Temporary Sheet Piling	Construction Engineer	Documentation Only
506 Structural Steel (erection plan)	Construction Engineer	Documentation Only
506 Structural Steel (field welding procedures)	Structures Engineer	For Approval
510 Prestressed Concrete (erection plan)	Construction Engineer	Documentation Only
513 Protective Coatings (field containment plan)	Construction Engineer	For Approval
528 Temporary Bridge	Structures Engineer	For Approval
540 Precast Concrete (erection plan)	Construction Engineer	Documentation Only
540 Precast Concrete (structural design)	Structures Engineer	For Approval
641 Traffic Control (alternate traffic control plan)	Roadway, Traffic, and Safety Engineer	For Approval

105.04 CONFORMITY WITH PLANS AND ALLOWABLE DEVIATIONS.

(a) General. The work shall be performed in reasonably close conformity with the lines, grades, cross-sections, dimensions, and material requirements, including tolerances, shown on the Plans or specified in the Contract Documents. Any deviation from the Contract as required will be determined by the Engineer and authorized in writing.

(b) Acceptance of Non-Conforming Materials/Work; Price Adjustment. If the materials or the finished product in which the materials are used do not conform to the Contract requirements, but reasonably acceptable work has been produced, the Engineer will determine if the work will be accepted and remain in place. If accepted, the Engineer will document the basis of acceptance, which may require a Contract modification and price adjustment.

(c) Rejection of Non-Conforming Materials/Work; Treatment of Rejected Materials/Work. If the materials or the finished product in which the materials are used do not conform to the Contract requirements, and the Engineer determines that the product is unsatisfactory, the Engineer will direct the work or materials be removed, replaced or otherwise corrected by the Contractor at the Contractor's expense.

105.05 COORDINATION OF CONTRACT DOCUMENTS – PERMITS, SPECIAL PROVISIONS, CONTRACT PLANS, GENERAL SPECIAL PROVISIONS, STANDARD DRAWINGS, SUPPLEMENTAL SPECIFICATIONS, STANDARD SPECIFICATIONS, AND SPECIFICATIONS ADOPTED BY REFERENCE.

(a) General. The Project Permits, Special Provisions, Contract Plans, General Special Provisions, Standard Drawings, Supplemental Specifications, Standard Specifications, and all supplemental documents are essential parts of the Contract; a requirement occurring in one is as binding as though occurring in all. The Contract Documents are complementary and intended 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

(1) Project Permits. In the event of a conflict between permit requirements, the more protective or stringent shall take precedence as determined by the Engineer.

(2) Special Provisions

(3) Contract Plans

a. Calculated Dimensions

b. Scaled Dimensions

(4) General Special Provisions

(5) Standard Drawings

a. Calculated Dimensions

b. Scaled Dimensions

(6) Supplemental Specifications

(7) Standard Specifications

(8) Any Other Specifications Adopted by Reference

(b) No Advantage from Errors or Omissions in Contract Documents. Neither the Contractor nor the Agency shall take advantage or be afforded any benefit as the result of apparent error(s) or omission(s) in the Contract Documents. If either party discovers error(s) or omission(s), it shall immediately notify the other.

(c) Corrections to Contract Documents. The Engineer will make corrections and interpretations deemed necessary and appropriate to fulfill the intent of the Contract Documents. When there is an apparent absence or mention of a detail or an apparent omission of a detailed description in the Contract Documents, the detail or description shall be interpreted/understood/determined using the best general engineering and construction practice.

(d) Effect of Other Specifications/Standards. 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.

105.06 COOPERATION BY CONTRACTOR.

The Contractor shall:

(a) Plans and Specifications. Have available on the project at all times during the prosecution of the work one copy each of the Plans and Specifications;

(b) Competent Contractor Superintendent. Have on the project at all times a competent and reliable English-speaking Superintendent authorized to receive orders and to act for the Contractor. The Contractor shall make every effort to provide continuity in the position of Superintendent. However, the Agency reserves the right to refuse or terminate the assignment of any Superintendent on the project; this shall not be grounds for a claim under Subsection 105.20.

(c) Competent Safety Officer. Have available on the project at all times during the prosecution of the work a competent and reliable English-speaking employee designated as the safety officer; this person shall be authorized to receive orders and issue binding directions concerning safety to all persons associated with the project who are employed by the Contractor, subcontractors or material suppliers. This individual shall be well versed in OSHA and VOSHA regulations, shall be capable of implementing a plan to conform to these regulations, and shall have the authority to stop construction operations on the project.

(d) Emergency Contacts. Furnish to the Engineer a list of addresses and telephone numbers of the Contractor's personnel who can be reached in an emergency. The Contractor shall alert certain personnel to stand by and shall inform the Engineer of all arrangements therefore;

(e) Facilities; Information; Assistance; Samples; Control Points. Provide all reasonable facilities and furnish the information, assistance, and samples required by the Engineer or Inspector to properly inspect and test materials and quality of work; and

cooperate in setting and preserving stakes, bench marks, and other control points used in laying out the work.

105.07 COOPERATION WITH UTILITIES.

(a) General. The Agency will notify all utility companies, pipeline owners, and other known parties affected and endeavor to have all necessary adjustments of the public or private utility fixtures, pipelines, and other appurtenances within or adjacent to the limits of construction made as soon as practical.

(b) Moving Utility Property; Owner's Expense. Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved by the owners at their expense, unless otherwise provided in the Contract.

(c) Utility Interference; No Claim for Delays. The Contractor acknowledges and understands that, at the time of bid submission, it has considered all of the permanent and temporary utility facilities or appurtenances in their present and/or relocated positions as shown on the Plans and evident at the site. Notwithstanding any other provision of law, case law, regulation, or the Contract, no additional compensation will be allowed for any delays, inconvenience or damage sustained by the Contractor due to any interference from utilities, utility companies, utility facilities, appurtenances, or the operation of moving them.

(d) Utility Relocation for Contractor's Convenience. Should the Contractor desire temporary changes of location of any utility facilities or appurtenances for convenience in performing the work, the Contractor shall satisfy the Agency that the proposed relocation does not interfere with its own or other contractors' operations or the requirements of the work and does not cause an obstruction or a hazard to traffic. The Contractor shall be responsible for requesting such relocation work of a utility and/or other affected parties . Such relocation work shall be made solely at the Contractor's expense.

105.08 COOPERATION BETWEEN CONTRACTORS.

(a) Agency Right to Contract. The Agency reserves the right to contract for and perform other or additional work on or near the work covered by the Contract at any time.

(b) No Interference of Other Contractors. When separate contracts are let within the limits of a project, each contractor shall conduct its own work so as not to interfere with or hinder the progress or completion of the work being performed by other contractors. Contractors working on the same project shall cooperate with each other as specified or ordered by the Engineer.

(c) Liability, Indemnification, Defense. Each contractor involved shall assume all liability, financial or otherwise, in connection with its own contract and shall defend, indemnify, protect and save harmless the Agency from any and all damages or claims that may arise because of inconvenience, delay, or loss experienced by the Contractor because of the presence and operations of other contractors working within the limits of the same project.

105.09 CONSTRUCTION STAKES.

(a) Initial Layout. Unless other methods of placing stakes are provided in the Contract, the Engineer will be responsible for setting sufficient points to establish the initial alignment and elevation of the proposed work; this shall include centerline offset stakes marked with centerline finish grades, offsets for establishing working points for any structures on the project, critical horizontal control points, and an adequate number of benchmarks for establishing vertical control. The Contractor shall check the proposed grades; any mistakes or errors identified shall be brought immediately to the attention of the Engineer, and adjustments will be made by the Engineer.

(b) Layout of Subgrade. Prior to fine-grading the subgrade, the Engineer will rerun the centerline, from which the Contractor shall set working stakes. After the Contractor has set the working stakes at the outer limits of the subbase course, the Engineer will reestablish the finished centerline grades. The Contractor shall check the proposed grades; any mistakes or errors identified shall be brought immediately to the attention of the Engineer, and adjustments will be made by the Engineer.

(c) Permanent Marking Layout. Once the wearing course has been placed, the Engineer will establish the layout for the centerline permanent traffic markings, including passing zones, breaks for town highways and side roads, and any other items required for the centerline markings.

(d) Responsibility for Layout. The Contractor shall be responsible for the preservation of all stakes and markings, and shall replace any stakes or grades that are destroyed or disturbed. No claim shall be brought and no additional compensation will be paid on account of any alleged inaccuracies in the construction layout, including any additional layout that the Engineer may perform that is not covered in this Subsection, unless the Contractor notifies the Engineer of the inaccuracies in writing at least 24 hours prior to commencement of the work.

(e) Qualified Personnel. All other stakes, templates, and other materials, either in addition to or in replacement of the original set, which may be required for the construction operations, shall be furnished, set, and properly referenced by qualified personnel employed by the Contractor.

(f) Contractor Layout. The Contractor shall stake out the work and make known the immediate plan or procedure of the next work contemplated sufficiently in advance of construction to permit the Engineer to take the necessary measurements for the computation of quantities and to check the Contractor's layout. The Contractor shall lay out in a timely manner and maintain a sufficient number of grade stakes so the Engineer can monitor and regulate all portions of the Contract work.

(g) Cost. The cost of this work shall be considered as incidental to the project as a whole, and shall be included in the unit price bid for the Contract items involved.

105.10 AUTHORITY AND DUTIES OF RESIDENT ENGINEER (ENGINEER). As the direct representative of the Director of Program Development, the Resident Engineer on a project has immediate charge of the engineering details of the project; is responsible for the administration and satisfactory completion of the project(s); has the authority to reject defective material, to suspend any work that is being improperly performed, and to withhold payment until defective work has been corrected. The Resident Engineer, in the sole discretion of the Resident Engineer, also has the authority to suspend work, or specific aspects of the work, if necessary to address a concern for safety of the workers or traveling public, or a

serious environmental concern or violation. Notwithstanding any other provision of law, case law, regulation, or the Contract, no additional compensation shall be provided for any work suspensions of this sort.

105.11 AUTHORITY AND DUTIES OF INSPECTORS. Inspectors employed by the Agency are authorized to inspect all work done and materials furnished and to perform other duties as directed by the Engineer. Inspections can extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials used. An Inspector is not authorized to alter or waive the provisions of the Contract, to issue instructions contrary to the Contract Documents, or to act for the Contractor.

105.12 INSPECTION OF WORK.

(a) General; Contractor To Help Engineer. The Engineer or designated representative shall be allowed access to all parts of the work at all times and shall be furnished by the Contractor all information and assistance to be able to make a complete and detailed inspection The Contractor shall furnish such help as the Engineer desires and/or needs to ascertain whether or not the work is performed in accordance with the requirements and the intent of the Contract.

(b) Examination of Completed Work. If, before the acceptance of the work, the Engineer requests, the Contractor shall remove or uncover portion(s) of the finished work as the Engineer may direct. After the examination, the Contractor shall restore the portion of the work to the standard required by the Contract. If the work thus exposed or examined proves acceptable, the expenses of uncovering or removing and replacing the parts removed shall be paid for as Extra Work as defined in Subsection 109.06; but if the work exposed or examined is unacceptable, the expenses of uncovering or removing and replacing the parts removed shall be borne by the Contractor.

(c) All Work Requires Supervision or Inspection. The Agency will not be required to pay for any work done or materials used without supervision or inspection by the Engineer or an Inspector. Supervision/inspection includes project, mill, plant, or shop inspection of any material furnished under the Contract.

(d) Inspection By Others. When any unit of government or of a public or private entity is to pay a portion of the cost of the work covered by the Contract, its respective representative(s) shall

have the right to inspect the work. Such inspection shall not make any entity a party to this Contract and shall not interfere with the rights of either party hereunder.

105.13 REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK.

(a) General. All work which does not conform to the requirements of the Contract will be considered unacceptable unless otherwise determined to be acceptable under the provisions of Subsection 105.04.

(b) Removal and Replacement of Unacceptable Work. Unacceptable work, whether the result of poor quality of work, use of defective materials, damage through carelessness or any other cause found to exist prior to the acceptance of the work, shall be removed immediately and replaced in an acceptable manner.

(c) All Work Must Be Authorized. Work shall be performed only with lines and grades having been provided by the Engineer. Work performed contrary to the instructions of the Engineer, beyond the lines shown on the Plans, or without authority will be considered unauthorized and no payment therefore will be made. Work so done may be ordered removed or replaced at the Contractor's expense.

(d) Failure To Comply With Order of Engineer. Upon failure by the Contractor to comply forthwith with any order of the Engineer communicated under the provisions of this Subsection, the Engineer will have authority to require unacceptable work to be remedied or removed and replaced and to require unauthorized work to be removed; in either case, the Engineer is authorized to deduct the costs from any monies due or to become due the Contractor.

(e) Responsibility for Agency Expense. Any expense incurred by the Agency in making removals, renewals, or repairs which the Contractor has failed or refused to make shall be paid for out of any monies due or which may become due the Contractor or may be charged against one or more Contract Bonds.

(f) No Compensation for Additional Time. No additional Contract time shall be warranted for any of the work described in this Subsection.

105.14 SUNDAY AND HOLIDAY WORK.

(a) Sundays. The Contractor shall not carry on construction operations on Sundays except as authorized by the Engineer.

(b) Holidays. If the Contractor's operations are of such a nature, the project is so located, or traffic is of such volume that the Engineer deems it expedient to do so, the Engineer may require the Contractor to cease construction operations on holidays, the day before if a holiday falls on Tuesday, and the day after if a holiday falls on Friday,

(c) Application. The limitations in this Subsection shall not apply for the purposes of maintenance, emergency repairs, and proper protection of the work, including but not limited to the curing of concrete and the repair and servicing of equipment.

(d) Other Provisions Not Affected. The above limitations shall not relieve the Contractor of any responsibility for the work involved as set forth in Subsections 105.06, 107.18, or elsewhere in the Contract.

105.15 CONVICT LABOR. No incarcerated convict labor shall be employed on the project.

105.16 LOAD RESTRICTIONS.

(a) General. The Contractor and all subcontractors and suppliers shall comply with all legal load restrictions specified in Title 23 VSA § 1392 in the hauling of equipment or material on public roads beyond the limits of the project. The application for and possession of a hauling permit will not relieve the Contractor of liability for any damage that results from use or the moving of equipment and vehicles.

(b) Limitations or Use of Equipment and Vehicles. The operation of equipment and vehicles of such mass (weight) or loaded so as to cause damage to structures, the roadway, or to any other type of construction shall not be allowed. Hauling materials over the base course, surface course, or structure during construction shall be limited and allowed only as directed. No loads will be permitted on a concrete pavement, cement treated base course, or concrete structure prior to expiration of the curing period and until the concrete reaches its specified 28-day compressive strength. No vehicle or equipment exceeding the load

restrictions cited in Title 23 VSA § 1392 shall be allowed on a structure. The Contractor shall be responsible for all damage done by the Contractor's equipment and vehicles.

(c) Speed Prior to Wearing Surface; Expansion Joints On Structures. Prior to placement of the wearing surface, vehicle travel speed over any structure shall not exceed 15 km/h (10 miles per hour); an acceptable transition ramp shall be constructed at any expansion joint that projects above the travel surface.

(d) Penalty and Reduction for Overweight Operation. Each vehicle entering or leaving the project limits must be within the legal load limit or the load limit imposed by a current overload permit for the roadways and structures. Should any vehicle not meet these requirements, in addition to the appropriate penalty under Title 23 V.S.A. § 1391a, the difference in mass (weight) between the legal load limit and the gross vehicle mass (weight) shall be converted to the appropriate measurement quantity for the item involved and treble this amount shall be deducted from the quantity of the item to be paid the Contractor. The Contractor shall not deduct this amount from the payment to its trucking subcontractor(s)/supplier(s).

(e) Provision of Overweight Permit Copies. The Contractor shall provide copies of overweight permits to the Engineer prior to the commencement of hauling. Copies of permits provided after hauling has begun will not be considered to be in effect for the project prior to the time that the Engineer receives the copy.

(f) Provision of Tare Masses(Weight). The Contractor shall provide the Engineer with tare masses (weights) for all vehicles carrying or delivering materials to be used on a project. A tare mass (weight) shall be the mass (weight) of the unloaded vehicle with full fuel tank and water tank as applicable.

(g) Application to All Vehicles Used for Project. These requirements, including the overload reduction, shall apply to the Contractor's vehicles as well as all other vehicles used in conjunction with the construction of this project, including the vehicles of subcontractors and suppliers.

105.17 MAINTENANCE OF PROJECT DURING CONSTRUCTION.

(a) General. The Contractor shall maintain the work during construction and until the work is finally accepted. This maintenance shall constitute continuous and effective performance of the work day by day with adequate equipment and forces so that the roadway, structures, or other portions of the project are kept in satisfactory condition at all times.

(b) Costs. All cost of maintenance work during construction and before acceptance of the work shall be included in the Contract unit prices for the various pay items, and the Contractor will not be paid an additional amount for such work.

(c) Maintenance During Shutdown. In the event the work is ordered shut down for failure to comply with the provisions of the Contract or for any other reason, the Contractor shall maintain the project as provided herein and provide such ingress and egress for local residents as necessary during the period of shutdown.

105.18 FAILURE TO MAINTAIN PROJECT; COST. Failure on the part of the Contractor to properly maintain the work will result in the Engineer immediately notifying the Contractor to comply with the required maintenance provisions. If, after receipt of such notice, the Contractor fails to remedy the situation to the Engineer's satisfaction, the Engineer will proceed with adequate forces and equipment to maintain the project; the cost of this maintenance will be deducted from monies due or which may become due the Contractor under the Contract.

105.19 FINAL ACCEPTANCE AND FINAL INSPECTION.

(a) General. None of the work shall be accepted until all of the work required by the Contract has been satisfactorily completed.

(b) Procedure. Upon notice from the Contractor of presumptive completion of the project, the Engineer will arrange a date for inspection of the work. If all construction provided for and contemplated by the Contract is found to be completed, the Contractor will be informed in writing immediately following the inspection that the Acceptance Date is the date of the inspection of the project; should any of the work be found unsatisfactory or incomplete, instructions for corrective action will be issued in writing. As soon as the deficiencies have been corrected to the satisfaction of the Engineer, notification will be

made in writing to the Contractor establishing the Acceptance Date.

105.20 CLAIMS FOR ADJUSTMENT.

(a) General. If the Contractor believes additional compensation is due for work or materials not clearly covered by the Contract, for encountering conditions substantially different than represented by the Contract, or for work and materials not ordered by the Engineer as an extra as defined herein, the Contractor shall notify the Engineer in writing of the specific intention to make a claim for such additional compensation prior to beginning the work on which the claim will be based. If such notification is not provided and the Engineer not afforded proper "notice of intent" by the Contractor, the Contractor hereby waives any claim for additional compensation.

(b) Contractor's Obligation. Upon providing the notice of intent, the Project Superintendent shall commence daily records for all labor hours, equipment hours (idle and operating), and materials involved with the work under contention, and the Superintendent shall submit the daily record to the Engineer. These records will be used to evaluate the claim, if necessary, at a later date.

(c) Procedure. Written notification of a claim by the Contractor or the fact that the Engineer has documented an accurate account of a claim shall not be construed as proving the validity of the claim. Claims must be judged by the Construction Engineer. Should a claim be judged in favor of the Contractor, it will be allowed and paid as provided in the Contract. Should a claim be denied by the Construction Engineer, the Contractor may appeal to the Director of Program Development.

(d) Appeal to the Director of Program Development. Appeals will be judged by the Director of Program Development. Should an appeal be judged in favor of the Contractor, it will be allowed and paid as provided in the Contract. Should a claim be denied by the Director of Program Development, the Contractor may appeal under Subsection 105.02.

(e) Time for Claims; Appeals. Notwithstanding any other provision of law, case law, regulation, or the Contract, all claims by the Contractor shall be submitted in writing within 90 calendar days after the Acceptance Date of the project or within 90 calendar days of the notification in writing of the specific intention to

make a claim, whichever occurs first, and not thereafter. However, if the disputed work lasts more than 90 days after such notification, the Contractor shall submit a request to extend this period prior to the expiration of the 90 days, and shall make additional requests as necessary, until the work has been completed. Notwithstanding any other provision of law, case law, regulation, or the Contract, an appeal from the decision of the Construction Engineer shall be made within 30 calendar days of denial, and not thereafter.

(f) Mediation; Cost. If the Contractor appeals a decision by the Director pursuant to Subsection 105.02, prior to the Transportation Board hearing the claim, the Agency and the Contractor may agree to submit the claim to mediation before a mediator acceptable to both parties. The costs of mediation shall be shared equally by the Agency and the Contractor.

105.21 PAYROLLS.

(a) General. The Contractor shall maintain and make available payroll records as required in the Contract. This requirement shall also apply to the work of any subcontractor having a subcontract for any part of the work performed on the job. Any costs associated with this work will not be paid for directly, but will be considered incidental to the Contract pay items.

(b) Examination, Authority. The Contractor hereby authorizes the Engineer or the Engineer's authorized representative to examine the Contractor's orders for construction workers on file with the local employment office of the Vermont Department of Employment and Training.

105.22 ENVIRONMENTAL PROTECTION. The Contractor shall perform all project related operations so as to give adequate protection to the natural and cultural resources of the State.

The Contractor shall conduct the work in conformance with all regulations and permit conditions applicable to the project. If additional permits are required, or if the Contractor proposes to perform the work differently than the manner provided in the Contract, the Contractor shall obtain approval from the appropriate regulating entities prior to performing the work. The costs associated with obtaining and complying with permits required to perform the work will not be paid for directly, but will be considered incidental to the Contract pay items.

105.23 EROSION PREVENTION AND SEDIMENT CONTROL.

(a) Submission of Plans. At the preconstruction conference or prior to the start of applicable construction, the Contractor shall submit a plan in writing for the prevention of erosion and control of sedimentation and pollution on the project and on associated access roads, material waste and borrow areas, and staging areas. No work shall be started until the plan has been approved by the Engineer.

(b) Erosion Prevention and Sediment Control Measures. Erosion prevention and sediment control measures shall be installed and maintained in conformance with the Contract. Unless otherwise specified in the Contract, this work shall be performed as described in this Section.

(c) Engineer's Authority; General. The Engineer has authority to limit the surface area of erodible earth material exposed by excavation, borrow, and fill operations and to direct the Contractor to provide immediate permanent or temporary erosion prevention and sediment control measures to minimize adverse effects on resources. Such work may include the construction of berms, dikes, dams, sediment basins, slope drains and use of mulches, mats, seeding, or other control devices or methods as necessary to control or prevent erosion and siltation. As the earthwork proceeds, slopes shall be graded to finish grade whenever practical and all disturbed areas shall be stabilized by seeding and mulching or other acceptable methods within 48 hours of disturbance.

(d) Temporary and Permanent Erosion Prevention and Sediment Control. As shall be specified in the approved Erosion Prevention and Sediment Control Plan, the Contractor shall incorporate all temporary and permanent erosion prevention and sediment control measures into the project at the earliest reasonable time. Temporary erosion prevention and sediment control measures shall be used to prevent erosion and to correct conditions that develop during construction prior to installation of permanent measures; this may include work outside the right-of-way and/or defined project limits. When work outside the right-of-way or defined project limits is required, a property release form must be executed to allow access to the specific property and the area must be reviewed by the VAOT Environmental Section for adverse effects on cultural and natural resources.

(e) Erosion; Clearing and Grubbing. Where erosion is likely to occur and project conditions permit, clearing and grubbing shall be scheduled and performed so that grading operations and the installation of permanent erosion prevention and sediment control measures may be performed immediately thereafter; otherwise temporary erosion prevention and sediment control measures shall be required between successive construction stages.

(f) Limiting Operations. The Engineer may limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent erosion prevention and sediment control measures current in accordance with the approved Erosion Prevention and Sediment Control Plan. Without prior approval by the Engineer the amount of surface area of erodible earth material exposed at one time within the project limits shall not exceed 2 ha (5 acres).

(g) Conflicts. In the event of conflict between the requirements of this Subsection and those of Federal, State, or local agencies, the more restrictive provision(s) shall apply as determined by the Engineer.

(h) Suspension of Operations. If construction operations are suspended, the excavation and embankment areas shall be stabilized. If permanent stabilization is not possible, exposed areas shall be shaped and then covered with mulch or matting in order that water runoff will be intercepted and diverted to locations where the least amount of erosion will result. During a suspension of construction operations, the Contractor shall act immediately to correct any deficiencies that develop with the erosion prevention and sediment control measures and/or stabilized areas.

(i) Maintenance of Temporary Erosion Prevention and Sediment Control Measures. Temporary erosion prevention and sediment control measures shall be installed and acceptably maintained until both the permanent drainage facilities have been constructed and vegetation has been established throughout the project.

(j) Limits on Use of Mechanized Equipment. Unless otherwise approved in writing and permitted by the appropriate Federal or State regulating authority, mechanized equipment shall not be operated in flowing streams except as required and permitted to construct changes in the channel and permanent or temporary structures. Rivers, streams, and impoundments shall, as soon as construction will allow, be cleared of all falsework, piling, and debris caused by construction operations.

(k) Water Quality. Any construction activity in or adjacent to rivers, streams, brooks, creeks, lakes, ponds, reservoirs, wetlands, and any other regulated surface water shall not cause the average downstream water quality values to fall outside the classification limits specified in the Vermont Water Quality Standards. Should the Contractor desire a variance from the Vermont Water Quality Standards, the Contractor must obtain a 1272 Permit (Regulation of Activity Causing Discharge - Title 10 VSA § 1272) from the Agency of Natural Resources. When work in a river, stream, brook, creek, lake, pond, reservoir, wetland, or any other regulated surface water is prohibited, such work will be allowed only if the Contractor obtains a 1272 Permit for such work.

(l) Access Roads. Access roads will not be constructed without the approval of the Engineer. Access roads shall have proper erosion prevention and sediment control measures. All access roads shall be restored to their original condition unless a permit allows for a permanent change from that condition.

105.24 POLLUTION CONTROL.

(a) General. The Contractor shall exercise every reasonable precaution to prevent pollution of the waters of the State. Pollutants, including but not limited to chemicals, paints, fuels, lubricants, bitumens, raw sewage, sediment or sediment laden water, and other waste, shall not be discharged into or alongside the waters of the State or into natural or constructed channels leading thereto. The Contractor shall comply with applicable statutes and regulations relating to the prevention and abatement of pollution.

(b) Bridge Operations. When bridge painting, cleaning, cutting, welding, or grinding operations are in progress, the Contractor shall utilize containment devices to retain all materials which are generated. All waste materials generated that contain lead, zinc,

or other hazardous materials shall be disposed of appropriately as hazardous waste.

(c) Coated/Treated Materials. The Contractor shall comply with all air, ground, and water pollution control, health, and transportation regulations when cleaning, handling, moving, repainting, cutting, welding, sanding, or grinding any coated or treated materials.

(d) Noise and Air Pollution. The Contractor shall employ standard methods to minimize noise and air pollution occurring in conjunction with and as a result of construction operations, including, but not limited to, clearing, grubbing, drilling, blasting, excavation, and hauling operations. The method(s) employed shall be acceptable to the Engineer and compatible with the location of the work. The burning of tires or other manufactured products is prohibited.

(e) Hazardous Materials and Waste. The Contractor shall provide documentation to the Engineer that any generated hazardous waste and any hazardous materials and waste found were disposed of in conformance with all applicable regulations governing the handling, transporting, and disposal of such materials and waste.

105.25 CONTROL OF WASTE, BORROW, AND STAGING AREAS.

(a) Definitions.

(1) Waste areas are those areas where excess material or materials unsuitable for construction are disposed.

(2) Borrow areas are all borrow pits, gravel pits, quarries, sand pits, and similar sources of materials used in the construction of the project.

(3) Staging areas are any areas that the Contractor uses for storage of materials and equipment or for general use for Contract operations.

(b) Permits and Clearances. Waste, borrow, and staging areas are necessary adjuncts to a VAOT construction project. The Contractor and/or the property owner shall be required to obtain all necessary permits and clearances, and specifically in accordance with Title 10 VSA Chapter 151 (Act 250), if

applicable, prior to opening or using an area for an Agency project.

(c) Establishment of Waste, Borrow, and Staging Areas. To establish a waste, borrow, or staging area, the Contractor shall submit a completed Waste, Borrow, and Staging application package to the Engineer (application packages are available from the VAOT Environmental Section). The application must be completed and should be submitted at least twenty-one calendar days prior to the planned utilization of the area. All proposed waste, borrow, and staging areas will be reviewed by the VAOT Environmental Section for effects on cultural and natural resources. If the proposal includes the initial disturbance of soil in an area or the wasting of erodible materials, the Construction Environmental Engineer must also approve a site specific Erosion Prevention and Sediment Control Plan prior to the use of such an area.

(d) Required Approval. The Contractor shall not perform any preparatory work or make use of a waste, borrow, or staging area until approval is obtained in writing from the Engineer.

(e) Unpermitted Areas. If a proposed waste, borrow, or staging area does not have a permit as provided in part (b) above, the application must state the length of time the area has been operating and the annual rates of disposal, extraction, or use for the last five years.

105.26 OPENING WASTE, BORROW, AND STAGING AREAS. Prior to issuing approval, the Engineer shall be satisfied that the area and its operation are approved in accordance with all project permits and:

(a) Will not seriously hurt or impair the rights of any adjacent property owner;

(b) Will not result in undue water or air pollution;

(c) The final shape, slope, and contour of the land in and about the area will not be undesirable aesthetically or as it relates to drainage;

(d) Will not cause unreasonable soil erosion or reduction in the capacity of the surrounding land to hold water in order that a dangerous or unhealthy condition may result;

(e) Will not have an undue, adverse effect on the scenic or natural beauty of the area's aesthetics, historic sites, or rare and irreplaceable natural areas;

(f) Is consistent with any duly adopted development plan, land use plan or land capability plan, whether site specific, local, or regional;.

(g) The entrance is at the most desirable angle or perspective from any nearby highways, residences, and other facilities;

(h) The Contractor will remove, stockpile, and preserve topsoil, sod, and other suitable material from the surface of the area prior to proceeding with other operations; and

(i) The Contractor has all erosion prevention and sediment control measures, as indicated in the approved Erosion Prevention and Sediment Control Plan, in place prior to use of the area.

105.27 MAINTAINING WASTE, BORROW, AND STAGING AREAS.

(a) General. The Contractor shall conduct waste, borrow, and staging area operations so as to maintain a minimum of air pollution. The Contractor shall keep in a condition acceptable to the Engineer the portions of an area where a pit or pits have been opened and shall maintain all access roads with sufficient dust control and proper drainage to prevent damage to adjacent properties. Area operations shall be restricted to normal working hours except with the express written approval of the Engineer and shall be in accordance with all permit conditions.

(b) Area Erosion Prevention and Sediment Control Measures. Installation and maintenance of erosion prevention and sediment control measures at waste, borrow, and staging areas shall be consistent with the approved Erosion Prevention and Sediment Control Plan for the specific area. The On Site Coordinator shall review these areas if and as required in the Contract.

105.28 CLOSING WASTE, BORROW, AND STAGING AREAS. With the exception of those areas which will remain open for commercial use, prior to abandoning or closing any area on which the Contractor has completed operations, the Contractor shall 1) shape the entire area to leave banks in a neat and presentable condition, properly and thoroughly graded and drained and 2) establish vegetation on all disturbed areas. All stones,

boulders, stumps, and debris shall be removed or satisfactorily disposed of. Slopes shall not be left steeper than 1:1.5 (vertical:horizontal). The tops of slopes and toes of slopes shall be neatly rounded. After grading the slopes and surfaces of the area, the stockpiled sod, topsoil, and other stripped material shall be evenly spread over the surface of the area. The complete area shall be seeded and mulched in accordance with Section 651. The Contractor shall place screens of trees and/or other vegetation, berms, or embankments where necessary to conceal the undesirable features of a waste, borrow, or staging area.

The Contractor shall have the written approval of the Engineer prior to completely abandoning or closing any waste, borrow, or staging area.

105.29 PAYMENT FOR EROSION PREVENTION AND SEDIMENT CONTROL.

(a) General.

Unless otherwise indicated in the Contract, all materials, installation, monitoring, maintenance and, where necessary, removal for those erosion prevention and sediment control measures that are items in the Contract will be paid for at the appropriate Contract unit price bid.

Unless otherwise indicated in the Contract, all materials, installation, monitoring, maintenance and, where necessary, removal for those erosion prevention and sediment control measures required by the Plans and/or the Engineer that are not items in the Contract will not be paid for directly, but will be considered incidental to all other Contract items.

Environmental protection work in connection with erosion prevention and sediment control for the opening, maintaining, and closing of waste, borrow, and staging areas and pollution control measures will not be paid for directly, but will be considered incidental to all Contract items.

Costs for damages to waste, borrow, and staging areas, to the owners thereof, or to adjacent property owners shall be the responsibility of the Contractor.

(b) Temporary Erosion Prevention and Sediment Control Measures. Required temporary erosion prevention and sediment control work not attributable to the Contractor’s negligence, carelessness, or failure to install permanent controls will be performed and paid for

as specified in part (a) of this Subsection or as ordered by the Engineer.

Temporary erosion prevention and sediment control measures required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the scheduled work or as ordered by the Engineer shall be performed by the Contractor at the Contractor's expense.

(c) Failure to Control Erosion, Pollution, or Siltation. In case of repeated failures by the Contractor to control erosion, pollution, or siltation, the Engineer may employ outside assistance or use State forces to provide the necessary corrective measures. Such incurred direct costs, plus project engineering costs, will be charged to the Contract and appropriate deductions made from any money or monies due or to become due the Contractor.

105.30 VALUE ENGINEERING.

(a) General. The intent of value engineering is to provide an incentive to the Contractor to initiate, develop, and present to the Engineer for consideration cost reduction proposals involving changes in the drawings, designs, specifications, or other requirements of the Contract. These provisions do not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.

The cost reduction proposals contemplated are those that would require a Supplemental Agreement modifying the Contract and would produce a savings to the Agency by providing less costly items or methods than those specified in the Contract and/or reducing future maintenance costs without impairing essential functions and characteristics such as service life, reliability, economy of operation, ease of maintenance, and necessary standardized features.

(b) Procedure.

(1) Value engineering proposals will be processed in the same manner as prescribed for any other alterations of the Contract that require a Supplemental Agreement. As a minimum, the following information shall be submitted by the Contractor with each proposal:

a. A statement that the proposal is being submitted as a value engineering proposal.

b. A description of the proposal.

c. An itemization of the requirements of the Contract that must be changed and a recommendation of how to make each change.

d. An estimate of the reduction in performance costs that will result from adoption of the proposal.

e. A prediction of any effects the proposed changes would have on other costs to the Agency, including environmental effects, traffic impacts and preventive measure costs.

f. A statement of the time by which an agreement for adoption of the proposal must be executed to obtain the maximum costs reduction during the remainder of the Contract and the reasoning for this time schedule.

g. A statement as to the effect the proposal would have on the time for the completion of the Contract.

(2) The Agency shall not be liable for any delay in acting upon any value engineering proposal submitted. The Contractor may withdraw in whole or in part any value engineering proposal not accepted within the period specified in the proposal. The decision of the Engineer as to the acceptance or rejection of value engineering proposals will be final and will not be subject to the provisions of Subsection 105.02 or 105.20. The Contractor will be notified in writing of the Engineer's decision to accept or reject each value engineering proposal submitted under the provisions of this Subsection.

(c) Accepted Proposals; Supplemental Agreement. If a proposal is accepted, the necessary Contract modifications will be effected by execution of a Supplemental Agreement which will provide for equitable price adjustments giving the Contractor and the Agency equal shares in net savings resulting therefrom. Unless and until a proposal is effected by such Contract modification, the Contractor shall remain obligated to perform in accordance with the terms of the existing Contract.

The Supplemental Agreement effecting the necessary Contract modifications shall establish the net savings agreed upon and shall provide for such adjustment in the Contract price as will divide the net savings equally between the Contractor and the Agency. All reasonably incurred costs of developing the cost reduction proposal and implementing the changes, including any increased costs to the Agency resulting from its application, will be deducted from the total estimated decrease in the Contractor's costs of performance to arrive at the net savings.

(d) Conditions; Compensation. The Agency reserves the right to include in the Supplemental Agreement any conditions it deems appropriate for consideration, approval, and implementation of the cost reduction proposal. The Contractor's 50 percent share of the final realized net savings shall constitute full compensation for effecting all changes pursuant to the Supplemental Agreement. Compensation shall be paid once the work associated with the value engineering proposal has been completed, and a Change in Design/Supplemental Agreement has been executed to compensate the Contractor for this work.

(e) Use of Information. Upon acceptance of a cost reduction proposal, any restrictions imposed by the Contractor on its use or on disclosure of the information submitted shall be void, and the Agency shall thereafter have the right to use, duplicate, and disclose in whole or in part any data necessary to the utilization of the proposal on this project or other projects.

(f) Time Savings. Any time savings realized by implementation of value engineering proposals may result in a corresponding adjustment in the Contract completion time. No incentive pay will be provided for early completion days resulting from time savings of any approved value engineering proposals.

SECTION 106 - CONTROL OF MATERIAL

106.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS. The material used in the work shall meet quality requirements of the Contract. In order to expedite the inspection and testing of materials, the Contractor shall notify the Engineer of the proposed sources of materials at least 96 hours prior to delivery.

At the option of the Engineer, materials may be approved at the source of supply before delivery is started. If it is found during acceptance that supplied materials from previously approved sources do not meet specifications, the Contractor shall take action to supply materials that meet specifications.

106.02 LOCAL MATERIAL SOURCES. The Contractor shall determine potential sources of material and the amount of equipment and work required to produce material meeting the specifications. The Agency's Geologist maintains a list of material sources that have previously produced materials meeting specifications. Exploration for new material sources will be the responsibility of the Contractor. The ability to purchase from the owner(s) of the source(s) and the quality of the material are not guaranteed by the Agency. The Contractor acknowledges that it is not possible to ascertain from samples the limits of a deposit and that variations in quality in a material source are normal and to be expected. The Engineer may order procurement of material from any portion of a material source and may reject portions of the material sources as unacceptable.

It shall be the responsibility of the Contractor to acquire the right to take materials from any source together with the right to use such property as required for whatever purpose, including plant sites, stockpiles, and hauling roads. The Contractor shall pay all costs related thereto together with any costs resulting from exploring and developing these sources.

106.03 SAMPLES AND TESTS. All materials will be inspected, sampled, tested or accepted by the Engineer as incorporated into the work. Under any applicable Quality Acceptance (QA) specifications, the Contractor shall perform all Process Quality Control testing with the Engineer performing all Quality Acceptance testing. Any work in which untested and/or unaccepted materials are used without the approval or written permission of the Engineer shall be performed at the Contractor's risk. Any work determined to be unacceptable and unauthorized will not be paid for. All testing will conform to the most recent cited standard methods of AASHTO or ASTM, including AASHTO Provisional Specifications or the ASTM Tentative Specifications that are current on the date of the advertisement for bids, unless otherwise specified. In the case of conflict

between the ASTM and the AASHTO methods of sampling and testing, the AASHTO method shall govern. When modified AASHTO or ASTM test methods or Vermont Agency of Transportation test methods are designated, the test method will be available at the office of the Agency's Materials and Research Section. Tests for compliance with specification requirements will be made by and at the expense of the Agency.

Samples will be taken by authorized representatives of the Agency in accordance with the requirements of the latest edition of the Agency's Materials Sampling Manual. The Contractor shall provide such facilities, as specified in these Specifications, or as the Engineer may require, for collecting and/or forwarding samples. In all cases, the Contractor shall furnish the required samples without charge.

All materials used are subject to inspection, testing, and acceptance/rejection at any time during the Contract period. Materials contaminated by the Contractor's operations shall be removed. No work or materials shall be deemed approved until accepted by the Engineer. Copies of all test results will be furnished to the Contractor's representative upon request.

In lieu of testing, the Agency may approve the use of certain materials based upon the receipt of a certification from the manufacturer stating that such material is in compliance with these Specifications. The requirements for such certifications are specified in Subsection 700.02.

Bituminous materials designated for acceptance under QA provisions will be randomly sampled and tested in accordance with the recommended acceptance guidelines specified for the applicable Contract item. Samples may also be taken any time the material appears defective or when the Engineer determines that a change in the process or product has occurred. Acceptance tests will govern in all cases for determination of pay factors without regard to quality control tests.

(a) The Contractor shall provide Process Quality Control adequate to produce work of acceptable quality. The Contractor shall perform Process Quality Control sampling, testing, and inspection during all phases of the work at a rate sufficient to assure that the work conforms to the Contract requirements and the minimum guidelines specified.

The Engineer will not sample or test for Process Quality Control or assist in controlling the Contractor's production operations. The Contractor shall provide personnel and testing equipment capable of providing a product which conforms to specified

requirements. Continual production of non-conforming work at a reduced price, in lieu of adjustments to bring work into conformance, shall not be allowed.

(1) The Contractor shall provide and maintain a Process Quality Control Plan, hereinafter referred to as the "Plan", including all the personnel, equipment, supplies, and facilities necessary to obtain samples, perform tests, and otherwise control the quality of the product to meet specified requirements.

The Contractor shall be prepared to present and discuss, at the preconstruction conference, quality control responsibilities for the specific Contract items. The Contractor shall submit the Plan to the Engineer for approval/rejection, at least ten (10) working days prior to the start of related work. The Contractor shall not start work on the subject items without an approved Plan.

The approval process for the Contractor's Plan may include inspection of testing equipment and a sampling and testing demonstration by the Contractor's technician(s) to assure an acceptable level of performance.

(2) All Contractor Process Quality Control testing under the Plan shall be performed by qualified technicians in laboratories approved by the Materials and Research Engineer. Technician qualifications shall be as described in the specifications for the Contract item being accepted.

Laboratory facilities shall be kept clean and all equipment shall be maintained in proper working condition. Major pieces of equipment shall be calibrated and/or verified in accordance with the schedule provided by Subsection 106.03(b)(4). Records indicating equipment condition and calibration status shall be maintained in the laboratory. The Engineer shall be permitted unrestricted access to inspect and review the Contractor's laboratory facility. The Engineer will advise the Contractor of any noted deficiencies concerning the laboratory facility, equipment, supplies, or testing personnel and

procedures. Deficiencies shall be grounds for the Engineer to order an immediate stop to incorporating materials into the work until deficiencies are corrected.

(3) The Plan shall be administered by a qualified individual. Administrator qualifications shall be as described in the specifications for the Contract item(s) being accepted.

The individual administering the Plan must be a full-time employee of, or a consultant engaged by, the Contractor. The individual shall have full authority to institute any and all actions necessary for the successful operation of the Plan.

(4) The Plan shall contain a system for sampling that assures all material being produced has an equal chance of being selected for testing. The Engineer shall be provided the opportunity to witness all sampling.

When directed by the Engineer, the Contractor shall sample and test any material which appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or the resulting deficiency otherwise corrected by the Contractor. All sampling and testing shall be in accordance with Agency, AASHTO, or ASTM procedures.

(5) All testing shall be performed in accordance with the acceptance test procedures applicable to the specified Contract items or other methods specified in the approved Plan. Should acceptance test procedures not be applicable to quality control tests, the Plan shall stipulate the test procedures to be utilized. Upon request, the Contractor shall provide copies of all test results on forms meeting the approval of the Engineer.

(6) The Contractor shall maintain complete records of all Process Quality Control tests and inspections. Quality control tests that are initiated but not run to completion shall be incorporated into the records with all available information that was derived. The records shall be available to the Engineer for review and copies furnished upon request. A complete set of all such

documents shall be provided upon completion of the Contract.

Control Charts acceptable to the Engineer shall be maintained and kept current at a location satisfactory to the Engineer. At a minimum, the Control Charts shall identify the project number, the Contract item number, the test number(s), each test parameter, the upper and lower specification limit applicable to each test parameter and the Contractor's test results.

The Contractor shall include the Control Charts as part of a Process Quality Control System. The charts shall be used for identifying production and equipment problems and for identifying aspects which could result in pay factor reductions before they occur. Trigger mechanisms for corrective action and suspension of operations must be identified.

(7) The Engineer may suspend associated construction or production operations at any time that the Plan is not being followed by the Contractor.

(8) Under such conditions where two sub-lot test results indicate that the lot will result in a sub-par Percent Within Limits (PWL), the Contractor may request that a third test, herein termed a "lot/day termination test," be taken. After performing a lot/day termination test, all production operations shall immediately be terminated for that day. The Contractor shall secure the Engineer's approval and concurrence prior to performing said test. This test shall not be cause for switching to "low production activities" as specified in Subsection 106.03(a)(9).

(9) Upon 24 hours advance request and subsequent approval by the Engineer, the Contractor may perform production activities outside of the requirements of the Plan in the instance those activities involve "low production activities". For the purpose of this Section, low production activities are defined as those not associated with mainline activities and up to a maximum daily production of 300 metric tons (tons) of bituminous mixture.

Materials being produced for low production activities will be tested under the "method spec" provisions of materials testing and control of mixtures and shall comply with all applicable specifications for the mix type being produced.

(b) Items specified to be sampled and tested for QA purposes will be evaluated for acceptance in accordance with the guidelines specified for those Contract items. All acceptance test results for a lot, as defined in the specification, will be analyzed collectively and statistically by the Quality Level Analysis – "Percent Within Limits" Method using the procedures listed to determine the total estimated percent of the lot that is within specification limits. Quality Level Analysis – "Percent Within Limits" is a statistical procedure for estimating the percent compliance with a specification and is affected by shifts in the arithmetic mean ($\bar{X}$) of the test results and by the sample standard deviation (s).

(1) If less than three samples have been obtained at the time a lot is terminated, the material in the shortened lot will be included as a part of an adjacent lot and a pay factor computed for the combined lots. Generally, this involves combining the shortened day's results with a subsequent day's test results.

However, if this occurs on the last day of production, these results will be combined with the most recent day's lot results for a revised determination.

(2) The Engineer may reject material which appears to be obviously defective based on visual inspection. Such rejected material shall not be used in the work.

(3) Quality Level Analysis – "Percent Within Limits" procedures are defined as follows:

a. Compute the upper quality index (Q_u):

$$Q_u = \frac{USL - \bar{X}}{s}$$

Where USL = upper specification limit

$\bar{X}$ = arithmetic mean of the test results
s = sample standard deviation

b. Compute the lower quality index (Q_L):

$$Q_L = \frac{\bar{X} - LSL}{s}$$

Where LSL = lower specification limit

c. Determine PWL_U (percent within the upper specification limit which corresponds to a given Q_U) from references available through the Engineer.

Note: If a USL is not specified, PWL_U will be 100.

d. Determine PWL_L (percent within the lower specification limit which corresponds to a given Q_L) from references available through the Engineer.

Note: If a LSL is not specified, PWL_L will be 100.

e. Determine the PWL (total percent within specification limits).

$$PWL = PWL_U + PWL_L - 100$$

f. Determine the Pay Factor (PF) for the lot from the process or equation applicable to the specific Contract item.

g. Results from the above calculations shall be carried to significant figures and rounded according to the following procedures:

1. Significant Figures:

-Report all standard deviation calculations to 0.01

-Report all pay factor calculations to 0.1%
-Use “precision as displayed” option when using “Excel” spreadsheets

2. Rounding: The use of AASHTO “rounding rule D” shall be discontinued and the following procedure used:

When Rounding: If the first number to the right of the number to be rounded is greater than or equal to 5, then the number is rounded up to the next highest number. If the number to be rounded is less than 5, then the number remains the same.

Example: Round to 1 decimal (1.0)

5.35 would round to 5.4
5.34 would round to 5.3

(4) Bituminous Concrete Lab Calibration / Verification Procedures:

This subpart provides a summary of procedures for both required internal laboratory calibration and verification and required external (independent) laboratory calibration services.

INTERNAL CALIBRATIONS / VERIFICATIONS
PROCEDURES LISTING

VAOT Number	Calibration (C) / Verification (V) Item	Frequency (months)
4	General Purpose Drying Oven (V)	12
10	Temperature Measuring Devices (V)	6
10c	Temperature Measuring Devices - ASTM E 1, E 77, E 230 (C)	6
10f	Temperature Measuring Devices - Reference ASTM E 1, E 77, E 230 (C)	6
11	Sieves (V)	6
20	Marshall Compaction Molds – AASHTO T 245 (V)	12
21	Superpave Gyratory Compaction Molds and Gyratory Compactor – AASHTO T 312 (V)	6
22	Sand Equivalent Test – AASHTO T 176 (V)	12
23	Vacuum System – AASHTO T 209 (V)	12
32	Timers	6
45	Mechanical Sieve Shaker (C)	12
54m	Marshall Stability / Flow Apparatus – AASHTO T245 (C)	12
58	Marshall Molds, Manual Hammer, Breaking Heads, Pedestal – AASHTO T 245 (V)	12

EXTERNAL CALIBRATION REQUIREMENTS

VAOT Number	Verification (V) / Calibration (C) Item	Frequency (months)
TBD	Scales, Balances	12

For the purposes of this Subsection, calibrations are performed on equipment that can be adjusted into compliance. Verifications are completed on fixed condition equipment or equipment that requires outside calibration (typically by a manufacturer or calibration service). Laboratory records that include the date, service person, equipment calibrated or verified, procedure used for calibration and/or verification, and equipment condition shall be maintained in the laboratory. Equipment determined unsuitable for use will be marked "out of service". Tests performed on equipment marginally meeting specifications shall include a note on the results sheet indicating such condition.

Example calibration/verification procedures noted above are available from the Agency's Materials and Research Section. Alternate procedures approved in advance by the Materials and Research Engineer are allowable and anticipated.

106.04 PLANT INSPECTION. The Engineer may undertake the inspection of materials at the source.
In the event plant inspection is undertaken the following conditions shall be met:

(a) The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

(b) The Engineer shall have full entry at all times to such parts of the plant as may concern the manufacture or production of the materials being furnished.

(c) When required by the Contract, the Contractor shall arrange for an approved building or trailer with the necessary equipment for testing for the use of the Inspector; such building or trailer shall be located conveniently near the plant.

(d) Adequate safety measures shall be provided and maintained.

The Agency reserves the right to retest all materials that have been tested and accepted at the source of supply prior to incorporation into the work after delivery and to reject all materials that do not meet the requirements of the Contract when retested.

106.05 STORAGE OF MATERIALS. Materials shall be stored so as to ensure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may be inspected prior to their use in the work; they shall meet the requirements of the Contract at the time of use. Stored materials shall be located so as to facilitate inspection. Upon approval, portions of the right-of-way not required for public travel may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefore shall be at the Contractor's expense. Private property shall not be used for storage purposes without written permission of the owner and/or lessee. All storage sites shall be restored to their original condition at the Contractor's expense; this shall not apply to the stripping and storing of topsoil, or to other materials salvaged from the work or specifically prescribed in the Contract.

106.06 HANDLING MATERIALS. All materials shall be handled so as to preserve their quality and fitness for the work.

106.07 UNACCEPTABLE MATERIALS. At the discretion of the Engineer, all materials not in conformance with the requirements of the Contract shall be considered unacceptable and all such materials, whether in place or not, shall be rejected and removed immediately from the site of the work unless otherwise instructed by the Engineer. Rejected materials that have been subsequently corrected shall not be used unless and until approval has been given.

106.08 EXPLOSIVE AND FLAMMABLE MATERIALS. The Contractor's attention is directed to the provisions of the Vermont Statutes Annotated as amended which (1) authorize the State Fire Marshal to make, publish, enforce, and from time to time to alter, amend, or repeal rules and

regulations pertaining to fire prevention and public safety concerning the safekeeping, storage, use, manufacture, sale, handling, transportation, or other disposition of blank cartridges, gun powder, dynamite, nitroglycerine, crude petroleum or any of its products including liquefied petroleum gas, explosives, flammable gases and flammable fluids, compounds or tablets, any other explosive, or any substance that may spontaneously or acting under the influence of any contiguous chemical or physical agent ignite, inflame, or generate inflammable or explosive vapors or gases to a dangerous extent, and (2) may prescribe the location, materials, and construction of buildings and other facilities to be used for storage of such products. Attention is further directed to the regulations applying to explosives while being transported by carriers in motor vehicles, railroad cars, or vessels in conformity with the regulations adopted by the US Department of Transportation, the US Coast Guard, or the Secretary of Transportation under the provisions of Title 5 VSA § 2001 and Subsection 107.11.

106.09 STOCKPILING OF MATERIALS.

(a) Ordering Materials; Stockpiling Authority. The Contractor is urged to place orders for materials with producers and suppliers as early as practical so that delays may be kept to a minimum.

The Contractor may submit a written request to the Agency to pay for stockpiled material.

The Engineer may authorize payment for the Contractor's cost of materials, including freight.

The Agency may deny any and all requests to stockpile materials and to make stockpile payments.

(b) Request and Procedure; Criteria. To request stockpiling, the Contractor shall submit the following for consideration by the Agency:

1. Listing of material(s) by specific Contract pay item and quantity to be stockpiled;

2. Invoice for all materials, or a receipt for delivery;

3. Drafts of documents that show that ownership of the material(s), without encumbrances, will be in the name of the Contractor and will be for the benefit of the Agency;

4. Appropriate certifications and/or passing samples as required for the specific material(s);
5. Statement that the material shall be clearly marked so as to easily identify the project in which the material will be incorporated and shall be available for inspection by the Agency; and

6. The location where and condition(s) under which the material will be stockpiled.

The storage location and security of the stockpiled material(s) shall be the responsibility of the Contractor.

(c) Raw Materials. In addition to the criteria set out above for other materials, raw material stockpiles shall be approved by the Director of Program Development and meet the following additional criteria:

1. The various components of the finished product shall include all of the appropriate certifications, passing samples, passing tests, and any other documentation that may be required to certify that the materials are acceptable; and

2. Any other criteria the Engineer deems necessary to allow for payment.

(d) Cap; Payment to Supplier; Charge Back; Minimum to Stockpile. Payment will be made for the invoiced amount, not to exceed 75% of the total Contract bid amount for each specific item for which stockpiling is allowed; the quantity of stockpiled material shall not exceed the Contract quantity for the specific item. The Contractor shall furnish the paid invoice within 28 calendar days after the cutoff date for the estimate in which the stockpile amount is paid. If the Contractor fails to furnish the paid invoice within this time limit, the amount of the stockpile payment will be deducted from one or more subsequent payments. Under no circumstances shall stockpiling be allowed for an item with a Contract bid amount totaling less than $25,000.

The stockpile credit amount shall be reduced once installation of the item begins, and the reduction shall correspond with the installation and payment of the specific stockpiled item.

The Contractor may request an exception to the 75% cap; any such request shall be included in the original request for stockpile and shall include all information to support the request.

(e) Finished Product. Payment for stockpiled materials shall not relieve the Contractor from providing an acceptable finished product or from its responsibility for the condition of the materials as specified elsewhere in the Contract. Any defects, flaws, or poor craftsmanship shall be the responsibility of the Contractor and shall be corrected to the Agency's satisfaction at the Contractor's expense.

(f) Material or Energy Shortage. In the event that unreasonable delays or changes in the work occur as a result of a material or energy shortage, the Contractor shall notify the Agency in writing. If, in the opinion of the Director of Program Development, the Contractor's argument has merit, alternate methods of construction, substitution of materials, or an extension of time may be authorized.

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

107.01 LAWS TO BE OBSERVED.

(a) General; Defense and Indemnification. The Contractor shall observe and comply with all Federal and State laws and local bylaws, ordinances, and regulations in any manner affecting the conduct of the work and the action or operation of those engaged in the work, including all orders or decrees as exist at present and those which may be enacted later by bodies or tribunals having jurisdiction or authority over the work, and the Contractor shall defend, indemnify, and save harmless the State and all its officers, agents, and employees against any claim or liability arising from or based on the violation of any such law, bylaws, ordinances, regulations, order, or decree, whether by the Contractor in person, by the employees of the Contractor, or by a subcontractor or supplier.

(b) Contract Contrary. If the Contractor discovers any provisions in the Contract that are contrary to or inconsistent with any law, ordinance, regulation, order, or decree, the Contractor shall immediately report it to the Engineer in writing.

(c) U.S., VOSHA, and Environmental Protection Regulations. The Contractor's attention is directed to the various regulations

promulgated and enforced by the United States and VOSHA and the environmental protection agencies.

(d) Fair Employee Practices Act. The Contractor shall comply with all of the requirements of Title 21 VSA Chapter 5, subchapter 6, relating to fair employment practices to the extent applicable. A similar provision shall be included in any and all subcontracts.

(e) Hazardous Wastes. The Contractor's attention is directed to regulations regarding the management of hazardous wastes such as waste crankcase and hydraulic oils, and waste paint generated by construction operations (ref: Agency of Natural Resources' Department of Environmental Conservation and Title 10 VSA Chapter 159).

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

(g) Prompt Payment Act. The Contractor shall 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.

(h) Subcontractor Payments; Reporting; Violations; Inclusion In Subcontracts. 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/login.asp. Electronic reports shall be filed with the Agency Office of Civil Rights by an authorized representative and received in the Agency 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 Agency Office of Civil Rights. Manual reports shall be signed by an authorized representative, sent to the Agency 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 Agency Office of Civil Rights for review. Failure to resolve disputes in a timely manner may result in a complaint made to the Agency Pre-qualification Committee. In this Committee's judgment, appropriate penalties may be involved 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 if its subcontractors.

107.02 PERMITS, LICENSES, AND TAXES. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the lawful prosecution of the work.

107.03 PATENTED DEVICES, MATERIAL, AND PROCESSES. If any design, device, material, or process covered by letters of patent or copyright is used by the Contractor, whether required or not, the Contractor shall provide for such use by suitable legal agreement with the patentee or owner; a copy of this agreement shall be filed with the Agency. The Contractor and the Contractor's surety shall defend, indemnify, and save harmless the State, any affected third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material, or process, or any trademark or copyright, and shall indemnify the State for any costs, expenses, and damages including reasonable attorney's fees which it may be obliged to pay by reason of any infringement at any time during the prosecution or after the completion of the work.

107.04 FEDERAL-AID PROVISIONS. The Contractor acknowledges that pursuant to the provisions of Title 23 USC, and Acts amendatory thereto, as well as any and all other Federal legislation appropriating funds to the State, the Federal Government may pay a portion of the cost of this project. The above act of Congress provides that the construction work and labor on any Federal-Aid project in Vermont shall be done in accordance with its laws and under the direct supervision of the State of Vermont, Agency of Transportation, subject to the inspection and approval of the US Department of Transportation or appropriate Federal agency and in accordance with the rules and regulations made pursuant thereto. Therefore, the construction work will be subject to such inspection by the US Department of Transportation or appropriate Federal agency or its agent

as deemed necessary to meet the above requirements. Such inspection will in no sense make the Federal Government a party to this Contract and will in no way interfere with the rights of either party hereunder.

107.05 SANITARY PROVISIONS. The Contractor shall provide and maintain, in a neat and sanitary condition, such accommodations for the use of its employees as necessary to comply with the requirements and regulations of the State or local Boards of Health at no expense to the Agency.

107.06 PLANT PEST CONTROL REQUIREMENTS. Soil and soil moving equipment are subject to plant quarantine regulations. In general, these regulations provide for cleaning soil from equipment before it is moved from a project. Complete information may be secured from State or Federal plant pest control inspectors.

107.07 PUBLIC CONVENIENCE AND SAFETY.

(a) General. The Contractor shall conduct all work so as to ensure the least possible obstruction to traffic. The safety and convenience of the general public and the residents along the highway within the construction area and the protection of persons and property shall be provided for by the Contractor as specified in Subsection 104.04.

(b) Dust Control. The Contractor shall use all necessary dust control on haul road(s) and maintenance yard(s) in the same manner as required for materials sources and disposal areas in Subsection 105.27. Dust control on haul road(s) and maintenance yard(s) shall be performed in accordance with Section 609, and will not be paid for directly, but will be considered incidental to all other Contract items. The Contractor shall perform all dust control directed by the Engineer on the haul road(s) and/or maintenance yard(s); unless otherwise provided, dust control will not be paid for directly, but will be considered incidental to all other Contract items.

The Engineer will direct the use of all necessary dust control within the limits of the construction performed under the Contract. Under those contracts which contain pay items for dust control, the dust control within the construction area shall be performed in accordance with the requirements of Section 609 and will be paid for under the appropriate Contract item(s). Under those contracts which do not contain pay items for dust control, the necessary dust control shall be performed in

accordance with the requirements of Section 609 and the cost will not be paid for directly, but will be considered incidental to all other Contract items.

(c) Stored Materials. Materials stored within the construction area shall be placed so as to cause a minimum obstruction to the traveling public and snow removal operations.

(d) Fire Hydrants. Fire hydrants located within the construction area shall be kept accessible to fire apparatus at all times and no material or obstruction shall be placed within 4.5 m (15 feet) of any such hydrants.

(e) Adjoining Ways. Footways, gutters, drainage inlets, and portions of highways adjoining the roadway under construction shall be obstructed only when necessary.

(f) Lane Restrictions. When the total useable width of a traveled way will be decreased to 4.3 m (14 feet) or less for a period longer than one working day, the Contractor shall notify the Engineer of the date of the first day and the anticipated period of time such a lane restriction will be in effect. This notification shall be provided at least two weeks prior to the beginning of the lane restriction so that the Engineer may provide proper notification to the Oversized/Overweight Section of the Commercial Vehicle Enforcement Unit of the Department of Motor Vehicle and the Agency's Communications Section. When the date of the removal of the restriction becomes known, the Contractor shall notify the Engineer so that notification can be provided to these entities.

107.08 TRAFFIC CONTROL DEVICES.

(a) General. All approach signs shown on the Plans shall be installed prior to beginning other work. Additional traffic control devices necessary for work on any portion of the project shall also be installed prior to beginning work on that portion. All traffic control devices shall conform to the latest version of the MUTCD. Use of metal drums as traffic control devices is prohibited.

The Contractor shall furnish, erect, and maintain all signs, barricades, lights, signals, and other traffic control devices necessary for the protection of the work and safety of the traveling public.

(b) Existing Pavement Markings. Whenever existing pavement markings conflict with desired traffic patterns within a construction or detour area or otherwise create a potentially misleading, confusing, or hazardous condition for the traveling public, the markings will be completely removed or obliterated by the Contractor to the satisfaction of the Engineer. Painting over the existing lines is not acceptable. Unless otherwise specified in the Contract, no direct payment will be made for this work, which will be considered incidental to other Contract items.

(c) Warning Signs. The Contractor shall erect warning signs in advance of any location on the project where operations interfere with the use of the road by traffic and all locations where the new work crosses or coincides with an existing road.

(d) Detour Signs. The Contractor shall provide and maintain throughout the project acceptable warning, direction, and detour signs at all closures and intersections; along the construction and detour routes, the contractor shall provide and maintain acceptable warning, direction, and detour signs directing traffic around the closed portion or portions of the highway so that the temporary detour route(s) shall be indicated clearly throughout its (their) entire length(s).

(e) Closed Highways. Highways closed to traffic shall be protected by barricades and/or other approved barriers, which shall be reflectorized or illuminated.

(f) Delineation. Delineation will be required through the construction area as shown on the Plans or as directed by the Engineer.

(g) Flashers. Flashers may be required by the Engineer for use on signs and barricades to call attention to special or hazardous conditions.

(h) Costs Incidental. The cost of furnishing, fabricating, installing, maintaining, and removing traffic control devices shall be considered incidental to other items in the Contract unless otherwise specified.

(i) Failure to Install, Maintain, Remove. If the Contractor fails to satisfactorily install, maintain or remove traffic control devices, the Engineer may have such installations made, maintained, or

removed, and the cost thereof shall be deducted from the monies due the Contractor.

107.09 RESPONSIBILITY FOR USE OF FLAGGERS. As conditions warrant, the Contractor shall employ one or more flaggers at any location on the project where equipment or construction operations will interfere with the movement or safety of the traveling public. This includes operations where equipment enters, leaves or crosses normal traffic lanes being used or set aside for the traveling public and locations where heavy equipment is operating adjacent to areas where traffic is moving. Flaggers may not be required at locations manned by uniformed traffic officers assigned for the protection of the traveling public as a pay item of the Contract. Attention is directed to the provisions of Section 108 as they may apply to the use of flaggers. Where needed to assure safe ingress and egress for activities associated with the construction of the project, the Engineer may require the use of flaggers at locations off of the project site.

The dress, equipment, and procedures of all flaggers shall conform to the requirements in the MUTCD and Section 630.

107.10 RAILWAY-HIGHWAY PROVISIONS. If the Contractor is required or elects to haul materials across the tracks of a railway other than on a public highway, the Contractor shall make arrangements with the railway for a new private crossing or for the use of an existing private crossing. All work to be performed within a railroad right-of-way by the Contractor in the construction of railway-highway separation structures or at grade crossings shall be done in accordance with the Contract. The Contractor shall use all care and precaution in order to avoid crashes, damage, or unnecessary delay or interference with the railway company's trains and other property. The Contractor shall carry Public Liability and Property Damage Insurance as stipulated elsewhere in these Specifications or other Contract Documents.

107.11 USE OF EXPLOSIVES.

(a) General. The Contractor shall use the utmost care to protect life and property and, whenever directed by the Engineer, shall reduce the number and size of explosive charges. Blasting mats shall be used when required by regulation or deemed necessary. The Contractor shall notify each person, company, corporation, or public utility that owns, leases, or occupies property or structures near the site of the work of plans to use explosives; notice shall be given sufficiently in advance to enable people to take such steps to protect their property or structure from injury as they may deem necessary. Provision of notice shall not relieve the Contractor of

responsibility for any damage resulting from the Contractor's blasting operations. All persons within the danger zone of blasting operations shall be warned, a warning whistle shall be sounded, and the zone cleared just prior to blasting. A sufficient number of flaggers shall be stationed outside the danger zone to stop all approaching traffic during blasting operations. Explosives shall be used only during daylight hours and shall be handled only by competent, trained workers; particular care shall be taken to ensure that no unexploded charges remain in the work area unattended and when constructions operations cease for the day. All explosives shall be stored securely, all storage locations shall be clearly marked "DANGEROUS-EXPLOSIVES," and all storage locations shall be supervised and controlled by a competent, trained person at all times. All explosives and highly flammable materials shall be stored and used in strict conformity with all Federal, State, and local laws, rules, and regulations. Attention is directed to VOSHA *Safety and Health Standards for Construction*, Subpart U, Blasting and the Use of Explosives.

(b) Liability. Each of the insurance policies required for a project shall include coverage for injury to persons and injury or destruction of any property arising out of the storage and use of explosives.

(c) Insurance. The Contractor acknowledges full responsibility and assumes full liability for any and all damage or injury to persons or property caused either directly or indirectly by the Contractor's or a subcontractor's use of explosives. The liability of the Contractor shall apply equally to damages or injury to persons or property whether said injury or damage occurs within or outside of the right-of-way. The cost of all precautionary measures shall not be paid for directly, but all costs therefore shall be included in the bid prices for the pay items under the Contract.

(d) Blasting Cap Danger. The Contractor and/or the Contractor's agents shall take all precautions necessary to prevent premature explosions of electric blasting caps individually or when they are connected into a circuit.

The Contractor and/or the Contractor's agents acknowledge and are hereby advised of the potential hazard of a premature explosion of electric blasting caps due to propagation of radio frequency energy by transmitters of radio and the related radio services such as television and radar. Mobile and fixed radio,

cellular telephone, radar, television, and related transmitters are in general use in the State of Vermont, including police departments, fire departments, political subdivisions, utility companies, commercial carriers, private and public enterprises, and individuals.

(e) Warning Signs; Costs Incidental. Prior to blasting operations the Contractor shall install warning signs in conformance with the MUTCD. Warning signs shall be located in prominent positions at least 370 m (1200 feet) from the point of blasting and visible to any person approaching the blasting point. Payment for furnishing, erecting and maintaining warning signs shall be considered incidental to other items in the Contract.

(f) Documentation of Structure Condition. It shall be the responsibility of the Contractor to document the existing condition of all structures that have potential for damage. This documentation shall be in the form of a video or pictures, with sufficient description, and shall be supplied to the Engineer prior to any blasting on the project. The costs of preparing this documentation will not be paid for directly, but shall be considered incidental to all Contract items.

(g) Blast Surveys. The Contractor shall monitor all blasts and provide a report to the Engineer that shall indicate the Peak Particle Velocity (PPV) of the blast. The PPV sensitivity as reported shall range from less than 0.5 mm/s (0.02 in/s) to more than 125 mm/s (5.0 in/s). The Engineer reserves the right to request more than one instrument to monitor the blasting if there is a need for monitoring in more than one direction from the blasting area. The costs of the monitoring and preparing the reports will not be paid for directly, but shall be considered incidental to all Contract items.

107.12 PROTECTION AND RESTORATION OF PROPERTY.

(a) General. The Contractor shall:

(1) Not enter upon private property for any purpose without obtaining written permission;

(2) Be responsible for the preservation of all public and private property along and adjacent to the work;

(3) Use every precaution necessary to prevent damage or injury to public and private property;

(4) Protect from disturbance or damage all land monuments and property markers until an authorized agent has witnessed or otherwise referenced their locations, monuments, and property markers;

(5) Not move any land monuments and property markers until directed by the Engineer; and

(6) Protect all trees, shrubs, and other plants not marked by the Engineer for removal from damage by construction operations.

(b) Protection of Existing Infrastructure. The Contractor shall make sure that any portions of the existing roadway and existing structures which are to be retained for public travel are left in as good condition as when the Contractor commenced work. The Contractor shall not move or use equipment on any pavement or structure in a manner that may or does cause damage

(c) Contractor's Responsibility. The Contractor shall be responsible for all claims involving damage or injury to, or destruction of, property of any type resulting from any act, omission, neglect, or misconduct of the Contractor's manner or method of executing the work, due to the Contractor's non-execution of said work, or due to defective work or materials. The Contractor's responsibility shall not be released until the work has been completed and accepted and the applicable statute of limitations has expired.

(d) Restoration of Damaged Property. When any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work or in consequence of the non-execution thereof on the part of the Contractor, such property shall be restored at the Contractor's expense to a condition similar or equal to that existing before such damage or injury was done or the Contractor shall make good such damage or injury in an acceptable manner.

(e) Cleaning Traffic Signals and Street Lighting. When the Contractor's operations compromise the functionality of existing traffic signals and/or street lighting equipment, the Engineer may

require the Contractor to clean said equipment prior to project completion. Cleaning of traffic signals shall include all vehicle and pedestrian signal face lenses (inside and outside). Further, the inside of the controller cabinet shall be vacuumed and any vent filter shall be replaced; cleaning of streetlights shall include both the lens (inside and outside) and the reflector. The cleaning of electrical equipment shall be done by a traffic signal/electrical contractor. Any equipment that is damaged in the cleaning process shall be repaired or replaced at the Contractor's expense. The costs for cleaning will not be paid for directly, but will be considered incidental to other items in the Contract.

(f) Ground Vibration Limits. The maximum Peak Particle Velocity (PPV) of ground vibration in any of the three mutually perpendicular components of particle velocity for the following structure types shall be limited as follows:

	PPV in mm/s (in/sec)	
Type of Structure	Frequencies < 40 Hertz	Frequencies > or = 40 Hertz
Modern Homes (drywall interior)	19 (0.75)	50 (2.0)
Older Homes (plaster on wood or lath)	13 (0.50)	50 (2.0)
Non-Residential Structures		
Underground Utilities		

The Agency reserves the right to lower the PPV limit in areas where there may be structures or elements with a higher sensitivity to ground vibration. Adherence to this specification does not waive the Contractor's responsibility for damage as specified in this Subsection and in Subsection 107.16.

107.13 PROTECTION AND RESTORATION OF UTILITIES AND SERVICES.

(a) General. The Contractor shall take proper precaution during construction to avoid damage to public and private services. These services include, but are not limited to gas, water, sewer and drainage pipes, springs, wells, septic tanks, cesspools, telephone,

telegraph, television, and other communication and electrical services. Services may be located on or adjacent to the project, above, on, or under the ground, and may not be shown on the Plans.

(b) Dig-Safe. The Contractor shall comply with the requirements of Dig-Safe, Title 30 V.S.A. Chapter 86, Sections 7001 - 7008.

(c) Notice of Work. At commencement or resumption of construction, the Contractor shall notify the owners, operators, occupants, or lessees of all the public or private services of any work to be done on, over, under, adjacent to, or in proximity to said utilities during the construction of the project. Further, the Contractor shall again notify the aforesaid parties seven (7) to fourteen (14) calendar days in advance of starting such work to enable them to take steps as they may deem necessary to protect their property or structures from damage. Provision of notice shall not relieve the Contractor of its responsibility for any damages resulting from the Contractor's work.

(d) Owner Access. Owners, employees, or agents of public or private services located within the project limits shall be allowed free and full access with the tools, materials, and equipment necessary to install, operate, maintain, place, replace, relocate, and remove service facilities. No compensation will be paid to the Contractor for any inconvenience caused by working with these parties or around or with their services.

(e) Service Relocation. The exact location of any service facility relocated within the project limits shall be as directed by the Engineer.

(f) Cooperation. The Contractor shall cooperate with the owners of any of the aforementioned services in order that the service removal and/or relocation operation will progress in a reasonable manner, that duplication or temporary relocation work may be reduced to a minimum, and that services rendered by the concerned parties will not be unnecessarily interrupted.

(g) Service Interruption. If in connection with the work interruption in service occurs, the Contractor shall promptly notify the owner or the owner's authorized representative and cooperate with the owner to promptly restore service. In no case shall interruption to water or sewer service be allowed to exist outside of normal

working hours without the substitution of acceptable alternate service.

(h) Fire Hydrants. No work shall be undertaken around fire hydrants until provisions for continued service have been approved by the local fire authority.

(i) Responsibility for Damage. The Contractor shall be responsible for all damages done to services from the beginning of construction to the satisfactory completion of the project, including all damages to water supplies and sewage systems, including but not limited to damage to springs and wells, septic tanks, cesspools, and underground pipes, whether located within or outside the project right-of-way or whether or not shown on the Plans, except as otherwise provided in the Contract.

(j) Water; Investigation of Claims. The Agency will receive and investigate all claims relating to damage to springs, wells, and water supply systems. The Contractor will be notified of the results of the investigation. If it is determined that the damage is the responsibility of the State, the Contractor will not be liable and will be reimbursed by the State for expenses incurred in providing temporary water service and repairing the damage.

(k) Restoration of Service by Agency. If the Contractor fails to restore a service or to make good on a damage or injury to service(s), the Engineer may proceed to repair, rebuild, or otherwise restore the service as deemed necessary and the cost thereof will be deducted from any monies due, or which may become due, the Contractor under the Contract.

107.14 PROTECTION OF HISTORICAL AND ARCHAEOLOGICAL SITES. When the Contractor's excavation operations encounter sites or artifacts of historical or archaeological significance, the operations shall be immediately discontinued. The Engineer will contact archaeological authorities and give them 48 hours to determine the appropriate action to be taken. When directed by the Engineer, the Contractor shall excavate the site in a manner that will preserve the artifacts encountered and/or remove them for delivery to the custody of proper state authorities; such excavation will be considered and paid for with Contract pay items or as Extra Work.

107.15 FOREST PROTECTION.

(a) General. When working within or adjacent to forests or other plant growth, the Contractor shall satisfactorily burn or

otherwise dispose of all valueless trees and logs, stumps, roots, brush, weeds, grass, and other objectionable material. Disposal of such material shall be in conformity with the laws, rules, and regulations of the State of Vermont pertaining thereto and other authority having jurisdiction governing the protection of forests and in carrying out work within forests. When working within or adjacent to National Forest Lands, the Contractor shall comply with the requirements set forth in the Forest Service Special Use Permit included in the Contract. Before a fire is kindled on or in the vicinity of any project, the Contractor shall obtain the necessary permits from the State Agency of Natural Resources and the local fire prevention officials. Copies of permits shall be available on the project. Fires must either be thoroughly wet down when construction operations are suspended for the day or the remains shall be attended until work begins again. Night burning will not be allowed.

(b) Work In Forest Areas. The Contractor shall observe all sanitary laws, rules, and regulations with respect to the performance of work in forest areas. The Contractor shall keep forest areas in orderly condition, obtain permits for the construction and maintenance of all construction camps, stores, warehouses, residences, latrines, cesspools, septic tanks, and other structures in accordance with the requirements of the Forest Supervisor.

(c) Forest Fires. The Contractor and all subcontractors shall take appropriate action to prevent forest fires. If a fire is out of control on or near the project, the Contractor and all subcontractors shall do everything within their power to suppress the fire, shall immediately notify the Town Fire Warden or other known forest officials of the location and extent of the fire and shall cooperate with forest officials to suppress the fire once they have assumed control of the firefighting operation.

(d) Fires Caused By Contractor's Operation; Costs. The Contractor shall reimburse the Federal government, State, and political subdivisions for all expenses of suppressing a forest fire caused by its operations and shall be responsible to landowners for any and all damage caused by a fire.

107.16 RESPONSIBILITY FOR DAMAGE CLAIMS.

(a) General. The Contractor shall defend, indemnify and save harmless the municipality(ies), the State, the Agency, and railroad(s) and all of 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 shall have been resolved and suitable evidence to that effect furnished to the Agency.

(b) Submission of Damage Claims. With regard to each and every damage claim, the Contractor shall:

(1) Provide the claimant with a damage claim form for the submission of damage claims to the Contractor and Agency;

(2) Pay, settle, or otherwise resolve the claim;

(3) Submit the claim to the insurance carrier, with a copy to the Agency;

(4) Treat all claimants with respect.

107.17 OPENING SECTIONS OF PROJECT TO TRAFFIC.

(a) General. Opening of a section of a project to traffic prior to substantial completion of the entire Contract may be desirable in some instances. Discussions concerning such an opening shall involve, but are not limited to, the Regional Construction Engineer, Project Manager, District Transportation Administrator, and, when appropriate, local municipal officials. Such an opening shall be made when directed by the Engineer and documented in a Written Order. Such an opening shall not constitute acceptance of

the work or a part thereof or a waiver of any provisions of the Contract.

(b) Maintenance; Expense. On any section opened by direction of the Engineer prior to substantial completion of the Contract, the Contractor shall not be required to assume any expense entailed in maintaining the road for traffic beyond that required of a Contractor when opening a section of roadway to traffic. When extraordinary work is required to open a section of work prior to substantial completion of the Contract, the Engineer in his/her sole discretion may determine that compensation for any additional expense incurred by the Contractor to maintain traffic and allowance of additional time needed to complete the work will be made to the Contractor.

(c) Delayed Completion of Project. If the Contractor delays completion of shoulders, drainage structures, or other features of the work, the Engineer will notify the Contractor in writing and establish a reasonable period of time in which the work shall be completed. If the Contractor fails to complete the work by the time specified, the Engineer may order all or a portion of the project opened to traffic at no additional cost to the Agency. On sections that are ordered to be opened, the Contractor shall conduct the remainder of construction operations so as to cause the least obstruction and disruption to the traveling public, including vehicular and pedestrian traffic, adjacent landowners, and commercial businesses. The Contractor shall not receive any additional compensation due to the added cost caused by opening such section(s) to traffic.

(d) Opening Project to Traffic for Winter Season. As specified in Subsection 104.04, the Contractor shall open the roadway for the winter shutdown period from December 1st to April 15th. However, when this work is being done because the Contractor did not complete the work before the Contract Completion Date, any work that is not covered by a pay item in the Contract shall be considered incidental to the original Contract items and shall be performed at no additional cost to the Agency. This shall include any work required by the Agency's District Transportation Administrator(s) and/or municipal highway or public works officials to aid in the performance of winter maintenance activities. None of the time associated with the performance of this work shall be considered for an extension of time under Subsection 108.11. Furthermore, the Contractor shall not be entitled to any additional compensation for the completion

of remaining work that has to be performed under the influence of pedestrian and/or vehicular traffic.

(e) Compensation for Work on Opened Sections. Except as provided for in this Subsection, notwithstanding any other provision of the Contract Documents, the Contractor shall receive no additional compensation for work on a section of the project that has been opened to traffic as described herein.

107.18 CONTRACTOR'S RESPONSIBILITY FOR WORK.

(a) General. Until acceptance of the project by the Engineer the Contractor shall be responsible therefor and shall take every precaution against injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work before acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God, of a public enemy, or governmental authorities. For purposes of this paragraph the term work shall exclude Contractor owned, rented, or leased materials, equipment, and incidentals.

(b) Suspension of Work. When work is suspended for any reason, the Contractor shall be responsible for the project and shall take precautions to prevent damage to the project, provide for normal drainage, and erect any necessary temporary structures, signs, or other facilities solely at the Contractor's expense. During a period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings, and soddings furnished under the Contract and take adequate precautions to protect new tree growth and other important vegetative growth against injury.

(c) Winter Maintenance. The performance by the State, a subdivision thereof, or other authorized agent of any snowplowing, salting, and/or sanding shall not relieve the Contractor of its responsibility as outlined herein or elsewhere in the Contract.

107.19 NO PERSONAL LIABILITY OF PUBLIC OFFICIALS. It being understood that in all such matters relative to the Contract that they act solely as agents and representatives of the State, neither the Secretary, Deputy Secretary, the Director of Program Development, Engineer, or their authorized representatives shall be liable, either personally or as officials of the State, for their actions pursuant to authority granted to them by the Contract.

107.20 NO WAIVER OF LEGAL RIGHTS.

(a) General. Upon completion of the work, the Agency will expeditiously make final inspection and notify the Contractor of acceptance. Acceptance of the project, however, will not preclude or prevent the Agency from correcting any measurement, estimate, or certificate made before or after completion of the work; and the Agency will not be precluded or prevented from recovering from the Contractor, the Contractor's surety, or both any overpayment it may have made by failure on the part of the Contractor to fulfill the Contractor's obligations under the Contract. A waiver on the part of the Agency of any breach of any part of the Contract shall not be held to be a waiver of any other or subsequent breach.

(b) Latent Defects, Fraud, and Gross Mistakes. Without prejudice to the terms of the Contract, the Contractor shall be liable to the Agency for latent defects, fraud, and such gross errors, omissions, or mistakes as may amount to fraud, and as regards the Agency's rights under any warranty or guaranty.

107.21 FURNISHING RIGHT-OF-WAY. It will be the responsibility of the Agency or appropriate political subdivision to secure all of the permanent rights-of-way which may be necessary for a construction contract and to make said rights-of-way completely and physically available to the Contractor. Any additional rights-of-way and/or additional rights to use land outside of the right-of-way as shown on the Plans which the Contractor desires for its own convenience shall be obtained and paid for by the Contractor.

107.22 BUY AMERICA PROVISIONS.

(a) General. All steel products permanently incorporated into Federal-Aid projects shall be products that have been entirely manufactured within the United States. All manufacturing processes of the steel or iron material in a product (i.e., smelting and any subsequent process which alters the steel material's physical form or shape or changes its chemical composition)

must occur within the United States to be considered of domestic origin. This includes processes such as rolling, extending, machining, bending, grinding, and drilling.

(b) Use of Foreign Materials. This requirement does not prevent a minimal use of foreign materials, provided the cost of foreign materials used does not exceed 0.1 percent of the total Contract price or $2,500, whichever is greater. The cost of foreign steel or iron is defined as its value delivered to the project.

(c) Coatings on Steel/Iron. In accordance with 23 CFR 635.410, iron has been added to the materials now subject to the Buy America requirements, and the action of applying a coating to a covered material (i.e., steel and iron) is now deemed a manufacturing process subject to Buy America. Coating includes epoxy coating, galvanizing, painting, and any other coating that protects or enhances the value of a material subject to requirements of Buy America. Buy America requirements of 23 CFR 635.410 are applicable to all Federal-Aid highway construction projects (NHS and non-NHS).

107.23 DEFENSE OF LAWSUITS - CHALLENGE TO JURISDICTION AND WAIVER OF IMMUNITY. When defending any claim that may arise under the Contract, the Contractor shall not raise or impose any defense involving the jurisdiction of the tribunal before which said claim is pending, the immunity of the State of Vermont, governmental nature of the State, or the provision of any statutes respecting suits against the said State of Vermont without obtaining the express advance permission of the Vermont Attorney General's Office.

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) Claims 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 for twenty-one (21) days after the date the money would have been paid in a bi-weekly 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

(b) Claims 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

108.01 SUBLETTING OR ASSIGNMENT OF CONTRACT.

(a) General. The Contractor shall not sublet, assign, sell, transfer, or otherwise dispose of the Contract or any portion thereof, or of its right, title, or interest therein to any individual, firm, corporation, or other entity without the written consent of the Engineer. When consent is given, the Contractor must file with the Agency copies of all executed subcontracts and other documents. An approved subcontractor shall not in turn sublet or assign any of the work pertaining to the subcontract without the Contractor obtaining further permission from the Agency. In no event shall Agency approval release the Contractor from responsibility and liability under the Contract and bonds.

(b) Performance of the Contract Work. The Contractor shall perform Contract work with its own organization amounting to at least 50 percent of the total Contract work amount, minus "Specialty Items." The Contractor's own organization includes only workers employed and paid directly by the Contractor and equipment owned, leased, or rented by it from a non-debarred individual or entity, with or without operators. The term "own organization" does not include employees or equipment of a subcontractor, assignee, agent, or supplier of the Contractor. When determining whether the Contractor is in compliance with this 50 percent requirement, the following shall apply:

(1) The cost of materials and manufactured products to be purchased or produced under the Contract shall be included in the amount upon which the 50 percent requirement is computed.

(2) The percentage of subcontracted work shall be based on the Contract, rather than subcontract, unit prices. If only a part of a Contract item is to be sublet, its proportional value shall be determined on the same basis.

(3) When a firm sells materials to a Contractor and performs the work of incorporating the materials into the project, these actions must be considered in combination and as constituting a single subcontract.

(c) "Specialty" Items. The cost of "Specialty Items" may be deducted from the total Contract price before computing the amount of work required to be performed by the Contractor's own organization. Specialty items will be designated as such in the project Special Provisions and may be performed by subcontract.

(d) Performance Requirements. The Contractor and its subcontractor(s) shall, in the staffing and administration of the Contract, comply with the following performance requirements:

(1) Commercially Useful Function. The Contractor and subcontractor(s) must each perform a "commercially useful function." This means that the Contractor/subcontractor is responsible for the execution of a distinct element of the work of a Contract and carries out its responsibilities by actually performing, managing, and supervising the work involved. The Contractor/subcontractor must have the latitude to independently:

a. Select contracts to be bid;

b. Determine prices to be quoted;

c. Select material suppliers;

d. Hire, fire, supervise, and pay employees; and

e. Direct or cause the direction of the management and policies of the firm.

The Contractor/subcontractor may not broker work for another firm or act as a bidding conduit.

(2) Contractor to Furnish Competent Representative; Safety Officer; Others. To ensure that any subcontracted work is performed in accordance with the Contract requirements, the Contractor shall be required to furnish:

a. A competent, reliable English-speaking representative employed by the Contractor who has full authority to direct performance of the work in accordance with the Contract requirements and who is responsible for all construction operations on the project regardless of who performs the work.

b. A competent, reliable English-speaking employee designated as the safety officer who is authorized to receive orders and to issue binding directions concerning safety to all persons except Agency representatives associated with the project, whether employed by the Contractor, subcontractors, or material suppliers.

c. Such other individual(s) from the Contractor's organization as the Agency's Construction Engineer determines is (are) necessary to ensure the performance of the Contract, e.g., supervisory, managerial and engineering personnel.

(3) Employees on Payroll. The Contractor/subcontractor is not permitted to place on the payroll the employees of another firm for the purpose of avoiding Federal or State regulations or the provisions of the Contract.

108.02 NOTICE TO PROCEED. The Contractor shall not commence construction operations until Contract bonds have been filed, the Contract Documents have been signed on the part of the State, and the Regional Construction Engineer has given the Contractor written notice to proceed.

The "Notice to Proceed" will stipulate the date on which the Contractor may begin construction and from which date Contract time will be charged.

108.03 PROSECUTION AND PROGRESS.

(a) CPM Progress Schedule. Within ten calendar days after the award of the Contract, the Contractor shall submit to the Engineer for approval a CPM progress schedule. The CPM progress schedule shall show the proposed sequence of work and when the Contractor proposes to complete the various items of work within the time(s) established in the Contract. During the progress of the work, the Contractor shall confer with the Engineer concerning performance of the work in accordance with the approved schedule. The approved schedule shall be used as a basis for establishing major construction operations and for checking the progress of the work.

(b) Performance of the Work. The work shall be performed from as many points, in as many parts, at times, in a manner, and with sufficient materials, equipment, and labor so as to ensure its completion within the time(s) set forth in the Contract.

(c) Resumption of Work After Discontinuance With Consent. Should the performance of the work be discontinued by the Contractor for any reason, the Contractor shall notify the Engineer at least 24 hours before resuming operations.

108.04 LIMITATIONS OF OPERATIONS. The Contractor shall conduct the work at all times in a manner and sequence that will ensure the least interference with traffic. The Contractor shall have due regard to the location of detours and to the provisions for handling traffic. The Contractor shall not commence work to the prejudice or detriment of work previously started. The Engineer may require the Contractor to complete an area on which work is in progress before work is commenced on other area(s) if the opening of the area in progress is essential to public convenience.

108.05 CHARACTER OF WORKERS, METHODS AND EQUIPMENT.

(a) General. The Contractor shall at all times employ sufficient labor and equipment to perform the several classes of work to full completion in the manner(s) and time(s) required by the Contract Documents.

(b) Workers' Skill and Experience. All workers shall have sufficient skill and experience to properly perform the work assigned to them. Workers engaged in specialty or skilled work

shall have sufficient skill, experience and experience with equipment required to perform such work properly and satisfactorily.

(c) Electrical Work. All electrical work shall be performed by or under the supervision of a licensed electrician (master or journeyman). Electrical work shall be defined as any work which involves making connections to electrical components or splices in wiring that are, or will be, carrying 100 V or more. "Under the supervision of" means that the licensed electrician employed on the project shall be physically present on the project and must be actively supervising the work.

(d) Removal of Workers from Project. Any person employed by the Contractor or a subcontractor who in the opinion of the Engineer does not perform work in a proper and skillful manner or is intemperate or disorderly shall, at the written order of the Engineer, be removed forthwith by the Contractor or subcontractor employing such person and shall not be employed again in any portion of the work without the approval of the Engineer.

(e) Failure to Remove Worker from Project. If the Contractor fails to remove a person or persons as required above, or fails to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer may withhold all estimates which are or may become due and/or may suspend the work by written notice until the Contractor complies with the order.

(f) Equipment Sufficiency. All equipment used to perform the work shall be of sufficient size and mechanical condition to meet requirements of the work and to produce work of satisfactory quality. Equipment used on the project shall not cause injury to the roadway, adjacent property, or other highways.

(g) Methods and Equipment Not Prescribed. When the methods and equipment to be used by the Contractor are not prescribed in the Contract, the Contractor is free to use any methods or equipment that it demonstrates to the satisfaction of the Engineer will accomplish the work in conformity with the requirements of the Contract, and provided they pose no safety risk to the workers, inspection staff, traveling public, or general public.

(h) Methods and Equipment Prescribed. When the Contract specifies that the work be performed by the use of certain

methods and equipment, those methods and equipment shall be used unless otherwise authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than those specified in the Contract, the Contractor shall request authorization from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with Contract requirements. If, after trial use of the substituted methods or equipment, the Engineer determines that the work produced does not meet Contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove the deficient work and replace it with work of specified quality or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved or in Contract time as a result of authorizing a change in methods or equipment.

(i) Removal of Machinery and Equipment. The Contractor shall not remove from the project any item of machinery or equipment after it has been placed on the project without the prior consent of the Engineer, which consent shall not be unreasonably withheld. Reasonableness shall be tested by the needs of the project and not by the needs of any other project in which the Contractor may be engaged.

108.06 WAGES AND CONDITIONS OF EMPLOYMENT.

(a) General. The Contractor and all subcontractors shall comply with the provisions and requirements of all Federal and State labor laws and with the wage requirements set forth in detail in the Contract. In case of conflicts between wage determinations made by the US Department of Labor and the minimum wage established by statute, the larger of the two amounts shall be the minimum wage for that classification.

(1) Fair Labor Standards Act – The Fair Labor Standards Act (FLSA) of 1938, as amended, 29 USC 201.

a. General. No law requires Federal or State agencies to insert in their contracts a clause to ensure compliance by the Contractor with the

FLSA. However, the FLSA most likely applies to work under a construction Contract with the Federal Government or that is financed with the aid of the Federal Government. The FLSA requires payment of a minimum hourly rate as well as overtime pay for work in excess of 40 hours in each workweek. Moreover the overtime provisions of the FSLA and of the Eight-Hour Law are not mutually exclusive. Therefore, a Contractor's employees covered by the FLSA are most likely also covered by the overtime provisions of other, applicable laws.

The FLSA, sometimes known as the "Wage-and-Hour-Law," applies to individual workers who are engaged in commerce or in the production of goods for commerce as defined in the FLSA. Workers on virtually all Agency construction jobs are included under these terms. If a worker carries materials or moves equipment across state lines, unloads or guards materials or equipment arriving from other states, or performs other functions in commerce in the course of performing work, that worker is covered under the FLSA. Also, if the job is one to repair, reconstruct, enlarge, or improve an existing instrumentality of commerce such as a highway, bridge, or road, the worker is likewise covered under the Act while working on the job, including municipal streets if they are available to and are regularly used by interstate traffic.

New construction is covered by the FLSA when the project(s) is(are) part of and directly related to the functioning of an existing instrumentality of commerce. Coverage is therefore extended to construction workers on highways in the "Interstate System" or on other roads built to serve as part of a network carrying interstate traffic. In this regard, workers engaged in work preparatory to actual construction such as surveying, clearing, or grading are also covered.

b. Minors. Under the FLSA, the minimum age for general employment in the construction industry is 16 years. The minimum age is 18 years for employment in occupations declared to be hazardous by the US Secretary of Labor. Included in this category are the occupations of motor-vehicle driver and helper. Children 14 and 15 years old may be employed for a limited number of hours and under certain conditions in office work; they may not be employed in any manner at covered construction sites.

c. Contacts for More Information. The above is general information concerning the applicability of the FLSA to the highway construction industry. Contractors and subcontractors must obtain more detailed information from the Wage and Hour and Public Contracts Divisions, United States Department of Labor, John F. Kennedy Federal Building, Government Center, Boston, Massachusetts 02203-2211.

(2) Contract Work Hours and Safety Standards Act.

a. General. The Contract Work Hours and Safety Standards Act (Work Hours Act) requires Federal construction contractors and subcontractors to pay time and one-half after 40 hours a week; work under the Federal-Aid Highway Act (USC Title 23, Section 101, *et. seq.*) and all other construction financially assisted in whole or part by the Federal Government is covered by the Work Hours Act. The Work Hours Act applies to all contracts for work financed in whole or in part by loans or grants by the United States or instrumentalities thereof under any "Federal Statute" providing wage standards for the type of work covered. See Part IV, Subparts 7, 8, and 9 of the "Required Contract Provisions Federal-Aid Construction Contracts."

b. Computation of Overtime; No Defense. Overtime shall be computed on the basic rate of pay. It is not a defense that laborers and mechanics accepted or agreed to accept less than the required rate of wages or voluntarily made refunds.

(3) Davis-Bacon Act. Where the Contract includes Davis – Bacon wage rate requirements, the following also applies.

a. General. The wage rate determination of the US Secretary of Labor which has been incorporated in the proposal may not contain all job classifications necessary for the work contemplated under the project. The Contractor is independently responsible for ascertaining area practice with respect to the necessity, or lack thereof, for the use of any job classifications in the prosecution of the work contemplated by the project; no inference concerning prevailing area practices relative to their use may be drawn from the omission of these job classifications. Further, the omission of a job classification shall not be construed as establishing governmental liability for increased labor cost.

b. Missing Job Classification(s)/Wage Rate(s). The Contractor shall submit to the Agency any requests for missing job classifications and proposed wage rates.

c. Vermont Labor Laws. The Contractor's attention is directed to the provisions and requirements of the Vermont Workers Compensation Act and to Vermont statutes regulating employment of minors.

108.07 LABOR AND RENTAL PREFERENCE. In accordance with Vermont Statutes Annotated, Title 19 Section 17, the Contractor shall give preference to Vermont labor and trucks owned in Vermont. This requirement shall not apply to any highway project, or any part thereof, financed with Federal funds.

108.08 MEETING PERSONNEL REQUIREMENTS. Contractors are encouraged to use the services of the local offices of the State Department of Employment and Training to meet their personnel requirements. Recruitment of workers in all occupations and skills is conducted by the State Employment and Training Services, initially from the immediate labor market areas, and when workers with the required skills are not available locally, through the nationwide workforce clearance system of the US Employment Service.

108.09 TEMPORARY SUSPENSION OF THE WORK.

(a) General. The work may be suspended by the Engineer, wholly or in part, for such period or periods as necessary on account of:

(1) Unsuitable weather conditions.

(2) Failure on the part of the Contractor to carry out instruction or an order given, to perform satisfactory work, or to perform one or more provisions of the Contract.

(3) Any other conditions which, in the judgment of the Engineer, make work impractical, dangerous, harmful to the environment, or in violation of a permit or other authorization for the project.

(b) Authority of Agency Safety Officer. In the absence of the Engineer, the Agency Safety Officer, or person acting in that role, shall have authority to suspend work when s/he determines that the suspension of work is warranted for a safety violation on the job site. The period of time work is suspended due to a serious safety violation will not be justification for an extension of time under Subsection 108.11 or for additional compensation.

(c) Authority of Agency Hazardous Materials and Waste Coordinator. In the absence of the Engineer, the Agency Hazardous Materials and Waste Coordinator, or person acting in that role, shall have authority to suspend work when s/he determines that the suspension of work is warranted for an environmental violation on the job site. The period of time work is suspended due to a serious environmental violation will not be justification for an extension of time under Subsection 108.11 or for additional compensation.

(d) Seasonal Closure. From December 1st to April 15th, exclusive, no construction work of any kind shall be done except by written permission of the Engineer, and only under such conditions as specified therein.

(e) Seasonal Closure Procedure. Construction procedure prior to closing down the project for seasonal closure shall be as specified in Subsection 104.04.

(f) Contractor Suspension of Work. The Contractor shall not suspend the work without permission of the Engineer. Such permission will not be unreasonably withheld.

(g) Contract Applicable. If the work is suspended for any reason, all appropriate requirements of the Contract shall continue.

108.10 SUSPENSIONS OF WORK ORDERED BY THE ENGINEER.

(a) Additional Compensation/Time Request; Time Limit. If the performance of all or any portion of the work is suspended or delayed by the Engineer for an unreasonable period of time not originally anticipated, customary, or inherent to the construction industry, and the Contractor believes that additional compensation and/or Contract time is due as a result of the suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within seven calendar days of receipt of the notice to resume work, and not thereafter. The request shall set forth the reasons and support for the adjustment requested. No Contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.

(b) Evaluation of Request. Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the Contract has increased as a result of the suspension/delay and the suspension/delay was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the Contract accordingly. The Engineer will notify the Contractor whether or not an adjustment of the Contract is warranted. To the extent that performance would have been suspended or delayed by any other cause or an adjustment is provided for or excluded under some other term or condition of

the Contract, no Contract adjustment will be allowed under this Subsection.

108.11 DETERMINATION OF EXTENSION OF CONTRACT TIME FOR COMPLETION.

(a) General; Request for Extension of Contract Completion Date. 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 shall 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 Contract Completion Date, no request for an extension of time by the Contractor will be necessary.

(b) Determination of Contract Completion Date Extension. Whenever the work is delayed or suspended through no fault of the Contractor, a completion date extension will be determined upon consideration of the following:

(1) The days from April 15th to December 1st, inclusive, on which the weather or condition of the ground caused suspension of the work.

(2) Delay by the Agency in awarding the Contract and/or in issuance of the Notice to Proceed.

(3) Federal or State laws passed subsequent to the date of the Contract adversely affecting progress of the work.

(4) Acts of God.

(5) If major items of work are suspended by order of the Engineer, the time for completion will be extended an amount equal to the elapsed time between effective dates of order to suspend and order to resume.

(6) 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 adds work to the Contract, but is silent as to 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.

(7) Delay caused by a shortage of materials, but only when the Contractor furnishes to the Engineer documentary proof that a diligent effort has been made to obtain the materials from all known sources and the inability to obtain the materials when originally planned did in fact cause a delay in final completion of the entire work, and the delay could not be avoided by revising the sequence of the Contractor's operations. The Contractor shall notify the Engineer in writing of the causes of delay caused by material shortages no later than 15 calendar days from the beginning of any such delay and not thereafter.

(8) Any other conditions which in the opinion of the Director of Program Development warrants consideration for an extension of time.

(c) Failure to Perform Adequately. Failure to perform the work continuously and effectively with adequate work force and as scheduled for the full time allowed will be cause for denial of a time extension that might otherwise be allowed.

108.12 FAILURE TO COMPLETE WORK ON TIME.

(a) Time Essential Element. Time is an essential element of the Contract. The Contractor shall plan its progress schedule and vigorously press the progress of the work in order to complete the Contract on or before the Contract completion date set forth in the Contract.

(b) Manner, Sequence, or Schedule Required. Whenever the Special Provisions of the Contract call for any portion or portions of the work to be performed in any particular manner or for any portion or portions of the work to be completed pursuant to a certain sequence or schedule prior to the date of completion of the entire Contract, the Contractor shall punctually comply with the related instructions, dates, and periods of time.

(c) Liquidated Damages; General; Days Charged. For each working day on which any work remains incomplete after the completion date specified in the Contract for completion of the work involved there shall be deducted from any monies due the Contractor the amount shown in the following table, unless otherwise specified in the Contract. The deduction is not a penalty, but is liquidated damages to defray the cost to the Agency to administer of the Contract including, but not limited to, the cost of engineering, inspection, supervision, inconvenience to the public, obstruction of traffic, and interference with business. Due account shall be provided for any adjustment of the Contract time for completion of the work under the provisions of Subsection 108.11.

DAILY CHARGE FOR LIQUIDATED DAMAGES
FOR EACH WORKING DAY OF DELAY

Original Contract Amount		
From More Than	To And Including	Daily ChargePer Day of Delay
$ 0	$ 300,000	$ 300.00
300,000	500,000	700.00
500,000	1,000,000	900.00
1,000,000	1,500,000	1,100.00
1,500,000	3,000,000	1,400.00
3,000,000	5,000,000	1,900.00
5,000,000	10,000,000	2,500.00
10,000,000	20,000,000	3,400.00
20,000,000+	---------	4,200.00

Should the Contractor elect to work on Saturdays, Sundays, Holidays, or days from December 1st to April 15th, exclusive, after the Contract completion date, the Contractor will be charged liquidated damages for such days worked.

(d) No Waiver. Permitting the Contractor to continue to finish the work or any part of the work after the time fixed for its completion or after the date to which the time for completion may have been extended shall not operate as a waiver on the part of the Agency of any of its rights under the Contract.

(e) Liability for Liquidated Damages. The Contractor covenants and agrees that should the amount of monies due or that may become due the Contractor be less than the amount of ascertained liquidated damages, the Contractor and the Contractor's surety shall be liable to the State for the deficiency.

(f) Liquidated Damages Cutoff Date. No liquidated damages will be charged after the establishment of a Substantial Completion Date.

108.13 TERMINATION OF CONTRACT.

(a) General; Notice. Upon written notice from the Engineer or other proof satisfactory to the Secretary, the Secretary will give notice in writing to the Contractor and the Contractor's surety of delay, neglect, or default if the Contractor:

(1) fails to begin the work under the Contract within the time specified in the "Notice to Proceed;"

(2) in the opinion of the Engineer, fails to perform the work with sufficient workers and equipment or with sufficient materials to ensure the prompt completion of said work;

(3) in the opinion of the Engineer, performs the work unsuitably or neglects or refuses to remove materials or to redo or replace work rejected as defective and unsuitable;

(4) discontinues the prosecution of the work without authorization of the Engineer;

(5) fails to resume work that has been discontinued within a reasonable time after notice to do so;

(6) becomes insolvent, is declared bankrupt, or commits any act of bankruptcy or insolvency;

(7) allows any final judgment to stand against the Contractor unsatisfied for a period of ten calendar days;

(8) makes an assignment for the benefit of creditors; or

(9) in the opinion of the Engineer, fails, for any cause whatsoever, to carry on the work in an acceptable and timely manner.

(b) Failure of Contractor to Proceed; Termination. If the Contractor or the Contractor's surety does not proceed in accordance with the notice within a period of ten calendar days after notice, the Agency may, without violating the Contract, terminate the Contract by taking performance of the work out of the hands of the Contractor. The Agency may appropriate and use any or all materials and equipment on the project as are suitable and acceptable and may enter into an agreement for the completion of the Contract, according to the terms and provisions thereof or use such other methods as, in the discretion of the Engineer, will be required for the completion of the Contract in an acceptable manner and in the best interest of the Agency.

(c) Agency's Costs. All costs and charges incurred by the Agency, together with the costs of completing the work under contract, shall be deducted from any monies due or which may become due the Contractor. If the expense incurred by the Agency is less than the sum which would have been payable under the Contract had it been completed by the Contractor, the Contractor shall be entitled to receive the difference; if the expense exceeds the sum which would have been payable under the Contract, the Contractor and the Contractor's surety shall be liable and shall pay to the Agency the amount of the excess.

108.14 TERMINATION OF CONTRACT FOR CONVENIENCE.

(a) General. 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. The Contractor shall make all Contract-related records available to the Agency upon request.

(b) Materials. Acceptable materials obtained by the Contractor for the work but which have not been incorporated into 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.

(c) Claim by Contractor. After receipt of Notice of Termination from the Agency, the Contractor shall submit any claim for additional damages or costs not covered above or elsewhere in the Contract within 60 days of the effective termination date, and not thereafter.

(d) Negotiation; No Anticipated Profit. The intent of negotiations 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.

(e) Records. 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.

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

108.15 TERMINATION OF CONTRACTOR'S RESPONSIBILITY.

(a) General. Whenever the project(s) provided for by the Contract has(have) been completely performed by the Contractor, all parts of the work have been approved and accepted by the Engineer, and all Contract Documents complied with, the Contractor will then be released from further obligations except as set forth in the bonds provided.

(b) Completion at Separate Location(s). If the Contract includes work at more than one location as separate projects or as separate locations on a single project, the Agency may accept the work at any location when the work at that location is completely finished and all responsible parties agree to acceptance in the same manner as a normal final inspection. If a portion of the Contract is accepted by the Engineer, and all Contract Documents related thereto are complied with, the Contractor shall remove all construction warning signs from that portion and the Contractor will then be released from further obligations as to that portion except as set forth in the bonds provided.

(c) Limited Acceptance. If substantial completion of the work is accomplished, but additional work is required to achieve final acceptance, the Agency may accept the work under the contract with exceptions and/or reservations.

SECTION 109 - MEASUREMENT AND PAYMENT

109.01 MEASUREMENT OF QUANTITIES.

(a) General. All work completed under the Contract will be measured by the Engineer according to SI or U.S. Customary units, as required by the Contract Documents.

The measurement and determination of the number of units of each pay item will be made as specified in this Section and as are specifically described under the "Method of Measurement" and "Basis of Payment" subsections for each item.

(b) Area. Unless otherwise specified in the Contract area computations will be made horizontally, and no deductions will be made for individual fixtures having an area of 1 m^2 (10 square feet) or less; measurements for area computations will be the neat dimensions shown on the Plans or authorized in writing by the Engineer.

(c) Structures. Structures will be measured according to neat lines shown on the Plans or as altered to fit field conditions in accordance with the method of measurement stated in the Contract.

(d) Volumes. Volumes of excavation and borrow pits will be calculated from cross-sections and the use of average end area formulae or by another approved method. Volumes of other work, e.g. Cement Masonry or Removal of Concrete or Masonry, will be calculated by using arithmetical formulae. Where the volume is bounded by varying dimensions and there is no simple volumetric formula applicable, frequent cross-sections will be taken and the volume computed from average end area formulae. Other methods of measurement for small quantities may be authorized when approved in writing by the Engineer.

(e) Length Measurement. All items measured by the meter (linear foot) will be measured parallel to the base or foundation upon which the item is placed, unless otherwise shown on the Plans.

(f) Metric Ton; Ton. The term "metric ton" is used to indicate a mass of 1000 kg. The term "ton" means the English short ton consisting of 2000 pounds. All materials that are measured, or proportioned by mass (weight), shall be done so on accurate, approved scales by competent, qualified personnel.

(g) Bituminous Materials Measurements.

(1) General. Bituminous materials will be measured by the liter (gallon) or kilogram [hundredweight (CWT)]. Volumes of bituminous materials will be measured at 15°C (60° F) or will be corrected to the volume at 15°C (60° F) using ASTM D 1250 for asphalt or ASTM D 633 for tar.

(2) Shipping of Bituminous Materials; Correction. When liquid bituminous materials are shipped by truck or transport, net certified mass (weight) or volume subject to correction for loss or foaming may be used for computing quantities.

(h) Cement. Cement will be measured by the kilogram [hundredweight (CWT)].

(i) Timber. Timber will be measured by the cubic meter [thousand feet board measure (MFBM)] actually incorporated in the work. Measurement will be based on nominal widths and thicknesses and the in place length of each piece.

(j) Lump Sum.

(1) General. The term “lump sum” when used as a unit of measurement for an item of payment means complete payment for the work described in the item description.

(2) Everything Included. When a complete structure or structural unit (in effect, “lump sum” work) is specified as the unit of measurement, the unit will be construed to include all labor, tools, equipment, material, necessary fittings, accessories and incidentals necessary to complete the work.

(k) Rental. Rental of equipment will be measured by time in hours of actual work time and the necessary travel time of the equipment within the limits of the project.

(l) Final Bridge Quantities. In order to save engineering resources and expedite payment of the final estimate, the Agency will pay for the original plan quantities, exclusive of estimated overrun allowances, for all bridge quantities if the Agency and the Contractor agree to the acceptance of the plan quantities by the time the final survey is made. However, if either the Contractor or the State challenges the quantities, final quantities will be computed in accordance with the Contract. When one or more changes in design generate changes in quantities, final quantities shall be based on final measurements

(m) Where the conversion of U.S. Customary to SI quantity measurements is required, the following conversion factors shall apply:

From U.S. Customary to SI Unit	Multiply U.S. Customary Unit by
foot to meter	0.3048
mile to kilometer	1.609
square foot to square meter	0.0929
cubic foot to cubic meter	0.0283
square yard to square meter	0.8361
cubic yard to cubic meter	0.7646
acre to hectare	0.4047
CWT to kilograms	45.36
gallons to liters	3.785
MGAL to cubic meter	3.785
MFBM to cubic meter	2.359
ton to metric ton	0.9072

(n) Where the conversion of SI to U.S. Customary quantity measurements is required, the following conversion factors shall apply:

From SI to U.S. Customary Unit	Multiply SI Unit by
meter to foot	3.281
kilometer to mile	0.6214
square meter to square foot	10.76
cubic meter to cubic foot	35.31
square meter to square yard	1.196
cubic meter to cubic yard	1.308
hectare to acre	2.471
kilograms to CWT	0.0220
liters to gallons	0.2642
cubic meter to MGAL	0.2642
cubic meter to MFBM	0.4238
metric ton to ton	1.102

109.02 PURCHASES OF MATERIALS BASED UPON AGENCY MEASUREMENTS.

(a) Estimates Are Not Guarantees. The Agency does not furnish or guarantee estimates of measurements of borrow, gravel, sands, soils, fill, and other construction materials to be used on the project for the benefit and/or convenience of the Contractor either in dealings with sellers of those materials or any other purpose.

(b) Purchase of Materials. Except by written agreement, with a copy of the agreement furnished to the Agency prior to removal of materials for the project, the Contractor shall not purchase materials on terms that require payment on the basis of the estimates of measurement made by the Agency.

109.03 SCOPE OF PAYMENT.

(a) General. The Contractor shall receive and accept the compensation provided in the Contract as full payment:

(1) For furnishing all materials, labor, tools, and equipment and performing all work contemplated and required under the Contract;

(2) For all loss or damage arising out of the work from the actions of the elements, or from any unforeseen difficulties or obstructions which may arise or be

encountered during the prosecution of the work until its acceptance by the Agency.

(3) For all risks of every description connected with the prosecution of the work; and

(4) For all expenses incurred by or in consequence of the temporary suspension or discontinuance of the work for any infringement of patent, trademark, or copyright, and for completing the work in an acceptable manner according to the Contract Documents.

(b) Payment of Estimates; Obligations of Contractor. The payment of any current or final estimate shall not prejudice or affect the obligation of the Contractor under the Contract, at its own cost and expense, to repair, correct, renew, or replace any defects or imperfections in the project and its appurtenances or the strength of or quality of materials used on the project; payment of an estimate, including a final estimate, shall not relieve the Contractor from the payment of any and all damages due or attributed to defects or imperfections.

(c) Damage Claims and Liabilities; Payment by Agency. Relative to damage, labor and materials, and other claims against the Contractor or project, no monies payable under the Contract or any part thereof shall become due and payable if the Agency so elects until the Contractor satisfies the Agency that the Contractor has fully settled or paid all damage, labor, or materials claims and all liabilities incurred in connection with the work; if it so elects, the Agency may pay any or all claims or liabilities wholly or in part and deduct the amount or amounts so paid from any biweekly or final estimate(s).

(d) Written Evidence of Releases. If it so elects, the Agency may require the Contractor to furnish written evidence of release from all claims and obligations connected with the work.

109.04 SIGNIFICANT CHANGES IN THE CHARACTER OF WORK.

(a) General. At any time during work the Engineer reserves the right to make, in writing, changes in quantities and alterations in the work as are deemed necessary or desirable to satisfactorily complete the project. Changes in quantities and alterations in the work will not invalidate the Contract or release the Contractor's surety, and the Contractor shall perform the work as altered.

(b) Significant Alteration/Change to Character of Work; Adjustment to Contract. If the alterations or changes in quantities significantly change the character of the work under the Contract, whether or not changed by different quantities or alterations, a monetary adjustment will be made to the Contract; loss of anticipated profits shall not be included. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, an adjustment will be made as the Engineer determines to be fair and equitable.

(c) Alterations/Changes Not Significant. If the alterations or changes in quantities do not significantly change the character of the work to be performed under the Contract, the altered work will be paid for as provided elsewhere in the Contract.

(d) Significant Change Defined. The term "significant change" shall be construed to apply only to the following circumstances:

(1) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction; or

(2) When a major item of work, as defined, is increased in excess of 25 percent above or decreased below 75 percent of the original Contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of the original Contract item quantity; any allowance for a decrease in quantity below 75 percent shall apply to the actual amount of work performed.

(e) Major Item Defined. A major item of work is any bid item that has a total bid value greater than 20 percent of the total bid amount of the Contract.

109.05 COMPENSATION FOR ALTERED PLANS OR QUANTITIES.

(a) General. When alterations in the Plans or quantities of work are ordered and performed as provided in Subsection 104.02 and when such changes or alterations result in an increase or decrease of not more than 25 percent of the total original Contract amount, or the length of the project is not increased or decreased more than 25 percent of the original length shown in the Contract, the Contractor shall accept payment in full at the Contract unit price for the actual quantities of work done.

(b) Adjustment When Exceeded. When changes or alterations result in a sum total change of more than 25 percent of the total cost of the Contract calculated from the original bid quantities and the original Contract unit prices, or a length increased or decreased more than 25 percent, and a demand is made by the Contractor or the Agency, a negotiated Supplemental Agreement shall be signed by both parties setting forth the necessity for the change and an adjustment of unit prices agreed upon as satisfactory to both parties.

(c) No Further Allowance. No further payments will be made for changes/alterations, including no further allowances for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting directly from the changes/alterations or indirectly from unbalanced allocation of overhead expense among the Contract items by the Contractor and subsequent loss of expected reimbursements therefore or from any other cause.

109.06 EXTRA AND FORCE ACCOUNT WORK. Extra work ordered and accepted as specified in Subsection 104.03 will be paid for on a unit price or lump sum basis under a Supplemental Agreement. The agreement will be made before the work is started. When the Engineer deems it impractical to handle any Extra Work ordered on a unit price or lump sum basis, a Supplemental Agreement will be made and the work will be ordered done and paid for on a force account basis as follows:

Any additional costs for Public Liability Insurance and Property Damage Insurance that are required in the Contract will be allowed and reimbursed at the actual cost to the Contractor.

(a) Labor. For all machine or equipment operators, other workers, and supervisors in direct charge of the specific operation, the Contractor shall receive the actual wages agreed upon before beginning the work and were paid to the workers performing the work, to which shall be added an amount equal to 10 percent for profit. If the Contractor elects to use employee(s) more skilled than required to perform the extra work, the Agency reserves the right to allow compensation for said employee(s) to be capped at 125% of the applicable Davis-Bacon wage rate of the base skill level required to perform the work.

Workers Compensation Insurance, Unemployment Compensation Insurance, and Social Security charges on labor items as paid by the Contractor will be allowed. Other employee

insurances (health, disability, e.g.) being paid by the Contractor just prior to the work being ordered will also be allowed, provided the Contractor submits an applicable notarized insurance rate schedule from its insurance agent. The Contractor shall submit an Agency form indicating all applicable insurances and overhead items for each employee involved in the extra work.

The Contractor will be allowed an additional 10% of the actual wages as compensation for administration charges and any other additional costs. Additional cost or charge for the Superintendent shall not be allowed.

(b) Materials. The Contractor shall receive the actual cost including freight charges (both as submitted on original receipted bills) for all materials furnished and used. Ten percent shall be added thereto for overhead, profit and any other costs incurred in supplying the materials. Vermont sales tax shall not be included.

(c) Equipment. The Contractor will be reimbursed as described below. Equipment that is used shall be specifically described by year, manufacturer, model number, and any other information required to identify the appropriate hourly rate in the Rental Rate Blue Book published by Equipment Watch ("Blue Book"). In the event the Contractor elects to use equipment of a higher rental value than equipment suitable for the work, payment will be made at the rate applicable to suitable equipment.

(1) Contractor Owned Equipment.

a. Ownership Costs. The Contractor will be reimbursed for its ownership costs for self-owned equipment at the rates agreed to before the work begins. These rates shall be on an hourly basis and shall not exceed the monthly ownership rates listed in the current Blue Book divided by 176. The rates will be adjusted for depreciation as computed and published in the Blue Book rate adjustment tables, but will not be adjusted as recommended on the Blue Book regional adjustment maps. The rates for ownership costs will be total reimbursement to the Contractor for all non-operating costs of the equipment, including depreciation, insurance, taxes, interest, storage, overhead,

repairs, and profit. The maximum duration for reimbursement in a day shall not exceed eight hours unless the equipment actually is operated for more than eight hours on a particular day, in which case the rate shall be paid for all hours the equipment actually worked on that day.

b. Operating Costs. The rates for operating costs include fuel, lubricants, other operating expendables, and preventative and field maintenance. The Contractor will be reimbursed the amount derived as the product of the number of hours of actual use multiplied by the Blue Book estimated operating cost per hour. Operating costs do not apply to equipment idle time. Operating costs do not include the operators' wages.

Except as otherwise provided, the rates to be used for computation shall be those in effect at the time the force account work is performed as reflected in the applicable publication of the Blue Book.

c. In the event that an ownership cost rate and/or an operating cost rate is not established in the Blue Book for a particular piece of equipment, the Engineer shall establish a rate(s) for that piece of equipment consistent with its costs and expected life. The Contractor shall make no charge for small tools that are considered as having a replacement value of less than $500.

(2) Rented Equipment. In the event the Contractor does not own a specific type of equipment and must rent, the Contractor will be reimbursed the actual cost for the equipment, as submitted by invoice, for the time that the equipment is used to accomplish the work. Vermont sales tax shall not be included.

The Agency reserves the right to limit the hourly rate to the maximum amount allowed by Blue Book in the event that the prime contractor is a subsidiary of, or has

a close affiliation to, the firm supplying the rented equipment.

(3) Maximum Amount Payable. The maximum amount of reimbursement for the ownership cost of Contractor owned equipment or the rental cost of rented equipment is limited to the original purchase price of the equipment.

(4) Equipment Downtime. No rental cost or operating cost will be paid for downtime for either rented equipment or Contractor owned equipment.

(5) Transportation Costs. The Contractor will be paid for the reasonable documented cost of transporting both Contractor owned and rented equipment to the work location and back to its original location or a new location if the cost is less.

(d) Subcontracted Work: The Contractor shall receive the actual cost, as submitted on original receipted bills, for all extra and force account work subcontracted to others. Ten percent shall be added thereto for overhead, profit and any other costs incurred to perform the subcontracted work. However, the Agency reserves the right to use the force account procedures as depicted previously in this subsection in the event that the cost of reimbursable subcontracted work is deemed excessive.

The compensation as herein provided shall be received by the Contractor as payment in full for Extra Work done on a force account basis. The Contractor's representative and the Engineer shall compare records of Extra Work on a force account basis at the end of each day. Copies of these records shall be made on Agency forms provided for this purpose and shall be signed by both the Engineer and Contractor's representative. All requests for compensation for Extra Work done on a force account basis, including original receipted bills to verify cost and freight charges for all materials, shall be submitted to the Agency as soon as possible; however, if the required request, invoices, and other documentation are not filed before 90 days have lapsed following final acceptance of the project, the costs associated with such Extra and force account work shall not be reimbursable.

109.07 ELIMINATED ITEMS. Should any item(s) contained in the Contract be found unnecessary for proper completion of the work, the Engineer may, upon written order to the Contractor, eliminate the item(s) from the Contract; such action shall have no effect on the other provisions of the Contract and shall in no way invalidate the Contract. No compensation will be allowed for items eliminated from the Contract

109.08 PARTIAL AND FINAL PAYMENTS.

(a) General. Partial payments, computed upon the basis set forth in the Contract, will be made by the Engineer. On or before the Saturday of each alternate week during satisfactory progress of the work, the Engineer will make a biweekly estimate of the amount of work performed and will compute and report the value thereof under the Contract. Such estimates may be approximate only and not be based on actual measurements. All biweekly and partial estimates will be paid in full except as set forth below, and no payment will be made when the total value of the work done since the last estimate amounts to less than $500.

(b) Tax Compliance. If the Contractor is found to not be in good standing with respect to, or in full compliance with a plan to pay, any and all taxes due the State as required in Title 32 VSA Section 3113, money otherwise owed to the Contractor will be withheld from one or more biweekly estimates and the final estimate.

(c) Claims and Withholdings. For the protection of the State, creditors and, other claimants of the Contractor, payment for all or part of one or more biweekly estimates and/or the final payment as determined by the final estimate may be held for the use of the State, if the Agency so elects, until the Contractor has fully settled for or paid for all materials and equipment used in or upon the work and labor done in connection therewith and fully settled for or paid for all damage claims or liabilities incurred in connection with said work. Upon satisfactory settlement of all such accounts, the final estimate will be paid to the Contractor.

(d) Final Payments. Payment of the final estimate will be made when an agreement is reached on the final quantities of all project pay items, when the final acceptance date as defined in Subsection 101.02 is established and when all other project requirements have been met. If the Contractor does not accept

the quantities determined by the Agency, the Contractor may appeal to the Director of Program Development, as provided in Subsection 105.20. Notwithstanding Subsections 105.02 and 105.20, failure to complete required documentation within six months from the time the Contractor is presented with the Agency's final quantities or to appeal to the Director of Program Development as provided in Subsection 105.20 will be deemed a waiver of the Contractor's right to appeal. The Contractor will then be presented with the final estimate for signing. Failure of the Contractor to sign the final estimate within 20 days will result in payment of the amount owed without the Contractor's signature and the Contract will be closed.

(e) Retainage. The Agency shall not withhold retainage on the Contract; the Contractor shall not withhold retainage on any subcontract; and subcontractors shall not withhold any retainage on any of their subcontracts.

109.09 STATEMENT OF MATERIALS AND LABOR FORM FHWA-47. Form FHWA-47, Statement of Materials and Labor, shall be correctly and completely filled out by the Contractor prior to payment of the final estimate on all Federal-Aid projects; the completed form FHWA-47 needs to be acceptable to FHWA.