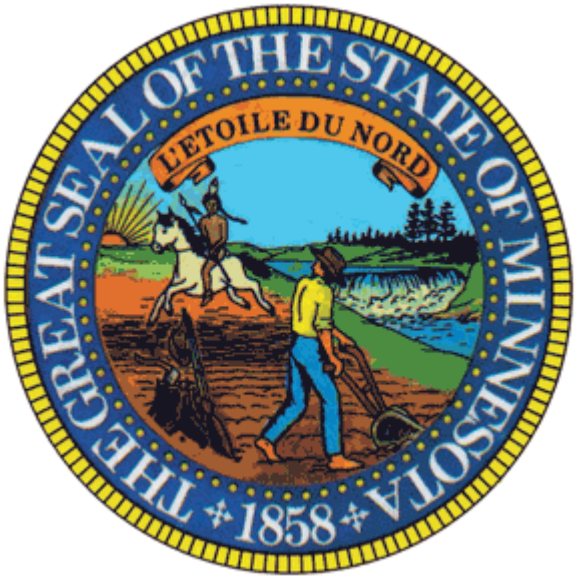

STATE OF MINNESOTA

DEPARTMENT OF TRANSPORTATION

SPECIFICATION WRITERS' STYLE GUIDE

DECEMBER 2012

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1 Overview

1.1 General

This Guide provides instructions for writers contributing to the Department of Transportation's *Standard Specifications*. The information included here constitutes the Department's approved guidelines for matters of writing style, word and number usage, and formatting.

For questions not addressed here, consult *The Chicago Manual of Style, 15th Edition*; the *United States Government Printing Office Style Manual*, 2000 (or more recent); the various specialized sources cited throughout this Guide; or a recent standard dictionary of American English.

1.2 Purpose of Revision

The Guide's goal is to help writers contributing to the revision to achieve consistency throughout the *Standard Specifications* and to clearly identify the roles and responsibilities of the parties involved in a contract. As one tool to help achieve these ends, the Guide seeks to encourage the increased use of the active voice in the *Standard Specifications*. Another tool used is to identify and address past inconsistencies in phrasing, formatting, and similar aspects of the *Standard Specifications*. Another is to point out opportunities to reduce repetition.

1.3 The Active Voice

The active voice is a powerful tool for enhancing clarity. Later chapters of this Guide explain this grammatical term more fully, but in brief, the active voice forces a writer to identify within a sentence who is responsible for what. For example, a sentence in the passive voice that says:

> Stockpiling of material on the finished pavement and drifting of material across the pavement will not be permitted. The finished pavement shall be cleaned of all dirt and foreign material.

In the active voice might instead say:

> The Department will not permit stockpiling or drifting of material on or across finished pavement. The Contractor shall clean dirt and foreign material from the finished pavement.

While making the passage 10 percent shorter, the version in the active voice also adds two pieces of information: *Who* will not permit stockpiling (the Department), and *who* will clean the pavement (the Contractor). Used well, the active voice

adds clarity, fixes responsibility, and lessens a reader's burden by simplifying sentence structure and eliminating words.

1.4 Consistency

Ideally, express the *Standard Specifications* in a standard fashion. Greater consistency will result in better specifications, improved communication, and less likelihood of disputes.

1.5 Reduced Repetition

The first division of the *Standard Specifications* constitutes the "General Requirements and Covenants." Unlike the *Standard Specifications'* remaining sections, the general provisions apply to and set the rules for the rest of the contract. The general provisions act as an umbrella by setting forth the means and procedures by which the details elsewhere stated in the contract will be implemented. As a result, do not repeat the general elsewhere in the *Standard Specifications.*

For example, three related passages in the general provisions are as follows:

> 1103 Contract
> The written agreement between the Contracting Authority and the Contractor setting forth their obligations, including, but not limited to, the performance of the work, the furnishing of labor and materials, the basis of payment, and other requirements contained in the Contract documents.
>
> 1401 Intent of Contract
> The Contractor assumes full responsibility for performance of the work and agrees to furnish all labor, materials, equipment, tools, supplies, transportation, and other incidentals necessary or convenient for successful completion of the Project.
>
> 1902 Scope of Payment
> The Contractor will receive and accept compensation provided for in the Contract as full payment for furnishing all materials and for performing all work under the Contract in a complete and acceptable manner.

Together, these clauses clearly say that the contract means the contractor is obligated to do and provide everything needed to get the work done and that the Department's payment constitutes payment in full for that completed work. Nonetheless, the first sentence in Section 1103 is repeated almost word for word throughout the technical sections of the *Standard Specifications*. For example, Section 2405.5 includes the following:

> 2405.5 Basis of Payment
> The contract unit price for prestressed concrete beams includes the costs of manufacturing, transporting, and erecting the beams in their final position …

This repetition is both unnecessary and counterproductive. It hinders comprehension because of the added mass of verbiage it creates.

More importantly, the pervasive repetition in the previous Standard Specifications can create as many, or more, opportunities for misunderstanding — and dispute — as it is likely to prevent. For example, the repetition of the sentence in the example sections and elsewhere invites the question of whether the example section actually means anything with respect to the countless clauses and instances of prescribed work for which it is not repeated.

To eliminate such questions, to strengthen the basic message ("the Contractor is obligated to do and provide everything needed to get the work done …"), and because the general provisions do apply to the rest of the contract, this Guide provides instruction on the elimination of repetition in the technical sections of statements already made in the general provisions.

2 Organization of Standard Specifications

2.1 General

The *Standard Specifications* contain three divisions. The first division is the "General Requirements and Covenants." The remaining divisions describe the technical specifications for construction and material requirements. Sections contain varying numbers and levels of subordinate sections. Use only as many subordinate numbers and levels of sections as needed.

2.2 Numbering Sections

Type section numbers and titles in bold typeface. Use all capitals in first-level and second-level sections. In third-level and lower sections, capitalize the first letter of all significant words. Place section titles on separate lines above its following text. Do not put a period after the last digit of a section number or after the title. Use and combine the numbering and headings as follows:

Table 2.2:1
Section Numbering

Numbering	Section Level	Typography
####	1st-level	**BOLD, ALL CAPITALIZED**
####.#	2nd-level	**BOLD, ALL CAPITALIZED**
####.#.A	3rd-level	**Bold, Initial Letters Capitalized**
####.#.A.#	4th-level	**Bold, Initial Letters Capitalized**
####.#.A.#.a	5th-level	**Bold, Initial Letters Capitalized**
####.#.A.#.a.(1)	6th-level	**Bold, Initial Letters Capitalized**

In the *Standard Specifications*, do not repeat the second-level section numbers. Only use the entire numbering format when referencing specific subsections within the *Standard Specifications*. For example, a subsection with numerous section levels would be expressed as follows:

2511.3 CONSTRUCTION REQUIREMENTS
A. Riprap Stone
A.1 Random Riprap

2.3 General Requirements and Covenants

Use content-specific section titles throughout the "General Requirements and Covenants."

Many multilevel sections begin with a subordinate section called "General." However, referring only to Section 1404.1, "General," from elsewhere in the

Standard Specifications fails to indicate the subject matter of the cross-referenced section; to improve specificity when cross-referencing a "General" section use the title "General" plus the immediately higher level section title.

> *Example:*
>
> If directed by the Engineer, direct traffic over a detour route in accordance with Section 1404.1, "Maintenance of Traffic, General."
>
> *Not:*
>
> If directed by the Engineer, direct traffic over a detour route in accordance with Section 1404.1, "General."

The requirements in "General" sections apply to the associated same-level sections that follow. Do not introduce a "General" heading unless two or more associated same-level headings exist.

2.4 Technical Sections

With the exception of the 2nd-level section titles and numbers, organize the technical sections as indicated in the "General Requirements and Covenants." Use content-specific headings.

2.4.1 Division II Technical Sections

The Division II technical sections contain five 2nd-level sections:

####.1 DESCRIPTION
####.2 MATERIALS
####.3 CONSTRUCTION REQUIREMENTS
####.4 METHOD OF MEASUREMENT
####.5 BASIS OF PAYMENT

2.4.2 Division III Technical Sections

The Division III technical sections contain three 2nd-level sections:

####.1 SCOPE
####.2 REQUIREMENTS
####.3 SAMPLING AND TESTING

2.5 Formatting Definitions

Define key terms before use and alphabetize the listed entries. Use the Definitions style to format the term in Bold type and capitalize the first letter of significant words. On the next line, define term using appropriate punctuation.

Example:

Activity
A discrete, identifiable task or event that takes time, can be measured, has a definable stop and start, furthers the work's progress, and can be used to plan, schedule, and monitor a project.
Activity Bar
A horizontal line or rectangle used to graphically represent an Activity on a Schedule.

In definitions, put the first usage of another defined term in **Bold Typeface With Initial Capitals**. Use normal text for repeated occurrences of the same term.

Example:

Successor
An Activity that cannot start or finish until a related activity has started or finished; a successor follows a **Predecessor**.

3 Wording of Specifications

3.1 General

Use the simplest language that says clearly and accurately what needs to be said. Avoid jargon, contorted wording, and pseudo-legalisms.

3.2 Voice

Verbs use either active voice or passive voice.

In the active voice, the verb clearly states who does what within the sentence. When reduced to their simplest form, another characteristic of verbs in the active voice is their self-sufficiency; one word says it all.

Example (Active Voice):

The Department reserves the right to make changes.

In one word, the verb, "reserves," says what the Department does.

In contrast, sentences in the passive voice needn't say anything about the doer. Responsibility does not have be to assigned, because no one performs the action. However, verbs in the passive voice always need help and must be accompanied by a form of the verb to be (which includes is, was, will be, shall be, etc.).

Example (Passive Voice):

The right to make changes is reserved.

The Department may be doing the reserving, but we don't know; the sentence doesn't say. Furthermore, the passive reserved must be helped by "is." These are the traits of a sentence in the passive voice: the verb is packaged in a phrase with at least two words, and the doer of the action does not have to be identified.

If a sentence in the passive voice identifies the doer, the identification comes after the verb in a phrase that begins with by.

Example (Passive Voice):

The right to make changes is reserved by the Department.

3.3 Active Voice

Because the active voice clearly identifies the responsible party and uses fewer words, it ensures greater specificity than the passive. Therefore, as a general rule for writing in the *Standard Specifications*, use the active voice.

In particular, use the active voice when it is important to identify the party responsible for the action in a sentence.

Examples:

The Engineer will evaluate the request.
The Department will provide sign panels as shown in the special provisions.

Use the active voice for directives to the Contractor.

Examples:

Provide and use high strength fasteners.
Give two copies of the completed form to the Engineer.

Use the active voice to provide information, including definitions.

Examples:

This work consists of lining ditches and channels with shotcrete.
The provisions of this section do not relieve the Contractor of responsibility for making defective work or materials good.

3.4 Passive Voice

After establishing the responsible party within a sentence or paragraph, the passive voice can be effectively used within the same sentence or paragraph to avoid repetition. Situations allowing for application of this technique usually occur in lists.

3.5 Misusing the Passive Voice

A specification's failure to explicitly assign responsibility for a required action can lead to disputes. In a specification, the passive voice is misused when it leaves the responsible party's identity unsaid, implied, or subject to interpretation.

"shall be considered" (Considered by whom?)

Example:

The Department considers the prices paid for contract items to which working drawings relate as full compensation for providing the drawings.

Not:

Full compensation for furnishing all working drawings shall be considered as included in the prices paid for the contract items of work to which the drawings relate.

"it is understood" (Understood by whom?)

Example:

The Department encourages the development and use of new or improved equipment.

Not:

It is to be understood that the development and use of new or improved equipment is to be encouraged.

materials "shall be" in accordance with … (This phrasing leaves unsaid how the material will come to be in such accordance with the requirement and what relevance that has to the project at hand. What most such statements mean is that the Contractor shall provide and use materials in accordance with …)

Example:

The Contractor shall provide and use true-to-line, twist-free finished members.

Not:

Finished members shall be true to line and free from twists.

3.6 Imperative Mood

Mood is a property of verbs that conveys the writer or speaker's belief about the truth or nature of the sentence — whether it is meant to be fact, conjecture, or command. There are three verb moods in English.

The indicative mood is the most common, and is used to indicate statements of fact and description. In the following example, the statement is intended as a simple description of what is, or is meant to be, and the verb ordered is in the indicative. (Because most verbs have voice and mood at the same time, the sentence is in both the indicative mood and the active voice.)

Example:

The Contractor ordered the concrete.

The subjunctive mood is little used in works like the *Standard Specifications*. It is used to convey doubt or conjecture, or to pose a "what if" situation.

Example:

If the Contractor were to order the concrete now, it would be here after lunch.

The imperative mood is used to give a command, direction, or instruction and is the most efficient way to do this in English. The imperative's efficiency is achieved because the person to whom the instruction is addressed is grammatically included in the sentence but is left out of the wording — that is, the subject is understood, but never explicitly stated.

Example:

Order the concrete.

This sentence is written in both the active voice and the imperative mood. It is understood to be a shortened form of a longer sentence that is directed to the Contractor and would read:

[Contractor,] order the concrete.

3.7 Positive Phrasing

Usually, the most accurate, direct way to state a requirement is affirmatively. This is because the exclusion of one possibility may still leave open an infinite number of unmentioned, other possibilities, and because the affirmative statement requires the writer to consider and state exactly what is meant. Say what you want, not what you don't want.

Example:

Retain materials for salvage intact and functioning until the Engineer determines they may be removed.

Not:

Materials to be salvaged shall not be removed until their use is no longer required as determined by the Engineer.

3.8 Sections in the Standard Specifications

3.8.1 Description Sections

This section specifically describes the work referred to in the section's title and to which the rest of the section's requirements pertain. Use the active voice.

Example:

Description
This work consists of applying a dust palliative to prevent dust nuisances in the amount and where directed by the Engineer.

3.8.2 Material Sections

This section tells what materials the Department requires the Contractor to provide and use for the work described in the section. Use the active voice.

Example:

Materials
A Concrete 2461
Provide 3B42 Concrete for cast-in-place structures of Design A, Design C, Design F, or Design G; and for drop inlet surface block. Provide 3Y43 Concrete for other cast-in-place structures.
B Mortar
Provide mortar meeting the requirements of ASTM C 270. Provide either Type S masonry cement or 2 part to 4 parts portland cement to 1 part Type S hydrated lime.

3.8.3 Construction Requirement Sections

This section states how the Department requires the Contractor to accomplish the work in the section. Use the active voice, imperative mood.

Example:

Construction Requirements
Drill holes through the pavement and underlying base to a depth of 420 mm ± 40 mm below the surface and to a diameter that accommodates the equipment used for injecting the grout. Protect the pavement surrounding each hole from damage.

Do not include information about how the Engineer will measure, or how the Department will pay for items of work unless directing the Contractor to perform work at no additional cost to the Department.

Example:

Replace dead, defective, or missing plants and incidental materials in accordance with initial installation requirements, including plants lost due to accidents, vandalism, theft, rodent damage, damage caused by the Contractor, or if ordered by the Engineer, at no additional cost to the Department.

Not:

The Department considers maintenance of the lighting system during authorized work suspension as incidental work, included in the unit prices of the pay items that are part of the lighting system.

3.8.4 Method of Measurement Sections

This section states how the Department will measure contract pay items. Use the active voice to introduce the Engineer as the party responsible for measurements.

Do not use the phrases "complete in place" or "the accepted quantities," or include statements that belong in "Basis of Payment" sections. Use full, spelled-out names for measurement units. As necessary, state the method by which the Engineer will calculate or arrive at the measurement. Specify potentially related items or quantities that will be excluded from measurement.

Example:

Method of Measurement
The Engineer will measure treated permeable base for payment for the type (asphalt or cement) required by the contract. The Engineer will calculate the volume based on the dimensions shown on the plans. The Engineer will not measure material for edge drains installed next to treated permeable base.

3.8.5 Basis of Payment Sections

This section tells how the Department will pay for measured items. Use the active voice.

Example:

Basis of Payment
The Department will pay for filter materials of the type specified, if included in the contract.

3.9 Standard Wording and Phrases

3.9.1 Full Compensation Pay Clause

Use the full compensation pay clause to include compensation for work of a secondary nature within the compensation for a related main contract item rather than making a separate pay item for the secondary work.

Example (blank):

The contract [unit] price per [unit of measure] for ["exact wording of the main related contract item"] includes the cost of [work that won't be paid for separately].

Example (blank adapted for lump sum main item):

The contract [lump sum] price for [exact wording of the main related contract item] includes the cost of [work that won't be paid for separately].

The clause will have to be slightly reworded if the Department spreads the compensation for the work it will not pay for separately across several contract items.

Use lists as appropriate if the specification indicates several items of work that the Department will not pay separately.

Example:

The contract [unit] prices for concrete work include the cost of the following:
(1) Drilling holes for dowels;
(2) Grouting dowels in drilled holes;
(3) Grinding or grooving and injecting epoxy in cracks, as required;
(4) Providing and placing:
(4.1) Mortar for mortaring spaces and recesses in and between precast members;
(4.2) Grit for walkways, stair treads, and landings;
(4.3) Expansion joint filler;
(4.4) Sheet packing;
(4.5) Board fillers;
(4.6) Elastomeric bearing pads;
(4.7) Sliding joints;
(4.8) Sliding bearings;
(4.9) Preformed fabric pads.

Rewording will also be necessary if the item name of the secondary work for which the Department will not pay separately is the same as that of an unrelated contract item. A bridge project, for instance, will include structure backfill as a

contract item. Installing elements of the project's drainage will also require structure backfill — but of a secondary nature and compensation for which the Department will want to include within the compensation for the related drainage elements and apart from the unrelated contract time called structure backfill. Establish the relationship of the secondary work with the item (or items) within which its compensation will be included through use of the word related.

Example:

The contract unit price for flared end sections includes the cost of relevant structure excavation and structure backfill.

3.9.2 Extra Work Pay Clause

The contract items should cover the anticipated work for the project. Pay for unforeseeable work, or work bidders can be expected to have doubts about, as "extra work."

Example (blank):

The Department will pay for [work that will be classified as extra] as extra work, in accordance with 1403, "Extra Work."

Example (completed):

The Department will pay the cost of repairing damage to detours caused by public traffic as extra work, in accordance with 1403, "Extra Work."

3.9.3 Specification Phrases and Wording

Use the following, or substantially similar, wording in the circumstances described:

when requiring a Certificate of Compliance:

Provide a manufacturer's Certificate of Compliance as specified in 1603, "Materials: Specifications, Samples, Tests, and Acceptance" to the Engineer.

4 Citing Standard Document Titles and Internal References

4.1 Complete Publications

When referring to or using the title of a complete or separately issued manual, publication, or document, place the publication *Title in Italics*; do not use quotation marks. Do not italicize information about the title.

Examples:

these Standard Specifications
the Manual of Steel Construction, published by AISC
approved by the Research Council on Structural Connections

4.2 Forms, Certifications, and Standards

Treat the titles of separately issued and handled forms, certificates, standards, and similar documents as complete publications: Italicize the title. Do not use quotation marks. Use the appropriate punctuation required by the sentence overall. (If, for example, the word Form and the form's number accurately identify a document, the title is providing supplementary information and is set off by commas.)

Examples:

Submit on the Department-provided Form CEM 6201, *Notice of Potential Claim.*
Post a *United States Department of Transportation Notice* (Form FHWA-1022) on federal-aid contracts.

Do not italicize or put quotation marks around information that is about a title, but that is not itself a title.

Examples:

surge protection specified in section 2.1.6 of NEMA Standard TS2-1992
in accordance with ASTM D 2241 or ASTM D 2672

Use the full title and number when referencing forms. Place the title in italics, followed by the form number in parentheses.

Example:

The Engineer will issue a *Weekly Statement of Working Days* (Form CEM 2701) to the Contractor…

Another way to reference forms is to place the form number before the form name, with the name in italics and offset by commas. Keep the form number in standard, upright type and capitalize the word Form.

Example:

"The Engineer will issue Form CEM 2701, *Weekly Statement of Working Days*, to the Contractor…"

4.3 Internal Cross References

From within the *Standard Specifications*, refer to specific sections of the *Standard Specifications* by number and title. Follow the number with a comma, and enclose the title in quotation marks. Do not add phrases such as: "of these *Standard Specifications*."

Example:

Cure concrete barriers in accordance with 2201.3.D, "Concrete Curing."

Be as specific as necessary in making cross references. Because "General" is used so frequently as a section title, include the name of the immediately preceding higher-level section in the cross-reference.

Example:

… in accordance with 2301.3.F, "Batching and Mixing, General"

Not:

… in accordance with 2301.3.F, "General."

If referring to the *Standard Specifications* overall, or as a whole, refer to "these *Standard Specifications*."

Example:

Obtain clarification from the Engineer if the project work is not sufficiently detailed or explained in these *Standard Specifications*, the special provisions, or the plans.

4.4 Citation Accuracy

Using an accurate citation at the outset can substantially reduce the later chances of misinterpretation or dispute. Verify the correctness of a citation to a standard or publication before including it in a specification; refer to the issuing organization's

website or to a current printed copy of the cited standard or publication for this purpose.

Cite the title or publication name exactly as it is given by the issuing organization. Do not substitute words such as Publication if an organization refers to its standards with the word Standard. Do not capitalize, quote, or italicize words that paraphrase the title or simply describe a publication's contents or subject.

Examples:

For Type 5 conduit and fittings, provide intermediate steel conduit in accordance with the requirements in UL Standard 1242, *Electrical Intermediate Metal Conduit — Steel*.

Or:

For Type 5 conduit and fittings, provide intermediate steel conduit in accordance with the requirements in UL Standard 1242 for intermediate metallic conduit.

Not:

For Type 5 conduit and fittings, provide intermediate steel conduit in accordance with the requirements in UL Publication 1242 for *Intermediate Metallic Conduit*.

Do not add words that are not part of the reference. The American Society for Testing and Materials, for example, does not use the word Designation within the designation of its standards. Logically, doing so would be analogous to including the word Name in a person's name. The same is true of standards issued by ANSI, AASHTO, IEEE, and similar organizations.

Example:

Provide and use nuts in accordance with ASTM A 563 or A 563M.

Not:

Provide and use nuts in accordance with ASTM Designation: A 563 or A 563M.

Words such as called, titled, or entitled, are not necessary when referring to a publication, standard, or other document. Do not use or add them.

Example:

Prepare diagrams, plans, and drawings using graphic symbols in accordance with ANSI Y32.2, *Graphic Symbols for Electrical and Electronic Diagrams*.

Not:

All diagrams, plans and drawings shall be prepared using graphic symbols shown in ANSI publication Y32.2, entitled “IEEE Standard and American National Standard Graphic Symbols for Electrical and Electronic Diagrams.”

5 Other Wording and Usage

5.1 General

Choose the wording that says most clearly and efficiently what needs to be said. A well-written specification has no more words than it needs. More often than not, added words muddle rather than clarify — they tend to add opportunities for misinterpretation.

5.2 Needless Words and Jargon

Many words serve only as filler. Their use adds clutter and can hinder a reader's ability to grasp what's important. Size of vocabulary is less important than skill in manipulating words you already know.

Instead of the following wordy phrases, use the more direct words or phrases shown.

Table 5.2:1
Alternatives to Common Wordy Phrases

Instead of …	Use or Consider …	Instead of …	Use or Consider …
a minimum of	at least	consequently	so
a number of	some	contract requirement	contract
absolutely essential	essential	cost thereof	cost of
aforementioned	the, that, those	demonstrate	show
appreciable	many	due to the fact that	because
as concerned with	concerns	enclosed herewith	enclosed
as may be necessary	as needed	endeavor	try
as stated in	states	equitable	fair
assist	help	expedite	hurry, speed up
assistance	help	fails to	does not
at a later date	later	for a period of	for
at the present time	now	for the purpose of	for, to
capability	can	forward	send
cease and desist	stop	free from	without
commence	start	give consideration to	consider
compensation for	pay	give recognition to	recognize
give due and sufficient written notice	give written notice	nevertheless	still
heretofore	until now	not less than	at least
however	but	notwithstanding	in spite of

Table 5.2:1 Alternatives to Common Wordy Phrases			
Instead of …	**Use or Consider …**	**Instead of …**	**Use or Consider …**
impracticable	impractical	on a quarterly basis	quarterly
in a manner such that	so that	on a regular basis	regularly
in a timely manner	promptly, on time	optimum	best, largest
in advance of	before	practicable	practical
in an effort to	to	preclude	prevent
in lieu of	instead of	prior to	before
in many cases	often	remainder	rest
in many instances	sometimes	retain	keep
in order to	to	substantial portion	large part
in the amount of	for	successfully complete	complete
in the event of	if	terminate	end
in the near future	soon	the month of June	June
in such a manner as to	so as to	the question as to whether	whether
indicate	show	therefore	so
initiate	start	through the use of	by
is applicable to	applies to	throughout the construction period	during construction
is indicative of	shows	timely	prompt
magnitude	size	undertake an analysis	analyze
make payment	pay	until such time as	until
make preparations for	prepare for	utilize	use
make use of	use	when totally free	when free
methodology	method, way		

5.3 Words and Phrases Not to Use

Many of the words or phrases in the following list confuse readers, do not add meaning, or introduce passages that are unnecessary because the same information is covered elsewhere in the specifications, usually in the “General Requirements and Covenants.”

Table 5.3:1 Words and Phrases to Avoid
any and all*
as approved by the Engineer* (or similar wording)
as shown on the plans* (or similar wording)
attention is directed to*
at the Contractor's expense
authorize and direct
care shall be taken
conformance*
each* and every
full and complete
herein
hereinafter
hereinbefore
in the plans
in the specifications
means and includes
necessary and desirable
neither … nor
order and direct
pertinent
special attention of the Contractor
subsection, sub-subsection*
subsidiary
the attention of the Contractor is directed to …
unless otherwise specified*
NOTE: asterisks (*) indicate words or phrases discussed in chapter 5.4, "Using Specific Words and Phrases," of this *Style Guide*.

5.4 Using Specific Words or Phrases

Accept vs. Approve. In a document with legal consequences, such as the *Standard Specifications* and special provisions, *accept* and *approve* have a difference in meaning that is important to recognize and preserve.

To accept is to recognize an obligation to pay, and is used in the context of or in reference to contracts. To avoid misunderstanding, *accept*, or versions of accept (such as acceptance and acceptable), should be reserved for use in reference to the contract between the state and the Contractor.

Examples:

Acceptance. The formal written acknowledgement by the Director of Transportation of the project's completion in accordance with the contract.

The Engineer will decide questions concerning the quality or acceptability of materials.

In contrast, to approve is to confirm agreement with, or to indicate satisfaction with, a situation or circumstance. Use *approve* and related forms, such as approval, to indicate official sanction or endorsement of designs, documents, plans, or processes.

Examples:

Plans. The official (or reproduced) project plans and Standard Plans, profiles, typical cross sections, and working and supplemental drawings approved by the Engineer.

Before erecting, obtain the Engineer's approval as to the size, wording, and location of signs provided by the Contractor.

Accordance, in accordance with. Though similar in meaning, dictionaries tend to attach a stronger degree of required compliance or agreement to *accordance* than to "conformance." Indeed, dictionaries often define "conformance" as being in accordance with. Use *accordance* or *in accordance with* instead of "conformance" or its variants.

Examples:

Provide magnesium sulfate in accordance with AASHTO T 104.

Spread and compact asphalt treated permeable base in one layer. Compact the base in accordance with one of the following methods: …

Do not use phrases such as "the provisions in" or "the requirements of" after *in accordance with*. These phrases add no meaning and are not necessary.

Example:

Provide and use iron sulfate as ferrous sulfate in pellet or granular form containing at least 18.5 percent iron expressed as metallic iron and in accordance with the Food and Agricultural Code.

Not:

Iron sulfate shall be ferrous sulfate in pelleted or granular form containing not less than 18.5 percent iron expressed as metallic iron. Iron sulfate shall conform to the requirements of the Food and Agricultural Code.

According to. Properly used, this phrase is an attributional statement that is almost always interchangeable with the word said. In a specification, the right (or best) choice of wording will almost always be *in accordance with*; rarely will it be *according to*. Do not use.

Example:

Provide traffic pull boxes and covers with a vertical proof load strength of 111 kN, with the load distributed through a steel plate 229 mm × 229 mm × 51 mm, in accordance with Federal Specification A-A-60005.

Not:

Provide traffic pull boxes and covers with a vertical proof load strength of 111 kN. The 111 kN load shall be distributed through a 229 mm × 229 mm × 51 mm steel plate according to Federal Specification RR F 621e.

See also: Accordance, in accordance with.

All. By its nature, an instruction or directive is inclusive. Because of this, it is only exceptions that warrant special attention. In the command "Go to the store," for example, there is no chance of interpreting this as "Go part of the way to the store." There is, therefore, no need to say, "Go all the way to the store."

In specifications, using *all* creates more problems than it solves because it tends to be used inconsistently and its erratic use raises the question of whether a "missing" all should be interpreted as meaning some or part. If, for example, after telling someone to "Go to the store," you then tell them to "Go all the way to the cleaners," a reader might wonder whether the emphasis placed on the latter sentence means it is unnecessary to go *all* the way to the store. The added word supplies no worthwhile information and creates confusion.

Example:

When hauling over highways or city streets, or when directed by the Engineer, trim loads and remove material from the shelf areas of vehicles to prevent spillage.

Not:

When hauling is done over highways or city streets and when directed by the Engineer, the loads shall be trimmed and all material removed from shelf areas of vehicles in order to eliminate spilling of material.

Amount vs. Quantity. Use amount for money. Use quantity for materials.

Examples:

Ensure the sum of the amounts for the units of work included in the cost breakdown for electrical work equal the contract lump sum price for the work.
Deposit the mixture on the roadbed at a specified quantity per linear meter …

And/Or. This construction is both awkward and confusing. Write "A, B, or both," not "A and/or B."

Example:

Include inserts, sleeves, or both.

Not:

Fabrication includes inserts and/or sleeves.

Any. Restrict the use of *any* to those logical situations where the meeting of one criterion among several is enough to satisfy a condition.

Example:

Perform the action if any of the following occur:
(1) Event A,
(2) Event B, or
(3) Event C.

The same logic applies when listing exclusions to an inclusive general statement:

Example:

The Department defines a working day as any day, except:
(1) Saturdays, Sundays, and legal holidays;
(2) Days inclement weather prevents the Contractor from working;
(3) Days when the Contractor is prevented from working for reasons other than weather.

Any can also be used to offer a selection of choices.

Example:

Unless otherwise required by the contract, the Contractor may use any of the compounds listed.

Do not use *any* to reinforce a point already made. If something is not allowed, it is not allowed — any time, any place, any way, any how. As with *all*, the erratic use of *any* creates more problems than it solves because it raises the question of whether a "missing" any should be interpreted as suggesting an exception might be possible.

Example:

A curfew from 10 p.m. to 6 a.m.

Not:

At any time during a curfew from 10 p.m. to 6 a.m.

Appropriate. Use *appropriate* (instead of "pertinent") for stating or attaching relevant information.

Example:

Include material thicknesses and other appropriate data needed for fabrication.

Approve vs. Accept. See Accept vs. Approve.

As approved by the Engineer. Do not use this phrase. The *Standard Specifications* section 1500, "Control of Work" (and particularly 1501, "Authority of Engineer") clearly establishes the Engineer's authority over the job. However, a variant of the phrase — Obtain the Engineer's approval before — can be useful for ensuring that the Contractor consults with the Engineer at a critical decision point or before proceeding from one stage to another in a multistep process.

Example:

Obtain the Engineer's approval of proposed modifications before using a post tensioning system.

As shown on the plans. This phrase is not necessary to explain how the work is to be performed. The Contractor's obligation regarding plans is stated in 1503, "Conformity with Plans and Specifications." Use this phrase to provide the Contractor with a reference to project-specific locations, material, and work.

As specified in … Use instead of "as described in," "as designated in," "as indicated in," "pursuant to," or similar phrases that refer to, and require the Contractor's adherence to, a specification.

Assure. See Ensure.

At no additional cost to the Department. Use *at no additional cost to the Department* instead of "at the Contractor's expense." The Department cannot insist that the Contractor pay for something (because the Contractor might well turn to another source to cover a cost), but it can indicate that the Department will not pay.

Attention is directed to. This phrase exemplifies many shortcomings of specifications in the passive voice. The words do not say 1) Who is ordering that attention be directed, 2) Whose attention is supposed to be directed, or 3) Why the attention is supposed to be directed, and missing words that might or might not be understood by various readers to be part of the phrase do not, cannot, "automatically" supply this information.

Without ever saying so in its specifications, the Department's use of the phrase in the past has meant that as a prerequisite to fulfilling the stated obligation in a specification, the Department requires the reader — by which it means the Contractor and, as appropriate, material suppliers, manufacturers, or fabricators — to read and perform in accordance with an additional cited law, standard, or specification.

While it is possible to incorporate words within a specification that do explicitly state the Department's meaning when it uses this phrase (e.g., "The Department directs the Contractor's attention to, and requires that the Contractor perform in accordance with, …."), such phrasing is convoluted and awkward. And there are better alternatives.

The best alternative is to review the need to refer the Contractor elsewhere in the first place. Evaluation of an "attention is directed to" clause will often reveal that the best strategy is to provide the information and associated requirement within the original specification and to eliminate the referral.

In the example that follows, a single rewritten specification replaces an "attention is directed" reference that refers to another section.

Example:

Before excavating trenches 1.5 m deep or deeper, obtain the Engineer's approval of a detailed plan to protect workers from the hazards of caving ground during the excavation, and of any design calculations used in the plan's preparation. The plan shall show …

Not:

Attention is directed to Section 7-1.01E, "Trench Safety." Excavation for any trench 1.5 m or more in depth shall not begin until the Contractor has received approval, from the Engineer, of the Contractor's detailed plan for worker protection from the hazards of caving ground during the excavation of that trench, and any design calculations used in the preparation of the detailed plan. The detailed plan shall show …

In addition to eliminating the need for "attention is directed to" clauses, the preceding example uses yet another strategy for eliminating this phrase. That strategy is to eliminate the phrase and replace it instead with a direct statement within a given specification that the Contractor shall perform that specification's requirements.

The phrase "attention is directed to" can also be eliminated by making a simple factual statement when the authority of an associated specification, law, or standard is invoked.

Example:

In accordance with 1807.1, "Assessment of Liquidated Damages," the Contractor is not entitled to an extension of time for acts or events occurring outside of the United States.

Not:

Attention is directed to the provisions in 1807.1, "Assessment of Liquidated Damages." The Contractor shall not be entitled to an extension of time for acts or events occurring outside of the United States.

Before. Use *before* instead of "prior to." The two expressions mean the same thing, but before is shorter. It's also easier to grasp (and therefore more effective) because it's part of everyday language. Place *before* statements where they chronologically belong with respect to the events or requirements described. Usually, this means before statements should come at the beginning of a sentence and at the beginning of a series of required steps in a process.

Example:

Before use, coat forms that will be removed with form oil.

Not:

Forms which will later be removed shall be thoroughly coated with form oil prior to use.

Conform, conforming. The principal meaning of "conform" is to be similar in form, shape, or character. To indicate the Contractor's required adherence to a standard, specification, or other authority, use in accordance with. To direct the contractor to produce or recreate one shape or profile similar to another, use *conform* or *conforming*. The preposition to always comes after *conform*; *conforming* and *conforms* are followed by to or with.

Example:

Shape culvert bedding by use of a template conforming to the outside shape of the culvert and guided by headers set parallel to the established grade.

See also: Accordance, in accordance with.

Conformance, in conformance with. Do not use. See: Accordance, in accordance with.

Consist vs. Include. Use *consists of* or its variants to refer to a complete set or to all the possible items in a collection. Using *consists of* before a list of items or choices means there are no possibilities other than those listed. Use this phrasing to avoid ambiguity when a listing is meant to be exhaustive.

Example:

Asphalt membrane waterproofing consists of a coating of primer and a firmly bonded membrane composed of two layers of saturated glass fabric and three moppings of waterproofing asphalt. Dampproofing consists of a coating of primer and two moppings of waterproofing asphalt.

Include has two principle uses in a document such as *Standard Specifications*. In contrast to *consists of*, the first use of include is to introduce a partial list of items or possibilities from among a larger set or collection. Because *include* introduces a partial list only, it is not necessary to add a further qualification such as "but not limited to" or "as a minimum."

Example:

"Occurrence" includes tsunamis, earthquakes in excess of a magnitude of 3.5 on the Richter Scale, storms, and floods … [regarding] which the Governor has proclaimed a state of emergency.

The second use of *include* is to command that one or more items be made part of a larger set or collection of items.

Example:

Ensure shop plans include the wall thickness; type, size, location, and configuration of the reinforcement; and a list of station locations for the pipes, including the size, wall type, maximum height of cover, and method of excavation, bedding, and backfill for each location.

Contract vs. Project. A contract is an enforceable agreement between two parties. It is also the written document or collection of documents stating the terms of such an agreement. In contrast, *project*, in its most fundamental sense, refers to a physical object with physical dimensions, such as a road or bridge. More broadly, the word project describes the object and the activities (planning, coordination, and work) involved in bringing the object into existence. This distinction is both important and useful to maintain because doing so enables a clear and consistent specification of how the Department wants one thing done to achieve another — that is, how the Department expects the Contractor to undertake a project so as to satisfactorily fulfill a contract.

Example:

The Department will consider engineering or architectural firms that have provided design services for a project ineligible to submit a proposal for the contract to construct the project.

Department vs. State. These words both have defined meanings in 1103, "Definitions," of the *Standard Specifications*. They are not interchangeable. Use *State* when referring broadly to the entire government or body politic of the State of Minnesota. Use Department when referring to the activities, obligations, personnel, and organizational units of the Minnesota Department of Transportation. The Contractor's contract is signed by representatives of the Department, and in specifications the correct term will almost always be Department.

Example:

Employees of the State are not eligible to submit a proposal for, or to subcontract or supply materials for, a contract administered by the Department.

Each. Use *each* to require differing treatment for one element in a series.

Example:

Provide blue, cube-shaped boxes 1 m^3 in volume and mark each box with a unique serial number.

Similarly, use *each* to specify treatment that might be considered special or unique. Because mass-produced items are often tested by random sampling, the requirement that the Contractor test every box supplied should be phrased as: "Test each box for [an ANSI-specified] minimum strength."

Do not use "each" simply to require ordinary treatment of multiple elements.

Example:

Do not place backfill layers thicker than 0.2 m before compaction.

Not:

The thickness of each layer of backfill shall not exceed 0.2 m before compaction.

E.g. and i.e. *E.g.* is the abbreviation for the Latin expression meaning "for example." *I.e.* is the abbreviation for the Latin expression meaning "that is." In specifications, these abbreviations appear most often within parentheses (where they generally introduce additional, explanatory information) and are followed by a comma.

Example:

The current controlling operation is that feature of the work (e.g., an operation or activity, or a settlement or curing period) that, in the joint opinion of the Engineer and the Contractor, will delay the time of completion if delayed or prolonged.

Ensure vs. Insure vs. Assure. These are three different verbs with three different meanings. The correct word in specifications will almost always be *ensure*, which means "to make sure."

Example:

Ensure the surface of the lens is free of defects.

Only use *insure* when speaking of financial protection of the sort offered by insurance companies. Misusing *insure* can create or suggest an obligation vastly different from that which is intended.

Example:

The Department will affirmatively ensure disadvantaged business enterprises are given full opportunity to submit bids in response to this invitation.

Not:

The Department will affirmatively insure disadvantaged business enterprises are given full opportunity to submit bids in response to this invitation.

Use *assure* only when giving reassurance to another person. *Assure* will rarely be the right word in a specification.

Example:

Ensure the Engineer or the Engineer's representative has access to the material.

Not:

Assure that the Engineer or the Engineer's authorized representative has free access at all times to the material.

In this section. Make simple, direct statements. Terms such as "specified herein," "hereinbefore," and "hereinafter" are round about ways of saying things that can be clearly said in simple English. Use *in this section*. Do not add "above" or "below"; doing so simply raises the question of how far above or below? Do not add the section number, which is redundant.

Example:

Compose mortar of portland cement, sand, and water proportioned and mixed as specified in this section.

Not:

Compose mortar of portland cement, sand, and water proportioned and mixed as specified in this Section 51-1.135, "Mortar."

May. Use *may* when allowing a choice. Do not use "exercise its option to," "reserve the right to," or similar phrases that simply describe a party's choice or prerogatives.

Non. When using the prefix *non*, do not use a hyphen for most words, whether nouns, verbs, adjectives, or adverbs.

Examples

nondestructive testing
nondiscrimination
a liquidtight, nonmetallic sunlight-resistant jacket
nonworking days

Hyphenate words with the prefix non when the second element consists of a capitalized word or numeral:

Example:

non PCC material

a hyphenated compound word:

Examples:

non-commercially-operated sites
non-uniform-appearing fence.

On the plans. Use *on the plans* instead of "in the plans."

Per. Use *per* when describing a rate or ratio.

Examples:

28 km per hour
6 threads per 25.4 mm
$4.60 per cubic meter

To avoid confusion, do not use *per* in the sense of "according to" or "in accordance with."

Provide vs. Furnish. Though similar, these words are not identical in meaning. *Provide* has a broader meaning, which is "to supply or make available." In contrast, *furnish* means "to equip." The words don't always overlap, as would be the case if a contractor were required to "Provide a field laboratory and furnish it with desk, chairs, and cabinets." Use *provide* when requiring a contractor to supply an item; because this is usually the intention in a specification, *provide* is usually the better choice of the two words. When the intention is to additionally require that a contractor not only provide an

item but also do something with it, couple *provide* with such additional verbs as use, place, or install.

Example:

Provide and install pumping plant equipment as required by the contract.

Section vs. subsection vs. sub-subsection. Use *section* when referring to a numbered section within the *Standard Specifications*, regardless of the section's numbering level or hierarchical relation to surrounding sections.

Such. Because its improper use or overuse can lead to stilted, imprecise, or pseudo-legal language that can be hard to unravel, such should be used with care and attention. In many cases, *such* is unnecessary, can be replaced with a better (more precise) word, or is part of a longer phrase that has a shorter, plain-English equivalent.

Such is an adjective that means "of that kind" or "of a degree or quality indicated." It does not mean — and is no more precise than — this, that, these, or those. When used properly, *such* points clearly and without question to a thing, collection, or idea that has just been mentioned. When used in this way, *such* is often (though not always) a part of the phrase such as and serves to introduce a series of representative examples belonging to a larger set.

In the first of the following two sentences, such introduces examples of "working titles with a masculine gender." In the second, it introduces the allowable kinds of "bedding material" the Contractor may use. *Such* is used appropriately in these sentences because there is no mistaking what it refers to.

Examples:

For brevity, the Department may use working titles with a masculine gender, such as "workman" and "journeyman" and the pronoun "he" to refer to persons of either gender.

If the Engineer determines soil from the trench is unsuitable for use as bedding material, provide and place a suitable material, such as sand or topsoil, as a bedding for the pipe before backfilling with the original soil.

Such is misused or is unnecessary when the thing it points to has not already appeared in the sentence. When this happens, it is often a sign that a sentence should be rewritten — usually with the triply beneficial result that *such* is

eliminated, the sentence is shorter, and the relationship between items in the sentence is more straightforward.

Example:

The Department reserves the right to alter, deviate from, add to, or delete from the plans and specifications as the Engineer deems necessary or advisable.

Not:

The Department reserves the right to make such alterations, deviations, additions to or deletions from the plans and specifications as the Engineer deems necessary or advisable.

Such is often part of a larger phrase — usually "in such manner that" or "in such a manner as to" — that can be replaced with a shorter, more straightforward expression.

Example:

The Contractor may dispose of removed concrete where and so that it will not appear unsightly from the highway.

Not:

The Contractor may dispose of removed concrete at such locations and in such manner that it will not present an unsightly appearance from the highway.

That vs. Which. Use *that* to introduce information essential to the meaning of a sentence. Use *which* to introduce nonessential information. Since Standard Specifications express essential requires, *that* will normally be the right word choice in a specification.

If a comma can be placed before the word you want to use (that or which), without changing the meaning of the sentence, use *which*. If a comma would change the meaning of the sentence, use *that*.

Examples:

The lawn mower that is in the garage is broken.
The lawn mower, which is broken, is in the garage.

This, These, That, Those, and The. Grammatically, *this* and *that*, often serve as what are called "demonstrative pronouns." In this role they point to, and take the place of, an object or idea that has already been named or described; used this way they help avoid repetition.

The plural of *this* is *these*. Use *these* when the object or idea referred to consists of two or more items. *This* and *these* refer to things that are near in time or place or have just been mentioned. In contrast, the demonstrative pronoun *that*, and its plural those, are used to refer to things at a distance.

In the following example, *these* in the second sentence points to and takes the place of a phrase from the first sentence that would otherwise have to be repeated.

> *Example (these):*
>
> As directed by the Engineer, remove and dispose of pavement, sidewalk, and similar surfaces not shown on the plans and obstructing sites for planting. The Department will pay for excavating through these areas, providing and placing topsoil to fill the resulting holes, and removing and disposing of the associated pavement.
>
> *Not:*
>
> As directed by the Engineer, remove and dispose of pavement, sidewalk, and similar surfaces not shown on the plans and obstructing sites for planting. The Department will pay for excavating through the pavement, sidewalk, and similar surfaces not shown on the plans and obstructing sites for planting, providing and placing topsoil to fill the resulting holes, and removing and disposing of the associated pavement.

When using a demonstrative pronoun, make certain the object or idea to which the pronoun refers (the "antecedent") is unmistakable. If the risk of confusion exists, rearrange the sentence or use the object's full name or description. If there is no risk of confusion, it is possible that a demonstrative pronoun isn't needed — in which case it may be that the definite article the is sufficient.

Unless otherwise shown on the plans. Use as necessary for flexibility.

> *Example:*
>
> Do not install supply lines through plant holes unless otherwise shown on the plans.

When vs. Where vs. If. These words are not interchangeable. *When* refers to time. *Where* refers to place. *If*, among its many uses, introduces a conditional clause or sentence.

Use *when* in discussions about time or chronology. The presence of words about time, periods of time, dates, or duration are clues that point to *when* as the appropriate choice. Another clue is that "before" or "after" can replace *when* without changing the meaning of the sentence.

Examples (when):

When work is not in progress and during periods when work is suspended, make acceptable arrangements with the Engineer to ensure the availability of a representative authorized to act for the Contractor in case emergency work is needed.

Use *where* to discuss or refer to a physical place, location, or area.

Example (where):

Where the medians are so wide as to include areas of undisturbed land, the Department defines a divided highway as two separate roadbeds.

Use *if* to introduce or as part of an *If A, then B sentence*.

Example (if):

New and unforeseen work will be classed as extra work if the Engineer determines the work is not covered by one or more of the items for which there is a bid price.

Not:

New and unforeseen work will be classed as extra work when determined by the Engineer that the work is not covered by any of the various items for which there is a bid price or by a combination of those items.

5.5 Hyphenation, Word Separation, and Standard Phrasing

English changes over time and words that are commonly used together tend to migrate, first staying paired but separate, then finding frequent use with a linking hyphen, then joining eventually into a single word.

It can be hard to know where a word pair or phrase is in this progression. Table 5.5:1 shows some common combinations as they should be used in the *Standard Specifications*. For further guidance, see chapter 7.90 of *Chicago* (table 6.1 in *Chicago,* 14th Edition).

Examples:

the cost *breakdown* submitted not: the cost *break-down* submitted
12,700 kg for *single axle* trucks not: 12,700 kg for *single axles*
21,700 kg for *tandem axle* trucks not: 21,700 kg for *tandem axles*

Table 5.5:1 Compound Words, Hyphenated Words, Word Separation, and Standard Phrasing	
Instead of …	**Use …**
air entraining	air-entraining
center line	centerline
cross section	cross-section
edge line	edgeline
guard rail	guardrail
high pressure sodium lights	high-pressure sodium lights
low pressure sodium lights	low-pressure sodium lights
one piece polycarbonate	one-piece polycarbonate
pre-construction	preconstruction
right of way	right-of-way
straight edge (the tool)	straightedge
sub-base	subbase
water reducing	water-reducing
work force	workforce

6 Numerals vs. Words

6.1 General

Use numerals for measurements, sizes, and critical or precise quantities.

Examples:

a depth of 5 m not: a depth of five meters
wrapped 1½ turns not: wrapped one and one-half turns

Use numerals when cross-referencing sections and other parts of the specifications or similar sources.

Example:

materials required by AASHTO Section 5

Use numerals for values greater than ten.

Example:

The Department will not close traffic lanes for routine maintenance on roadways with posted speed limits greater than 25 mph.

Use words for numbers at the beginning of a sentence; if a number greater than ten appears at the beginning of a sentence, reorder the sentence if possible.

Examples:

Eight hours of labor constitutes a full day of work.
Thirty minutes before installation, begin preparing the material.

Or:

Begin preparing the material 30 minutes before installation.

Use words for quantities or values of ten and below that are not critical, precise, or of paramount importance in the context.

Examples:

Fabricate from no greater than two pieces of sheet steel.
The Engineer will provide six sets of drawings.
Perform maintenance for up to three years

Add s to form the plural of numbers used as nouns.

Example:

twos and threes

When quantity and size are expressed together, use words for the quantity and numerals for the size.

Examples:

two 12 penny nails
three 13 mm holes
twenty-two 25 kg weights

Be consistent. Within the same context, treat similarly all numbers that refer to the same category of things.

Examples:

Hold the vibrator from 5 sec to 15 sec.
30 min before starting, and again 60 min later …

6.2 Decimals

Express decimals in numerals, not words.

Example:

0.1 not: one-tenth

Never leave a decimal point "naked" — that is, without numerals on both sides.

Examples:

1.5
6.125
0.5
0.125

6.3 Time and Date

Use numerals for clock times. Keep zeros when describing times "on the hour." Use the 12 hour system, with all numerals accompanied by the appropriate a.m. or p.m. designation (using lower-case letters, followed by periods); leave a space

between the numeral and abbreviation but no spaces inside the abbreviation. Do not use the contraction "o'clock" after the numeral.

Examples:

9:00 a.m. not: 9 o'clock a.m.
10:30 p.m.
during the hours from 10:00 a.m. to 4:30 p.m. on the day

Exception: Use the words noon and midnight to indicate twelve o'clock. Do not use the numeral 12 followed by a word or abbreviation.

Example:

Do not work from noon to midnight. not: 12 noon or 12 p.m.
not: 12 midnight or 12 a.m.

Use words (written in full) for the names of months and numerals for days of the month and years. Do not use ordinal designators (e.g., th and rd) in dates.

Examples:

June 15, 2001 not: June 15th, 2001
from May 1 to September 30

Use numerals with an ordinal designator to specify a fixed number of days from and event or starting point.

Examples:

by the 15th day of receipt not: by the fifteenth day of receipt
the 21st day of the month not: the twenty-first day of the month

6.4 Money

Use numerals for monetary amounts. Use commas to separate groups of thousands when expressing dollar amounts greater than $999. Do not include the decimal and zeros for cents when amounts are in whole dollars; do not leave a space between the dollar sign ($) and the numeric value.

Examples:

$10,000
a subcontract of $5,000 or more
pay the State at the rate of $2.75 per cubic meter computed at $0.044 per kilogram
the sum of $10 for each calendar day

contracts exceeding $2,000

Do not express dollar values with repetitive word phrases.

Example:

more than $50 for each day not: more than fifty dollars ($50) for each day

To encourage reader comprehension, when expressing large, round sums, use the word million (or billion) plus a numeral and dollar sign.

Examples:

$1 million for each accident not: $1,000,000 for each accident
$15 million aggregate not: $15,000,000 aggregate

But:

$1,550,000 not: $1 million, five-hundred-fifty thousand
$20,100,000 not: $20 million, one-hundred thousand

6.5 Fractions

Use numerals for mixed numbers; do not leave a space between the whole number and fraction.

Examples:

Join the top to the bottom with an arc of not more than 87½ degrees.
Leave a distance of no more than 1¾ times the diameter of the bolt.

Express metric values in consistent units; use decimals instead of fractions:

Examples:

a pipe length of 1.73 m not: a pipe length of 1 m, 73 cm
8.5 kg not: 8½ kg

Format other fractions by using the superscript and subscript commands.

Insert a keyboard solidus (/) between numbers in a fraction.

Set the entire fraction in 9 point font.

Example:

$^{7}/_{11}$, $^{13}/_{22}$, $^{11}/_{33}$

Use words for simple fractions that do not describe a measurement or a precise quantity, for fractions that stand alone, and for fractions that come before the words of a or of an. Connect the numerator and denominator with a hyphen.

Examples:

Add mulch when the tank is at least one-third full of water.
Use a spray bar at least three-fourths the length of the mixer.
The Department will pay one-half the unit price.
Use straw, hay, or sawdust to fill the lower one-fourth to one-third of the trench.

6.6 Percent

Use the word percent in text and precede with a numeral.

Examples:

average density less than 95 percent
changes greater than 5 percent
a minimum of 4 percent moisture
provided the quantity does not exceed 0.1 percent not: one-tenth of one percent

6.7 Commas

In dollar figures, use commas in expressions of four digits or more (i.e., for amounts greater than $999).

Examples:

$800
$1,000
$10,000
$2,150,000

In measurements, use commas in numeric values with four or more digits.

Examples:

900 MPa
1,000 MPa
1,300 m
10,000 km
rated for 100,000 hours of …
50,000 kg total gross load

Do not separate digits with commas when the practice runs counter to established convention. For instance, do not separate the digits in numbers used in dates, street addresses, or as part of a document title or standard designation.

Examples:

Contract No. 12-083804
September 2004
5900 Folsom Boulevard

7 Abbreviations, Acronyms and Symbols

7.1 Definitions

Abbreviations, acronyms, initialisms, and symbols are shortened forms of longer words, names, or expressions. Each of these short forms differs from the others in formation and usage.

Abbreviations. Shortened forms of a single word or phrase, usually followed by a period and often including lowercase letters.

Examples:

Dr., etc., and chap.

Acronyms. Shortened forms, often initialisms, that can be pronounced as a word. Do not use periods in an acronym.

Examples:

AASHTO and OSHA

Initialisms. Formed from the first letters of a string of words or organization name. The letters in an initialism are read or pronounced separately rather than together as a single word. Do not use periods in an initialism.

Examples:

PVC, IEEE, and FHWA

Symbols. Free-standing characters, letters, or signs with unique agreed-on meanings. Do not treat or punctuate symbols as if they were abbreviations. Use a space before and after a symbol; do not precede a symbol with a hyphen or follow with a period.

Examples:

kg (kilogram)
cu. m (cubic meter)

7.2 Rules for Acronyms and Abbreviations

Be consistent. The accepted forms of more widely used abbreviations can be found in chapter 15, "Abbreviations," of the *Chicago Manual of Style, 15th Edition*

and in chapter 9 and 10, “Abbreviations and Letter Symbols” and “Signs and Symbols,” of the *Government Printing Office Manual*, 2000. Do not invent or use forms that vary from these sources.

Before introducing a shortened form write out the complete name or phrase at the first usage, followed immediately with the shortened form in parentheses. When the word or phrase contains common nouns and adjectives, use lowercase letters in the full words and capital letters in the short form.

Examples:

Specify horizontal elliptical reinforced concrete pipe (HERCP) … Install the HERCP so that …

In general, the prefix non is not hyphenated; however, use a hyphen when “non” precedes an acronym or initialism.

Examples:

non-PCC
non-SI

Do not introduce a shortened form that will not be reused in the same section; instead, simply write the words out. When reintroducing a short form in another section, write out the complete name or meaning, followed by the short form in parentheses, at the first usage.

Use the indefinite article “an” before abbreviations, acronyms, and initialisms that are pronounced as if they begin with a vowel. If the short form begins as though pronounced with a consonant, use “a.”

Examples:

an AASHTO requirement
an SAE specification (because the letter s is pronounced es)
a PSC document
a U.S. Code (because the letter u is pronounced yoo)

Form plural acronyms by adding the lowercase letter s. Do not use an apostrophe.

Examples:

multiple light-emitting diodes are LEDs not: LED’s
the plural for the abbreviation for number, No., is Nos. not: No’s

7.3 Acronyms and Abbreviations

Table 7.3:1 Acronyms and Abbreviations in the *Standard Specifications*	
Acronym or Short Form	**Full Name or Meaning**
AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AITC	American Institute of Timber Construction
AC	Alternating Current
ACI	American Concrete Institute
AGC	Associated General Contractors of America, Inc.
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute
ARA	American Railway Association
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
ATR	Automatic Traffic Recorder
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWG	American Wire Gauge
AWWA	American Water Works Association
CCTV	Closed Circuit Television
CMP	Communications Plenum Cable or Corrugated Metal Pipe
CMS	Changeable Message Sign
COAX	Radio Frequency Transmission Cable (Coaxial Cable)
CRSI	Concrete Reinforcing Steel Institute
CV	Compacted Volume
DBE	Disadvantage Business Enterprise
EEO	Equal Employment Opportunity
EV	Excavated Volume
EVP	Emergency Vehicle Pre-Emption
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration, U.S.Department of Transportation
FSS	Federal Specifications and Standards, General Services Administration
FTA	Federal Transit Administration
GFI	Ground Fault Interrupter
HH	Handhole
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineers Society
ICEA	Insulated Cable Engineers Association
IMC	Intermediate Metal Conduit
ISO	International Standards Organization
IPS	Iron Pipe Size
ITC	Information Transmission Capacity

Table 7.3:1 Acronyms and Abbreviations in the *Standard Specifications*	
Acronym or Short Form	**Full Name or Meaning**
ITE	Institute of Transportation Engineers
JMF	Job Mix Formula used in the Bituminous Specifications.
KVA	Kilovolt Ampere
LV	Loose Volume for Measurements, or Leveling Course for Bituminous
MGal	1000 Gallons
MN MUTCD	Minnesota Manual on Uniform Traffic Control Devices
Mn/DOT	Minnesota Department of Transportation
MN	Statutes Minnesota Statutes
MPCA	Minnesota Pollution Control Agency
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NMC	Non-Metallic Conduit
No.	When reference is to wire, it is the AWG gauge number.
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety & Health Administration
(P)	(Defined in 1103)
PCI	Prestressed Concrete Institute
PIV	Peak Invert Voltage
PLS	Pure Live Seed
PVC	Polyvinyl Chloride
QA	Quality Assurance
QC	Quality Control
RCS	Ramp Control Signal
REA	Rural Electrification Association
RF	Radio Frequency
RHW	Moisture and Heat Resistant or Cross Linked Synthetic Polymer
RMS	Root Mean Square
RSC	Rigid Steel Conduit
SAE	Society of Automotive Engineers
SI	International System of Units (The Modernized Metric System)
SPDT	Single Pole Double Throw
SPST	Single Pole Single Throw
SSPC	Society for Protective Coatings
SV	Stockpiled Volume
SWPPP	Storm Water Pollution Prevention Plan
TH	Trunk Highway
TMC	Traffic Management Center
TMS	Traffic Management System
TSM	Traffic System Management
UL	Underwriters Laboratories, Inc.
USD	United States Department of Agriculture
UV	Ultra Violet
VAC	Volt Alternating Current (60 Hz)
VDC	Volt Direct Current
XHHW	Moisture and Heat Resistant Cross Linked Synthetic Polymer

7.4 Measurement Style

Measurements describe quantities and comprise a numeric value and a unit of measure. Use numerals for the value of a measurement; use the symbols shown below in table 3.4:1, "Measurement Units," to indicate the unit of measure. Do not use words for the number or abbreviations for the units in a measurement.

Examples:

1 m long
round to a radius of 3 mm
steel with a thickness greater than 13 mm
excavate to a depth no less than 4.5 m
add water heated to a temperature of from 21 °C to 66 °C
2 kg of inoculant per 100 kg of seed

Exceptions are discussed in Chapter 6 of this Guide, "Numerals vs. Words."

7.5 Measurement Symbols

Table 7.5:1
Measurement Symbols for Use in Dual-Unit Specifications

SI (metric)			Inch-pound	
Symbol	**Unit name**	**Physical characteristic**	**Unit name**	**Symbol**
nm	nanometer	**Length**	microinch	
µm	micrometer		mil (0.001 inch)	mil
mm	millimeter		inch	in
cm	centimeter		foot	ft
m	meter		yard	yd
km	kilometer		mile	m
		Area	square inch	sq. in
sq. mm	square millimeter		square foot	sq. ft
sq. m	square meter		square yard	sq. yd
sq. km	square kilometer		square mile	sq. mi
ha	hectare		acre	acre
		Volume	pint	pt
mL	milliliter		quart	qt
L	liter		gallon	gal
cu. m	cubic meter		cubic inch	cu. in
			cubic foot	cu. ft
			cubic yard	cu. yd
g	gram	**Mass (weight)**	ounce	oz
kg	kilogram		pound	lb
tonne	metric ton		ton, short (2,000 lb)	ton
°C	degree Celsius	**Temperature**	degree Fahrenheit	°F
ms	millisecond	**Time**	millisecond	ms
s	second		second	s
min	minute		minute	min
h	hour		hour	h

Table 7.5:1 Measurement Symbols for Use in Dual-Unit Specifications				
SI (metric)			**Inch-pound**	
Symbol	**Unit name**	**Physical characteristic**	**Unit name**	**Symbol**
km/h	kilometers per hour	**Speed**	miles per hour	mph
Pa	pascal	**Pressure**	pound-force per square inch	psi
kPa	kilopascal			
MPa	megapascal			
W	watt	**Power, energy and electrical**	watt	W
kW	kilowatt		kilowatt	kW
mA	milliampere		milliampere	mA
A	ampere		ampere	A
V	volt		volt	V
VA	voltampere		voltampere	VA
Ω	ohm		ohm	Ω
Hz	hertz		hertz	Hz
J	joule		joule	J
lm	lumen		lumen	lm
lx	lux		footcandle	fc
cd	candela			
			horsepower	hp
N	newton	**Force**	pound-force	lbf
kN	kilonewton		1,000 pounds-force	kip
N•m	Newton meter	**Torque**	pound-force foot	lbf•ft
Pa•s	pascal second	**Viscosity, dynamic**	centipoises	cP
			poise	P
sq. m/s	meter squared per second	**Viscosity, kinematic**	centistokes	cSt
L/s	liters per second	**Flow**	gallons per minute	gpm
dB	decibel	**Sound**	decibel	dB

NIST Special Publication 811, 1995 Edition: Guide for the Use of the International System of Units (SI), published by the National Institute of Standards and Technology, United States Department of Commerce, and IEEE/ASTM SI 10 (Standard for Use of the International System of Units (SI): The Modern Metric System) provide standards for the use of SI (metric) symbols in the United States.

Do not follow measurement symbols with a period unless the symbol falls at the end of a sentence. Measurement symbols are not abbreviations.

Do not add an "s" to form a plural. The symbol remains the same regardless of the quantity.

Examples:

2 kg not: 2 kgs
24 h not: 24 hrs

7.2 tonne not: 7.2 tonnes

Type a hard (nonbreaking) space between the numeric value and the symbol. A hard space prevents the number and symbol from becoming separated across lines of text, which can create confusion when it occurs.

Use symbols for measurements and technical expressions. Precede symbols with numerals, never with words.

Example:

2 m not: two m

Do not use symbols without accompanying numerals. Never leave a symbol "naked."

Example:

Measurement is by the cubic meter. not: the cu. m

Do not mix symbols and names in the same expression.

Examples:

m/s not: meters/second
meters per second not: meters/s

Do not use unit abbreviations, short forms, or symbolic representations not shown in table 3.5:1 of this Guide.

Examples:

5 g not: 5 gm
200 N•m, minimum not: 200 N•m, min.
475 N•m, maximum not: 475 N•m, max.

7.6 Mathematical and Other Signs and Symbols

Microsoft Word contains symbols and special characters for mathematical and other purposes. Access symbols by opening the Insert menu and selecting Symbols.

When using mathematical and other signs and symbols:

Type a hard space before and regular (soft) space after.

Examples:

50 mm × 50 mm × 25 mm
a minimum section modulus of 4.1×10^6 cu. mm
60 Hz × 3 Hz

Exception: no space precedes the angular degree symbol (180°). [Because the angular degree symbol serves simultaneously to designate the non-SI unit for angular measurement and to help punctuate and show the numeric quantification and precision of the measurement, as in: 30°22’8” (read: thirty degrees, twenty-two minutes, eight seconds).]

7.7 Ranges

A range is defined by two endpoints. The endpoints may be inside and part of the range, or outside and excluded from the range.

Whether in text or in tables, when defining a series of related ranges that together describe a complete set of possibilities, ensure that no number or measurement can fall in more than one range. That is, make the ranges mutually exclusive. In the following example, one large range (from 0 mm to 750 mm) is divided into three mutually exclusive ranges by two internal endpoints (250 mm and 500 mm) that fall into the first and second ranges, respectively, and cannot fall elsewhere.

Example:

from 0 mm to 250 mm; over 250 mm to 500 mm; over 500 mm to 750 mm

Not:

from 0 mm to 250 mm, 250 mm to 500 mm, 500 mm to 750 mm

7.7.1 Ranges in Text

In text, indicate a range that includes the endpoints by using the words from and to. The word inclusive may be added as appropriate to increase clarity. Provide the unit symbol after each numeric value. Do not use a dash (–), which can too easily be confused with a minus sign.

Examples:

from 10 m to 14 m not: from 10 to 14 m
from 25 °C to 30 °C not: from 25 to 30 °C
from 0.90 L/sq. m to 1.5 L/sq. mnot: from 0.90 to 1.5 L/sq. m

7.7.2 Ranges in Tables

As best warranted to ensure clarity, describe ranges in tables using symbols only. However defined, do not create adjoining ranges with shared endpoints. Table 3.7.2:1, "Ranges," shows the use of the method to divide a range from 0 to 100, inclusive, into four contiguous smaller ranges.

Example:

Table 7.7.2:1
Example of Symbols in Tables

Test	Operating Range (Test Value)	Contract Compliance (Test Value)
Resistance (R-value)	≤25	≥78
Sand equivalent	>25 – 50	≥22
Durability index	>50 – 75	≥35
—	>75 – 100	—

When using symbols, use an en dash (–) to show inclusive ranges. Use an em dash (—) to show blank cells. Do not use the keyboard hyphen, which should only be used to hyphenate words. Use the greater than (>) and less than (<) symbols for a range from which the endpoints are excluded. Use the symbols for greater than or equal to (≥) or less than or equal to (≤) to indicate the inclusion of an endpoint or endpoints in a range; do not abbreviate "minimum" or "maximum" so as to avoid potential confusion between the abbreviation for minimum ("min.") and the symbol for minute (min).

7.8 Minimum, Maximum, Minutes

Avoid the use of abbreviating *minimum, maximum,* or *minutes.* The SI symbol "min" represents the unit of time called a minute. To avoid potential confusion, do not use the similar looking abbreviation for the word minimum (i.e., "min."). In the *Standard Specifications* use alternate phrases such as "no greater than" in place of *maximum* and "no less than" or "at least" in place of *minimum.*

7.9 Tolerances

Tolerance is defined as the allowable variation from a specified standard. If tolerances are provided, give the measurement unit with both the numeric value of the standard and the allowed variation around the standard.

Dimensions can have separate positive and negative tolerances. Such dimensioning calls attention to the specified standard, but permits as much positive and negative variation as possible up and down, although the values are not the same. Give the measurement unit with the numeric value of the standard and with the numeric values for both the allowed positive and negative variation. Use the plus sign before the positive value and the minus sign before the negative; separate the two tolerances with a comma.

Examples:

10 m + 3 m, -1 m
130 mm + 3 mm, -9 mm

Place the ± symbol directly before the numeric value (without separation by a space).

7.10 Additional Rules and Examples

Always precede a measurement symbol with a numerical value. Never precede or follow a measurement symbol with a hyphen.

Examples:

a minimum thickness of 0.71 mm not: a minimum thickness of 0.71-mm
a sieve size of 25 mm not: a 25-mm sieve
barrels with a capacity of 210 L not: 210-L barrels

Rearrange words as necessary to avoid ambiguity. For example, replace "The Contractor shall place the samples in 22 mL vials" (which can be read as requiring the placement of 22 separate samples in one millimeter vials) with "The Contractor shall place samples in vials with a volume of 22 mL."

Use the multiplication cross symbol (×), not the word by, to indicate dimensionality. Provide the unit symbol after each numeric value.

Example:

2 mm × 4 mm not: 2 mm by 4 mm
not: 2 × 4 mm

8 Tables

8.1 General

Keep tables as simple as possible, both in layout and content. Display information so it can be grasped quickly and without confusion. For additional guidance on the format and design of tables, consult chapter 13, "Tables," of *Chicago* (chapter 12 in *Chicago*, 14th Edition).

8.2 Tables

Give every table a title. Capitalize the first letter of significant words in the title. Do not place a period at the end of the title.

Number tables uniquely. Precede the number with the word Table. Begin the number with the *Standard Specification* section number in which the table appears, followed by a non-breaking hyphen and the sequential number of the table within the section, starting with the numeral 1. Do not use Roman numerals. Begin renumbering with each new section.

Make table titles self-contained. The title should convey the information needed to correctly interpret the data in the table. Use a title to provide information about the substance of a table when cross-referencing a table in the *Standard Specifications*.

> *Example:*
>
> Topsoil borrow will be accepted for payment in accordance with the provisions of Table 2105-1, "Topsoil Borrow Acceptance Schedule."
>
> *Not:*
>
> The topsoil borrow accepted for payment shall be as indicated in the table in 2105.5, "Basis of Payment,"…

In text, refer to tables by number and complete title. Introductory phrases such as "the following table" or similar terms are not necessary; do not use.

8.3 Table Layout

Adjust the layout of a table by using the "Table Properties" option. Center the table, number, and title horizontally on the page. Do not allow tables to exceed the margins of the paper. Make tables no more than 6.5 inches wide on standard 8.5 inch wide paper. Set the table number and title each on their own line, and

each in 10-point bold font. Set the number above the title, and place both in the top cell above the table.

Use the "Borders and Shading" menu to place a single 1½-point horizontal line between the table data and the table notes, and between the table column headers and the table text. Place a single ½-point horizontal line for all other lines within and around the table.

Align column headings in the center of a cell horizontally and at the bottom vertically. Set column headings in 10-point bold. Capitalize the first letter of the first word and first letter of subsequent significant words in the column headings. Format rows with a 0.2 inch hanging indent. Align table text as applies in the table and in 9.5-point Times New Roman text. Place an em dash in blank cells and place an en dash between ranges (see also chapter 10.5, "Hyphens and Dashes.").

Example:

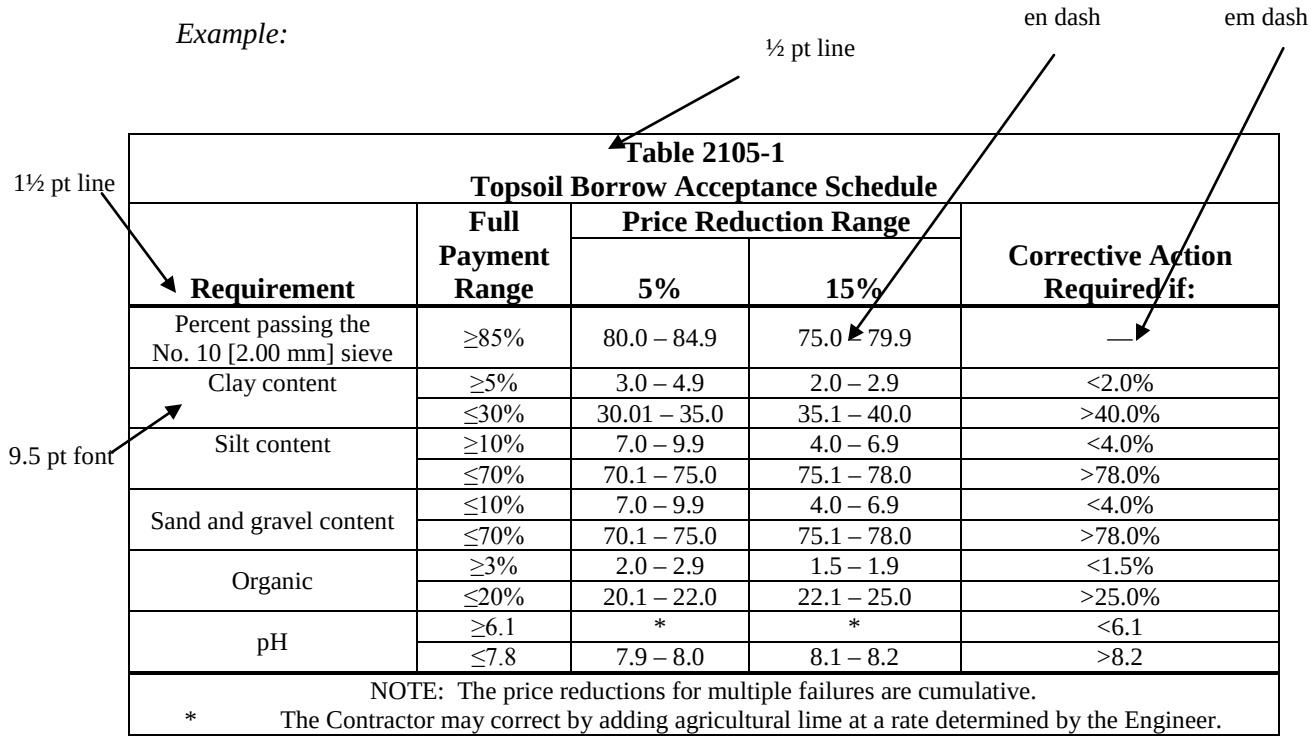

Table 2105-1
Topsoil Borrow Acceptance Schedule

Requirement	Full Payment Range	Price Reduction Range		Corrective Action Required if:
		5%	15%	
Percent passing the No. 10 [2.00 mm] sieve	≥85%	80.0 – 84.9	75.0 – 79.9	—
Clay content	≥5%	3.0 – 4.9	2.0 – 2.9	<2.0%
	≤30%	30.01 – 35.0	35.1 – 40.0	>40.0%
Silt content	≥10%	7.0 – 9.9	4.0 – 6.9	<4.0%
	≤70%	70.1 – 75.0	75.1 – 78.0	>78.0%
Sand and gravel content	≤10%	7.0 – 9.9	4.0 – 6.9	<4.0%
	≤70%	70.1 – 75.0	75.1 – 78.0	>78.0%
Organic	≥3%	2.0 – 2.9	1.5 – 1.9	<1.5%
	≤20%	20.1 – 22.0	22.1 – 25.0	>25.0%
pH	≥6.1	*	*	<6.1
	≤7.8	7.9 – 8.0	8.1 – 8.2	>8.2

NOTE: The price reductions for multiple failures are cumulative.
* The Contractor may correct by adding agricultural lime at a rate determined by the Engineer.

8.4 Table Notes

Place notes to a table immediately after the table to which they belong. Place mandatory text in the table or in a footnote. Align notes flush with the table's left edge.

General notes: apply notes to the table as a whole and introduce with the word NOTE(S) set in capital letters and followed by a colon. General notes can apply to the table number or title.

Notes on specific parts of the table: refer to notes using the following symbols in accordance with the *Chicago Manual of Style*: * ‖ † ‡ # §. Place these symbols next to column headings or in the body of the table, but not on the table number or title.

8.5 Dates in Tables

Use abbreviations in tables where space is limited. Express all dates using the following system:

To specify a month without a year, write:

Jan.	May	Sep.
Feb.	Jun.	Oct.
Mar.	Jul.	Nov.
Apr.	Aug.	Dec.

9 Lists

9.1 General

Use lists when logically appropriate. Display vertically, and number each item, starting with the numeral 1 in parentheses.

9.2 Capitalization

Capitalize the first word of each numbered item.

9.3 Punctuation

If one or more of the items in a list is a complete sentence, end each item with a period. In a series consisting of three or more simple items, separate the items with commas (see chapter 10.1, "Serial Commas") and put a period at the end of the last item. In a list composed of long, complex items, or items with internal punctuation, of which none is a complete sentence itself, separate the items with semicolons and put a period at the end of the last item.

Example:

Provide the following information for each shipment of splice material:
(1) The type or series identification of the splice material and, for sleeve-threaded type sleeves, the heat treatment lot number;
(2) The bar grade and size number to be spliced by the material;
(3) A copy of the manufacturer's catalog giving complete data on the splice material and procedures; and
(4) A statement that the splicing systems and materials used in accordance with the manufacturer's procedures will develop not less than the minimum tensile strengths …

9.4 Sublists

If necessary, a list may contain a list or sublists. Refrain from creating sublists greater than one level lower than the main list. Enumerate each item using the number of the parent item in the primary list, followed by a period, and then a numeric sequence beginning with the numeral 1 (see also chapter 10, "Punctuation").

Example:

Coat pretreated metal target plates an opaque white on both sides in accordance with one of the following paint systems:
(1) One-Coat System.

(2) Two-Coat System. Test dry film in conformance conforming to the following thicknesses:
(2.1) Primer …
(2.2) Primer plus top coat …

9.5 Structure

Phrase each item similarly; begin items in the same way (with a noun, verb, preposition, etc.). Express parallel ideas in parallel form. Adjectives should be paralleled by adjectives, nouns by nouns, prepositions by prepositions, and so on.

Example:

Use reclaimed materials for aggregate from any (including combinations) of the following:
(1) Asphalt concrete,
(2) Portland cement concrete,
(3) Lean concrete base, or
(4) Cement-treated base.

Grammatically, each of the four items in the list is composed of a noun (concrete or base) modified by an adjective or adjectives (asphalt, portland cement, lean, concrete, cement-treated), and without change each item would yield a grammatically complete ending to the root of the introductory clause. For example:

The Contractor may use reclaimed materials for aggregate from asphalt concrete.

The Contractor may use reclaimed materials for aggregate from portland cement concrete.

The Contractor may use reclaimed materials for aggregate from lean concrete base.

The Contractor may use reclaimed materials for aggregate from cement treated base.

10 Punctuation

10.1 Serial Commas

Within a sentence, use a comma to separate each element in a series of three or more elements; use a comma before the conjunction ("and" or "or") joining the last two elements in the series.

Examples:

Provide at least eight individually selectable outputs, each selectable by time-of-day, day-of-week, and week-of-year.
Do not use mortar blocks, bricks, wood, or aluminum framework to support deck slab reinforcement.
Protect trees, shrubs, and other landscape features designated by the Engineer for preservation from abuse, marring, or damage during construction.

If a vertical list (see chapter 9, "Lists") contains incomplete sentences perform one of the following:

(1) Punctuate the items as running text (as in this example),

(2) Eliminate punctuation separating the items, or

(3) Use a period at the end of each listed element.

Example:

The Department will not accept stainless steel cabinets that, after grinding or brushing, show rust discoloration when subjected to:
(1) Exposure for 48 hours in a salt-spray cabinet in accordance with ASTM B 117, and
(2) Exposure for 24 hours in a tap water spray cabinet with a water temperature of from 38 °C to 45 °C.

If one or more elements in a list contains a complete sentence, end each element (sentences and sentence fragments) with a period.

10.2 Closing Quotation Marks

Place periods and commas required by a sentence inside closing quotation marks, regardless of whether the period or comma is part of the quoted matter.

Examples:

Lay the downstream end on top, creating a "shingle effect."

The contact pressure is “the average ground contact pressure,” expressed in pascals.

10.3 Quotation Marks Around Words as Words

Use quotation marks when referring to specific words that appear elsewhere on signs, labels, drawings, and the like. Use the same capitalization and typography as the quoted sign or words; Do not otherwise use all-capitals, bold typefaces, or similar typographic features for added emphasis.

Examples:

The Engineer will mark each drawing “final.”
Install pull box covers marked “Traffic Signal” when the box contains traffic signal conductors.

Do not place quotation marks around words that describe the content of a sign or label, but are not the actual wording on the sign or label.

Example:

Equip the upraised-hand portion of the pedestrian signal face with an LED module.

Not:

Equip the “Upraised Hand” portion of the pedestrian face with an LED module.

Not:

Equip the “UPRAISED HAND” portion of the pedestrian face with an LED module.

10.4 Letters as Shapes

Type letters used as shapes in **BOLD CAPITALS**. Do not use quotes around the letter. Link the letter and following word with a hard hyphen if warranted.

Examples:

U-shaped staples an **A**-frame structure
Y-connector a **J**-seam
U-bolts an **S** curve
O-ring **H**-pile
I-connector

10.5 Hyphens and Dashes

There are four distinct typographic characters, each with distinct uses:

hyphen: - en dash: – em dash: — minus sign: −

The shortest of the four is the hyphen, which is produced directly from the keyboard. Use the hyphen to hyphenate two words in a compound adjective or words with a hyphenated prefix:

Examples:

two-way
pneumatic-tired-rollers

Do not use a hyphen to indicate a numeric range, to connect a measurement symbol with a numeral, or as a minus sign.

Use the en dash in tables to indicate a numeric range.

Use the em dash in empty cells within a table or to amplify or set off a clause within a sentence:

Example:

At the request of the Engineer, immediately remove — and not again use on the project — a subcontractor who fails to satisfactorily prosecute the work.

Use the minus sign in mathematical formulas and with numerals to show negative values.

10.6 Hard Spaces

Use a nonbreaking (hard) space to hold together parts of a measurement, dimension, or phrase that could cause confusion if allowed to separate at a line break.

To insert a hard space, open the Insert, Symbol, and Special Characters menus and select “nonbreaking space,” or hold down the Ctrl and Shift keys and press the space bar.

Use the hard space between the following:

(1) A numeral and an accompanying word (July 4);

(2) Numerals and units (15 mm);

(3) Numerals and the word percent (90 percent)

(4) The words section, item, and article and an accompanying number; and

(5) The letter and the number of ASTM and similar specifications (ASTM C 595).

Exception: Do not use a space of any kind (hard or otherwise) between the numeric value and the unit symbol for plane angle (°).

Example:

Rotate the handle 180°.

11 Capitalization

11.1 General

Be consistent. Avoid overcapitalization. Excessive capitalization slows reading and reduces the very emphasis capitalization aims to achieve.

11.2 Specific Categories

Capitalize the names of companies, unions, associations, independent committees and boards, and other specific organizations. Follow the style established by the organization itself.

Capitalize the following words or categories of specific names and things:

(1) ACRONYMS and INITIALISMS

(2) Proper nouns

(3) Titles of sections and titles of tables in *Standard Specifications*

(4) Document titles (see chapter 4):

Do not capitalize descriptive job titles:

Examples:

the disbursing officer
the district director
the county agricultural commissioner
the county sealer of weights and measures

11.3 Common Nouns, Common Usage

Overcapitalization creates confusion, particularly when common nouns that might refer to any one of several people, places, or things are capitalized; the capitalization suggests there is only one such thing, when in fact there are many. Similarly, capitalizing a descriptive phrase can incorrectly suggest a reference to a specific, named standard, manual, or agency.

Do not capitalize:

(1) appendix

(2) bidder

(3) certified public accountant

(4) district

(5) federal

(6) federal-aid

(7) payment bond

(8) performance bond

(9) plans

(10) portland cement

(11) professional engineer

(12) section (when not specifying a section number and title in *Standard Specifications*)

(13) special provisions

(14) specification

(15) subcontractor

(16) table (except when specifying a table number and title in *Standard Specifications*)

(17) utility company

(18) web

(19) website

11.4 Specific Words in a Specific Context

Capitalize the following common nouns only in the context indicated:

(1) Contractor (when used in reference to the contracting firm that executed the contract, and as defined in the “General Requirements and Covenants” of the *Standard Specifications*)

(2) Department (when used in reference to the Minnesota Department of Transportation, and as defined in the “General Requirements and Covenants” of the *Standard Specifications*)

(3) Engineer (when used in reference to the resident engineer responsible for a project, and as defined in the “General Requirements and Covenants” of the *Standard Specifications*)

(4) Engineer’s Estimate (when used as defined in the “General Requirements and Covenants” of the *Standard Specifications*)

(5) Internet (when used to describe the system that links existing computer networks into a worldwide network.)

(6) State (when used as a noun referring to the governmental entity known as the State of Minnesota, and as defined in the “General Requirements and Covenants” of the *Standard Specifications*)

(7) Table (when referring to a numbered and titled table within the *Standard Specifications*).