CITY OF SEATTLE

Supplement
to
Standard Specifications
for
Municipal Public Works Construction

1970

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City of Seattle

Supplement
to
Standard Specifications
for
Municipal Public Works Construction

prepared by
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Roy W. Morse
City Engineer

Philip M. Buswell
Principal Assistant City Engineer

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FOREWORD


For every City of Seattle sponsored public works project, the supplements contained herein, the 1969 publication of Standard Specifications for Municipal Public Works Construction, the City of Seattle Standard Drawings, 1970 supplement, the laws of the State of Washington, the Charter and ordinances of the City of Seattle, the project proposed and the project plans shall constitute the contract for the project and shall be considered as a whole.

The City Engineer maintains a register of all persons or agencies holding copies of this specification. Revisions thereto, as printed, will be mailed to holders of record at the address on file in the office of the City Engineer. Please notify the City Engineer, attention Standard Specifications Register, of any change of address.
DIVISION 1 -- GENERAL REQUIREMENTS AND COVENANTS

Page 1

Section 1.02 ENGINEER
The City Engineer, or executive officer of another department when such other department plans and supervises public construction for the Board of Public Works in accordance with Article VII of the Charter of The City of Seattle, including such assistants as are authorized to represent him, except that in Section 7.14A, 7.15B, 7.15D, 7.17 and 7.18 the term "Engineer" shall mean the City Engineer of The City of Seattle.

Section 3.03A Bidding Errors

This section shall be deleted.

Section 3.02 RETURN OF PROPOSAL GUARANTY

After the bids have been tabulated and compared, the Board of Public Works will return the proposal guaranty to all but the successful bidder. The successful bidder's deposit will be retained pending the execution of the contract and the bond thereof.

Section 3.05 FAILURE TO EXECUTE CONTRACT

Upon failure to enter into the contract and furnish the necessary bond within the time specified in Section 3.05, the proposal guaranty which accompanied the bid, whether it be in the form of a bond, check, or cash deposit, shall be forfeited to the Owner. The Board of Public Works will then consider and accept proposals for such work. Neither the Board of Public Works nor the City Council may remit such forfeiture of proposal guaranty.

New Section

Section 4.09 PROTESTS
If the Contractor considers any work demanded of him to be outside the description of the contract, or considers any ruling of the Engineer to be unfair, he shall immediately, upon such work being demanded or such ruling being made, proceed without delay to perform the work or to conform to the ruling, and within twenty (20) days after date of receipt of the instructions or ruling, he shall file a written protest with the Engineer, stating clearly and in detail the basis of his objection, and include an itemized statement of any extra costs which may have resulted. Except for such protests or objections as are made of record in the manner herein specified and within the time limit stated, the records, rulings, instructions or decisions of the Engineer will be final and conclusive.

Section 5.10 DAMAGE TO EXISTING IMPROVEMENTS AND UTILITIES

The second paragraph shall be amended as follows:

Underground utilities of record, except services, will be shown on the construction plans or located in the field prior to the work and written to the City Engineer of Record in a timely manner to enable the construction to proceed without delay.

This section shall be deleted.

Section 6.02 SAMPLES AND TESTS
(Refer to Materials Laboratory of the Seattle Engineering Department rather than Materials Laboratory of the Department of Highways.)

Page 8

Section 6.03 SPECIAL METHODS OF TEST
(Refer to Materials Laboratory of the Seattle Engineering Department rather than Materials Laboratory of the Department of Highways.)

Page 10

Section 7.05A Non-Discrimination Certificate

This section shall be deleted. (Reference is made to Ordinance 93386, a copy of which is to be included with all special provisions.)

New Section

Section 7.14A Warning Lights and Barricades

It shall be unlawful, in accordance with the prevailing Street Use Ordinance, for anyone, in any manner, to obstruct, excavate or tear up any public place, without at all times during the hours of darkness maintaining, at the point of obstruction or excavation, a barricade and four or more red or flashing amber lights of sufficient power and brilliancy and so placed as to be plainly visible for a distance of not less than five hundred (500) feet along the public way from the point of such obstruction. Obstructions in public places during daylight hours shall have sufficient barricades posted in such a manner so as to indicate plainly the danger involved. Barricades may be removed at the completion of the work or the removal of obstructions in public places, providing the surface of the roadway has been restored as required and approved by the Engineer. Adequate alternate warning lights and barricades must be posted on all obstructions in any arterial street as defined in the Charter of the City of Seattle.

The Engineer is hereby authorized to place barricades and warning lights at ungraded or inadequately guarded excavations, obstructions or other dangerous conditions existing in any public place and anyone causing or permitting such conditions shall pay the cost of such barricading and lighting by the party at the rate and under the conditions established by ordinance.

The Engineer's judgment shall be final as to the number and adequacy of lights or barricades at all obstructions and excavations.

Section 7.15B Street Closures or Partial Closures

Streets may be closed to through traffic unless otherwise provided for in special permits. Streets shall not be closed to traffic until such closure has been approved by the Engineer. Street closures shall be made in such a manner as to provide maximum public safety and public convenience. They shall be opened to through traffic, at such time as the work has been completed, or as the Engineer may direct.

Whereas the standard specifications require the project area be closed to traffic for a definite length of time, the Engineer, the Contractor shall completely barricade the street, alley, driveway or other access to the project with suitable barricades. No direct payment will be allowed for furnishing, placing and removal of barricades as required, and all costs therefor shall be included in the unit bid prices in the proposal.

Section 7.15D Existing Traffic Signs and Facilities

The Owner will make all necessary adjustments to traffic signals and traffic signal actuation at no cost to the Contractor. STOP, YIELD and Street Name signs which will interfere with construction
shall be removed by the Contractor and stored in a safe and approved location. These signs shall not be removed, how- ever, until the Engineer has so directed and until the narrator provision has been taken to safeguard traffic as after the signs have been removed.

Preservation and maintenance of the signs shall be the sole responsibility of the Contractor.

All signs for replacement of stored same signs and posts and protective signs and posts, due to loss or damage by the Contractor, shall be charged to the Contractor.

Upon completion of the project, the Owner will remove all such signs at their permanent location at no cost to the Contractor and the costs for same signs for signs are to be perma-
nently located in concrete sidewalk, the Contractor shall, during the project of the work, notify the Engineer two (2) working days prior to constructing the walk in order to allow sufficient time for the Owner to place the post ahead of the sidewalk pouring.

Preservation, maintenance and erecting of all signs, as installed above, shall be considered incidental to the construc-
tion, and all costs to construction therewith shall be considered to be included in the prices bid for the various items pertaining to the improvement.

Page 13 Section 7.15F Local and Emergency Traffic.

(Delict the second paragraph.)

Page 12 Section 7.16 Flagmen.

Whenever necessary, and during the times set forth in the special provisions, the Contractor shall provide a set of flanged旗men acceptable to the Engineer who shall maintain the safe and efficient traffic through and about the area to the work.

The Engineer shall have complete authority to require the Contractor to remove from the project any flanged flagmen whose performance is not suitable or acceptable.

Page 13 Section 8.02 NOTICE TO PROCEED AND PROJ-
ECTION OF THE WORK.

The following paragraph shall be added:

Written notice to proceed will be given after the contract has been executed and the performance bond and all re-
quired insurance have been filed with and approved by the Owner. The Contractor shall not be responsible for delays in the contract until such written notice has been given by the Engineer.

Page 14 Section 8.05 CONTRACT TIME.

The improvement contemplated by the contract shall be constructed and completed as entirety within the number of working days, or by definite completion date specified in the special provisions. The contract time shall commence at the time written notice is given to proceed by the Engineer.

Page 15 Section 8.12 OVERTIME WORK BY OWNER.

Contractors desiring to perform contractual work on holidays, Saturdays and Sundays shall apply to the Engi-
eer’s office in writing. The Engineer will determine whether such work is necessary, permission will be granted, and the overtime costs resulting from work on the aforementioned days shall be borne by the Contractor if provided if the work is determined not to be essential, permission will not be granted.

The work performed by the Engineer on holidays, Satur-
days and Sundays will be classified as “essential overtime” and shall be paid for at the rate established by the prevailing City Salary Ordinance. Payment for work performed on holidays will be made partially from money withheld from the Con-
tactor’s final payment and partially from the improvement fund. The Contractor shall pay that portion of the Engi-
neer’s salary in excess of normal working time, with the exception of February 1, October 12 and November 1, which are additional City holidays as outlined in Section 8.05. Engineering costs on these additional holidays will be paid entirely from the improvement funds.

Page 15 Section 9.03 PAYMENT FOR EXTRA WORK.

The following paragraph shall be added:

Where payment for extra work is by lump sum price or by unit prices mutually agreed upon by the Con-
tractor and the Owner, the Contractor shall include in the agreed prices, retail sales tax on storable materials when such extra work is for improving public roads. When the extra work is for water systems, sanitary sewer systems, sewage disposal facilities, etc., not directly related to public roads, the Contractor shall not include retail sales tax in his agreed prices. The Contractor is advised that the sale to him of necessary materials, supplies, etc., are sales for resale and the Owner will pay the retail sales tax on the entire extra work.

Page 17 Section 9.05 PROGRESS PAYMENTS, DE-
FINED, PAYMENT RETAINED PERCENTAGE.

The first paragraph shall be amended as follows:

The Contractor shall be entitled to receive progress payments corresponding to the stage of the work. Progress payments shall be prepared by the Engineer not later than thirty (30) days after completing work, and every thirty (30) days thereafter, as if an entitled, for the duration of the con-
struction. These shall be based upon an approximate esti-
mate of quantities of work performed and completed acceptable, multiplied by the unit prices established in the contract.

The following paragraph shall be added:

It is provided, however, pursuant to the laws of Washing-
ton relative to labor on public works, that these sums shall be deducted from each monthly progress payment such per-
centage shall be retained by the contractor on completion of all work.

Page 17 Section 9.06 ACCEPTANCE OF CONSTRU-
CTION.

The first and second paragraphs shall be amended as follows:

Acceptance of construction shall be defined as final approval of the project only if that has been constructed, cleaned up and completed in accordance with plans and specifications.

A contractor shall be accepted as final at such time as the Board of Public Works finds they are entirely completed. It is provided further that such approval shall not constitute an acceptance of any unauthorized work, that no payment made under the contract except the final payment shall be evidence of the contract, either wholly or in part, and that no payment shall be made for any unauthorized work or improper material.

Page 19 Section 12.2.03 PROTECTION OF EXISTING IMPROVEMENTS DURING GRUBBING OPERATIONS.

Page 19 Section 12.2.04 CONSTRUCTION DETAILS.

The second sentence in the first paragraph shall be amended as follows:

Piling shall be removed to a minimum depth of two (2) feet below subgrade or two (2) feet below original ground, whichever is lower.

Page 19 Section 12.4.01 PRESERVATION OF EXISTING TREES.

It shall be the responsibility of the Contractor to preserve any tree for which the special provisions or plans to provide for or for which the Engineer may direct.

If the Contractor damages or destroys a tree which has been directed to preserve, he shall replace it in like fashion, size, and grade with a healthy tree acceptable to the Engineer, and guarantee the tree to live for a period of two (2) years. Should the tree not survive for the period prescribed, it shall be replaced in species, size, and grade and if the Contractor fails to replace a tree damaged or destroyed as a result of his operations, he shall forfeit twelve (12) dollars per square foot of sectional area measured six (6) inches above the ground line of the damaged or destroyed tree. The calculated value of the tree as described above shall be withheld from the final payment to the Contractor.

Page 19 Section 12.4.02 DESCRIPTION.

This section shall be deleted.

Page 20 Section 12.4.02 MEASUREMENT, ORNAMENT-
AND DANGIER TREES. This section shall be deleted.

Page 20 Section 13.01 CLASSIFICATION.

Roadway excavation, comprising all materials within the roadway including embankments, subgrade, plan-
ing strips, shoulders or sides or shoulders or other subgrades.

The widening of street cuts and ditches will be considered as street excavation and not borrow.

Borrow materials, approved by the Engineer, shall be secured by the Contractor at his own expense and from a source of his own choosing.

Page 25 Section 13.12 STRIPPING QUARRIES AND MTS. This section shall be deleted in its entirety.

Page 26 Section 13.4 MEASUREMENTS.

Paragraph two shall read as follows:

"Borrow will be measured by the ton at the point of delivery."

Page 27 Section 13.15 PAYMENT

Bid items 1, 5, 6, 7, 8, 9, 10, 12, 14 and 17 shall be deleted.

Bid items 1 and 3 shall be amended to read as follows:

"Common Excavation," per cubic yard.

"Soil Rock Excavation," per cubic yard.

The following bid items shall be added:

"Soil Rock Excavation," for deep excavation,按 with specifications thereof.

"Solid Rock Excavation," for all solid rock in ledges, bedded deposits and unstratified masses and con-
glomerate deposits. It is defined as the excavation of all characteristic of solid rock and which cannot be removed without drilling and blasting, and all boulders containing a volume of more than one-half (1/2) cubic yard. All solid rock layers with an overburden of unstratified rock or solid rock layers interstratified with strata of clay or similar material shall be classified as "Solid Rock Excavation" for the total depth of excavation in which the solid rock strata constitute not less than forty percent (40%) of the total depth.

"Common Excavation" shall include all other material not classified as solid rock.

Page 23 Section 13.300 ENHANCEMENT CONSTRUCTION.

The first sentence in the fourth paragraph shall read as follows:

"At the time of completion, the maintenance of the enhancement material, using a one-fourth inch (1/4") view shall not be more than three (3) percent-
age points above or below the optimum moisture content.

It shall be determined in the "Construction Compaction Test" specified in Section 13.05.

Page 24 Section 13.3.01 COMPETITION CONSTRUCTION.

Optimum moisture content and measured performance for other than granular materials shall be determined in ac-
cordance with ASTM Designation D 498, Method C.

For granular materials, required density shall be deter-
mined in accordance with the City of Seattle Compaction Control Method for Granular Materials.

Instructions for both of these methods may be had without charge upon request to the Materials Laboratory, Seattle Engineering Department, Municipal Building, Seattle, Washington.

Page 24 Section 13.3.11 BORROW.

Borrow shall consist of suitable material obtained from pits for the construction of embankments, subgrade, plan-
ing strips, shoulders or sides or shoulders or other subgrades.

The widening of street cuts and ditches will be considered as street excavation and not borrow.

Borrow materials, approved by the Engineer, shall be secured by the Contractor at his own expense and from a source of his own choosing.

Page 26 Section 13.3.12 STRIPPING QUARRIES AND MTS. This section shall be deleted in its entirety.

Page 26 Paragraph three shall be deleted.

Page 26 Section 13.5 PAYMENT.

Bid items 1, 4, 5, 6, 7, 8, 9, 10, 12, 14 and 17 shall be deleted.

Bid items 3 and 7 shall be amended to read as follows:

"Common Excavation," per cubic yard.

"Soil Rock Excavation," per cubic yard.

"Solid Rock Excavation," per cubic yard.

"Soil Rock Excavation," per cubic yard.

"Common Borrow," per ton.

Page 27 Paragraph two shall be revised to read as follows:

"The unit contract prices for each type of end classes of excavation and borrow listed above shall be full compen-
sation for excavating, loading, placing or otherwise dis-
posing of the material as shown on the plans, is specified or as directed by the Engineer, and shall include the removal and disposal, the waste or stock-piling of forest debris or any top soil or organ soil and the payment of any cost or service or as may be directed by the Engineer."

Page 27 Paragraph three shall be deleted.

Page 28 Paragraph eleven shall be revised to read as follows:

"The unit contract prices per hour for the operating
equipment listed shall be full compensation for furnishing and operating the assemblies and for all rentals, supplies and labor to perform the work specified."
Paragraph twelve shall be deleted.
Paragraph thirteen shall be revised to read as follows:
"The event, solid rock is encountered on any project for which no payment is to be made in the bid proposal, compensation for necessary removal shall be by extra work as outlined in Section 9.03."
Paragraphs fourteen and fifteen shall be deleted.

Page 27 Sections 14-8.01 SUBGRADE FOR BASE MATERIALS
Paragraph six shall be amended to read as follows:
"When ordered by the Engineer, the Contractor shall sprinkle the subgrade with water in such quantities as directed. No compensation will be paid therefor."

Page 29 Section 15-1 PAYMENT
Paragraph four shall be deleted.

Page 29 Sections 16-1.01 WATER FOR STREETS
The first sentence shall be amended to read as follows:
"Water for compacting embankment, constructing subgrade, placement of concrete pavement and crushed surfacing, and for laying dust caused by grading operations or public travel, if ordered by the Engineer, shall be applied in the amounts and places designated by the Engineer."

Page 30 Sections 16-2.01 WATER SUPPLY
The Owner will furnish, at the nearest source, all necessary water for construction and testing purposes at no cost to the Contractor, unless otherwise noted in the special provisions.

Page 30 Sections 16-2.02 REQUIREMENTS AND RESPONSIBILITY
Title shall read: REGULATIONS FOR USE OF FIRE HYDRANTS
The Contractor shall use only those hydrants designated by the Seattle Water Department, and in strict accordance with their requirements for hydrant use as stipulated in Ordinance 63,977 and as outlined in the following Board of Public Works regulations:
1. A written permit will be required for the use of a hydrant by other than employees of the Fire and Water Departments.
2. Wherever possible, use of water from hydrants shall be through a meter equipped with a hand-operated valve on the outlet side of the meter, and affixed to the hydrant by an employee of the Water Department.
3. The Water Department employees shall ascertain that the hydrant is in good working order, shall open the main stem fully after affixing the meter to the hydrant, and shall also close the hand-operated valve affixed to the meter. If the hydrant is equipped with an independent stem and gate, the Water Department shall also open the independent port in which the meter is affixed. (The above will provide the necessary for any hydrant operation by unauthorized personnel.)
4. If it is not required or practical to use a meter in conjunction with the use of water through a hydrant, it will then be required that control of the water taken from a hydrant shall be by means of a special auxiliary valve affixed to an independent port, said valve to be equipped with a hand-operated control.
Valves will be made available by the Water Department to those authorized by permit to draw water from a hydrant.
5. When Water Department valves are utilized, a deposit covering the cost of such valves and fittings, in addition to any other costs or charges, shall be made at the time the permit is issued. Wherever possible, such auxiliary valves shall be installed by Water Department personnel who, at the time of installation, shall ascertain that the hydrant is in good operating condition, shall open the main stem of the hydrant fully, and ascertain that the independent gate controlling the outlet to be used is also open.
6. If it is not practical for the Water Department to install the auxiliary valve on the independent hydrant ports, those to whom permits are issued shall be fully instructed in the correct operating of a hydrant, and after the main valve is open on the hydrant, all control of water flow thereafter shall be by means of the auxiliary valve. Removal of meters and valves will be done by Water Department personnel, at which time the hydrant and all equipment will be inspected.
7. All fees, estimates of rental charges and estimates of inspection and repair costs shall be collected at the time a permit is issued for hydrant use. The rates to be charged for valves furnished by the Water Department are as follows:
$75.00 per fire hydrant valve.
$50.00 deposit per valve – will be returned at completion of job.
8. The Contractor will be required to make a deposit for valves for one full day's operations when a permit is issued, and the Water Department will add additional valves added to a minimum of one valve in accordance with piping operations.
This system also applies where series of hydrants are used in water settling trenches, jetting, sluicing and making hydraulic earth fill.

Page 30 Sections 16-3.03A Jetting
The last two paragraphs shall be deleted.

Page 30 Sections 16-3.03B Shimming
The second paragraph shall be deleted.

Page 30 Sections 16-4 MEASUREMENT
This section shall be deleted.

Page 30 Sections 16-5 PAYMENT
The second paragraph shall be deleted.

New Sections 20-1 Description
Section
Mineral aggregate shall be free of wood, roots, bark and other extraneous material.

Classification of mineral aggregates shall be by type number, and for each type specified, the grading shall conform to the requirements in the Table shown on page 6.

Page 34 Sections 22-1 THROUGH 22-4 PRODUCTION FROM QUARRY
This section shall be deleted in its entirety.

Page 36 Section 23-2.01 CRUSHED SURFACING
Crushed surfacing shall be manufactured from ledge rock. The materials shall be uniform in size and free of wood, roots, bark and other extraneous material and shall meet the test requirements for type aggregates No. 1 through 6, inclusive, as outlined in the Mineral Aggregate Table in Section 20.

Page 37 Sections 23-2.02 BALLAST
Ballast shall consist of crushed, partially crushed or naturally occurring granular material from approved sources. In the manufacture of ballast, all oversize material up to and including boulders of ten inches (10") in the greatest dimension shall be utilized in the manufacture of the finished product.

The material from which ballast is to be manufactured shall meet the test requirements for type aggregate No. 14 outlined in the Mineral Aggregate Table in Section 20.

Page 38 Sections 23-3.11 HOURS OF WORK
Normally, the Contractor shall not arrange his surfacing operations in such a manner that the work will be carried on during the hours of daylight. However, when necessary to complete the project within the time specified, work may be undertaken during the hours of darkness; provided the Contractor obtains approval of the Board of Public Works for work conducted between the hours of 7:00 p.m. and 6:00 a.m. and furnishes and operates during such period an adequate and effective artificial lighting apparatus to ensure that all work undertaken can be carried on satisfactorily in the manner contemplated by the specifications.
Page 6

Page 38 Section 23-3.1 AD MAINTENANCE ROCK
This section shall be deleted.

New Section

Section 23-3.22 APPLICATION OF DUST PALITATIVE OIL
When required by the plans, in the special provisions or when directed by the Engineer, complete crushed rock surfacing on roads or streets shall be protected against disturbance by the application of dust palliative oil at the rate specified.

Dust palliative oil shall be a 25.300-oil-in-water emulsion, uniformly applied by an approved sprayer-type distributor at the rate of three to six (0.75) gallons of oil per square yard on the surface to be treated. Before succeeding applications of dust palliative oil are applied, the preceding application shall have thoroughly dried, as approved by the Engineer. Dust palliative oil shall not be applied upon a wet surface nor when the temperature is below 60°F.

When directed by the Engineer, the Contractor shall furnish and place Type No. 6 sand on newly graded streets to such limits as designated by the Engineer to prevent cracking of oil onto adjacent existing concrete pavement. Sand shall also be used where, in the opinion of the Engineer, the oil penetration is unsatisfactory.

Page 39 Section 23-4 MEASUREMENT
Paragraph five, regarding Water, shall be deleted.

Paragraph seven, regarding Maintenance Rock, shall be deleted.

The following paragraph shall be added:

"Dust palliative oil shall be measured in barrels used. One barrel is equal to forty-two (42) gallons."

Page 39 Section 23-5 PAYMENT
Bid items 7, 9, 10 and 11 shall be deleted.

Add the following bid item:

"Dust Palliative," as per barrel.

Paragraphs six, regarding water, shall be deleted.

Paragraphs eight and nine regarding maintenance rock and preparing stockpiles shall be deleted.

Delete the following in the final paragraph:

"also for all expenses incurred in consequence of or by reason of the requirements for these specifications."

Page 40 Section 24-2.01 SAND FILLER
Sand filler shall consist of sand screened from natural deposits and shall be composed of naturally occurring grains, preferably angular.

Sand filler shall meet the requirements for Type No. 11 as outlined in the Mineral Aggregate Table in Section 20.

Page 40 Section 24-2.02 CRUSHED FILLER
Crushed filler shall consist of the fine product resulting from crushed stone and shall meet the requirements for Type No. 24 as outlined in the Mineral Aggregate Table in Section 20.

Page 40 Section 25.2.02 TEST REQUIREMENTS
The first line in table one shall read as follows:

CLASS OF ASPHALT CONCRETE B G D E F
6% Fracture, size above U. S. No. 1.095 95 90 50 50

Page 55 Section 34.3.10 PRELEVELING FOR ASPHALT CONCRETE
The third paragraph shall be amended to read as follows:
The unit contract price per ton for "Asphalt Concrete Pavement, Class Based on a "(Levelling Course)" shall be full compensation for all costs and expenses involved in furnishing all labor, materials, tools and equipment necessary to precompact and cure the surface as herein specified.

Page 56 Section 34.13 JOINTS
The placing of the top or wearing course shall be as nearly continuous as possible.
In placing the top or wearing course, the work shall be scheduled to a manner to provide for full width pavement at the conclusion of the day's work. Where this is not possible due to the conditions of the Contractor, it shall be permissible to precompact the cold longitudinal joints until work is resumed again.

Page 57 Section 34.5 MEASUREMENT AND PAYMENT
Bid Item No. 3 shall read:
"Pavement Course Aggregate," per cubic yard or per ton.
Delete Bid Item No. 4 and insert the following:
"Asphalt Concrete Pavement, Class .............. (Levelling Course)" per ton.
Delete Bid Item No. 6.
Delete Bid Item No. 9 and insert the following:
"Chipping Existing Asphalt Surface," per square yard.
Add the following paragraph:
"When any work or material described in the section is required but no item of payment is provided for therein in the proposal, the work or material required shall be considered as an incident to the construction and all costs therefor shall be included in other pay items of the contract."

Page 58 Section 35.1 DESCRIPTION
Extruded asphalt shall be constructed at such locations as shown on the plans and to the cross section shown on Standard Plan No. 123.

Page 58 Section 35.4 MEASUREMENT AND PAYMENT
The bid item shall be amended to read as follows:
1. *Type 123 Extruded Asphalt Concrete Course," per linear foot."

New Section
Section 36.1 DESCRIPTION
Brick roadball complying with the requirements of these specifications shall be constructed in accordance with Standard Plan No. 201 and where indicated on the plans, or where directed by the Engineer.

Brick roadball shall consist of a stone plate mounted on one or both sides of reinforced concrete or wood posts. Through joints of roadball, as detailed on the plans, shall be installed at both ends of a complete guide rail section unless otherwise authorized by the Engineer.

New Section
Section 36.2 MATERIALS

New Section Section 36.2.1 RAIL ELEMENT
The rail element and terminal sections shall consist of twelve-gauge (1/263.5) steel formed into a beam not less than twelve (12) inches wide and three (3) inches deep.
The rail element and terminal sections shall be formed from open bhurn or electric forge steel.

The physical properties of the rail shall conform to the following minimum requirements:

<table>
<thead>
<tr>
<th>Rail Element</th>
<th>Terminal Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultimate tensile strength</td>
<td>70,000 lbs.</td>
</tr>
<tr>
<td>Yield point strength</td>
<td>35,000 lbs.</td>
</tr>
<tr>
<td>Elongation in 2 inches</td>
<td>12%</td>
</tr>
</tbody>
</table>

Page 59 Section 36.2.2 PAVING Reinforced Concrete Pave

Portland cement and water shall comply with the requirements for Portland cement specified for the materials. Aggregates shall meet all requirements of specifications except for grading. The maximum size of aggregate to be used is not less than three-half-inch (4) pound of pre-compactive strength at the age of twenty-eight (28) days.

Reinforcement shall consist of either one of the following:
(a) Wire meeting the requirement of ASTM Designation A 7, Cold Drawn Steel Wire for Concrete Reinforcement.
(b) Interim grade steel in accordance with the requirements of ASTM Designation A 5, Bilt-Ball Steel Bars for Concrete Reinforcement.
ASTM Designation A 205, Minimum Requirements for the Deformed Steel Bars for Concrete Reinforcement.

The metal reinforcement in Type A posts shall be spaced and anchored to provide not less than sixty percent (60%) nor more than seventy percent (70%) of the total cross sectional area of the reinforcement in the one-half of the post which will face the roadway when installed. Except at the bottoms of the posts, other reinforcing shall be placed no closer than one (1) inch from the outer surface of the post. When deformed bars are used for reinforcement, these shall be not less than two (2) bars of the roadway face of the post. The reinforcement shall be supported in such a manner that the minimum cover of concrete will be secured.

Each Type A post shall be marked by suitable means to identify the center of the location of reinforced (roadway) face of the post. Centered and tapered bar holes will be acceptable identification. Tapered bar holes shall taper from seven-eighths (7/8) inch to one and eighths (1-1/8) inch in diameter and shall have the larger opening on the roadway face of the post.

Metal reinforcement in Type B posts shall be spliced to provide equal cross-sectional area of reinforcement in each roadway face of the post. When deformed bars are used, there shall be not less than two (2) bars in each roadway face of the post.

Type B posts shall be plainly marked with the letter B on top of each post.

New Section
Section 36-2.0281 Finish
Precast reinforced concrete posts will not be painted. The concrete may be placed in the form and compacted in any manner desired by the manufacturer (tamped, vibrated, spun, etc.). The finished post in true form and shape, is free of cracks, crevasses, honeycomb and other obvious defects, and meets the requirements for strength of 12.72 pounds per inch of section, reinforced in a manner sufficient for protection. Further, the post shall be free from unsightly damage or deformation that will impair its appearance.

New Section
Section 36-3-01 ERECTION OF POSTS
The posts shall be set to the true line and grade of the highway and spaced as shown on the plans. When the plans require that the ends of a section of guard rail be spliced out, the posts shall be set to accommodate the splicing. The post holes shall be of sufficient dimension to allow placement and thorough compaction of selected backfill material completely around the post. In general, all post holes shall be dug or drilled. Ramming or driving will be permitted only if approved by the Engineer and if no damage to the shoulders and adjacent slopes results therefrom.

New Section
Section 36-3-02 PAINTING
Before applying any paint to the beam rail, the surface shall be thoroughly clean and dry and all loose paint or scale shall be removed. No excessive paint shall be done in wet or freezing weather.

Galvanized guard rail shall be painted on the roadway face only. The post shall be done in accordance with the applicable sections of Section 116-3.04 of these specifications. Guard rail posts shall not be painted.

New Section
Section 36-3-03 ERECTION OF RAIL
All metal work shall be fabricated in the shop. No painting or painting varnish shall be done in the field, except that bolts for special details in exceptional cases may be painted when approved by the Engineer. The rail posts shall be erected so that bolts at junction points will be located at the corners of the stoned holes.

Rail posts shall be fastened to the posts with galvanized bolts, washed with nuts of the size and kind shown on the plans.

All bolts, except those otherwise required at expansion joints, shall be drawn tight. Bolts through expansion joints shall be drawn up as tight as possible without binding or holding the rail elements from sliding past one another longitudinally. Bolts shall be sufficiently long to pass through a bearing plate (1/4 inch) beyond the rail. Where expansion joints exist, the plate shall not extend more than 1/16 inch beyond the rail. Except where required, the rail posts shall not exceed one and one-half (1-1/2) inch beyond the rails. Bolts through posts of variable thickness shall be cut off not more than 1/4 inch beyond the rails.

New Section
Section 36-3-06 PLANS
The Contractor shall submit for approval of the Engineer, after the claims of all parties, the plans and shop drawings of all guard rail fittings, fittings and assemblies as may be required by the Engineer. The Contractor shall cooperate with the Engineer in working out any detail in connection with the guard rail required to complete the work satisfactorily.

New Section
Section 36-4 MEASUREMENT
Measurement of beam guard rail shall be by the linear foot measured along the length of the completed guard rail from end to end of terminal sections, or from end to end of rail sections if terminal sections are not installed.

New Section
Section 36-5 PAYMENT
The unit contract prices per linear foot for "Semi Beam Guard Rail", "Double Beam Guard Rail", or "Temporary Beam Guard Rail" shall be full compensation for furnishing all labor, tools, material and equipment, and for all other costs and expenses necessary to complete the work as specified.

Page 59 Section 37-2.02 CONCRETE AGGREGATES
Concrete aggregates shall be manufactured from ledge stone, talus or gravel and sand.

Page 60 Section 37-2.02C2 Wear in Los Angeles Machine
Course aggregate shall not have a percentage of wear in the Los Angeles machine in excess of thirty (30) after five hundred (500) revolutions.

New Section
Section 37-2.06C Non-Extending Joint Filler
Non-extending joint filler shall be used in all sidewalks, driveway crossways, stairways, curbs and curb and gutter sections.

Page 61 Section 37-2.13 JOINT-SEALANTS
The last line and last sentence in paragraph one should make reference to the Materials Laboratory, Seattle Engineering Department, City Municipal Building, Seattle, Washington.

Page 61 Section 37-3.02 AIR-ENTRAINED CONCRETE
Delete the first and second paragraphs and substitute the following:
Air-entrained concrete shall be made in pendants (7) inches or more in thickness and when otherwise required in the special provisions. When air-entrained concrete is required, either air-entrained Portland cement or an air-entraining admixture shall be added to the mix. The air-entrained cement and the air-entraining admixture shall conform to requirements of Section 37-2.06.

Page 62 Section 37-3.04 PROPORTIONING MATERIALS
In the table under Class 3 (16), "Lbs. No. 2 coarse aggregate" shall read 710, instead of 710 for "dry fine aggregate No. 2."

Page 62 Section 37-3.06 CONSISTENCY OF CONCRETE
The following shall be added:

The slump of concrete, with machine compaction measured with the slump cone (ASTM Designation C 143) shall not exceed two (2) inches.

The slump of concrete placed by hand shall not exceed three (3) and one-half (3-1/2) inches.

Page 63 Section 37-3.08 READY MIXED CONCRETE
Item No. 2 and the first paragraph under No. 3 shall be deleted.

Page 63 Section 38-3.03 REINFORCING STEEL
The following sentence shall be added: "No additional payment will be made for reinforcing steel, the cost of which shall be included in the unit price for "Cement Concrete Structure," per linear foot.

Page 64 Section 38-4.01 MEASUREMENT
In line one of paragraph one, "Unclassified Excavation" shall read "Common Excavation."

Page 66 Section 39-3.17 WATER
Water for pavement construction will be furnished as provided in Section 16.

Page 67 Section 39-3.18B Construction of Formed Con- traction Joints
The following shall be added to the last sentence in paragraph one:
"of any kind, and the transverse joints of two contiguous lanes must meet at a common point at the center line; except on curves when the radius point would be less than twelve and one-half (12-1/2) feet."

The following shall be added to the final paragraph:
"Excavation is made, however, that if there should be alternatives in the proposal for transverse contraction (dampening) joints and a contractor shall indicate the kind of bid proposal will include an item per linear foot for "Transverse Contraction Joint," the price for which shall include all costs for the furnishing and placing of the joint filler in accordance with these specifications."

Page 67 Section 39-3.18C Sawed Contraction Joints
The following sentences shall be added to the beginning of the paragraph four:
"Transverse joints shall be sawed at sixty (60) foot intervals on each other as directed by the Engineer as soon as the cast can be made without unduly cooling of concrete. Intermediate joints shall be sawed themselves."

Page 68 Section 39-3.18 Standard Location for Longi- tual Joints
Under "Width from Curb to Curb" the following "Joint Location" shall be amended as follows:
40 Feet . . . Center line and 10 feet each side of center line
44 Feet . . . Center line and 1 and 1/2 feet each side of center line.

Page 68 Section 39-3.19 FINISHING CONCRETE
The first paragraph shall be amended to read as follows:
"The entire pavement surface shall be machine finished unless hand finishing is permitted in the special provisions."
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Section 39.3.19B Machine Fillinging
The following paragraph shall be added at the end of the Section 39.3.19B Machine Fillinging:

"Before any work is commenced, the Contractor shall have available on the work site all of the necessary tools for hand finishing."  

Page 69 Section 39.3.20C Emulsified Asphalt
This section shall be deleted.

Page 70 Section 39.3.2 CONCRETE PAVING CONSTRUCTION IN SINGLE LANE
The heading shall be revised to read:

"CONCRETE PAVING CONSTRUCTION IN SINGLE, DOUBLE OR MULTIPLE LANES"

The first paragraph shall be deleted and replaced with the following:

Concrete paving shall be constructed in the following manner:

Twenty-five (25) foot paving shall be constructed full width in one operation, unless otherwise authorized by the Engineer. Should the Contractor be allowed to pave a twenty-five (25) foot street, in two (2) operations, then the Contractor shall be allowed to construct a thickness edge section, as shown on Standard Plan No. 107.Thirty-two (32) foot, thirty-six (36) foot, forty (40) foot, forty-two (42) foot and forty-four (44) foot pavement sections shall be paved in two (2) operations, with additional compensation for thickness edges, if required. Should the Contractor be allowed to pave thirty-two (32) foot, thirty-six (36) foot, forty (40) foot and forty-two (42) foot pavement sections in more than two (2) operations, then thickness edges, if required shall be constructed at no additional expense to the Owner. Pavements greater than forty (44) feet will be placed in the applicable sections in thirty-two (32) foot increments for the first eight (8) hours after finishing the first lane. Whenever possible, the mixer shall be placed on the shoulder adjacent to the lane being paved.

Page 70 Section 39.3.3.2 CONCRETE BASE PAVEMENT
Delete Item No. 3.

New Section 39.3.3.2 CONCRETE BASE PAVEMENT
Insert as follows:

(4) Damoy or through joints shall be constructed unless otherwise noted in the special provisions.

Page 70 Section 39.3.38 CLEANUP
The words "catch basins" in the fifth line shall be deleted.

New Section 39.3.30 CEMENT CONCRETE ALLEY PAVEMENT
Cement concrete alley pavement shall be constructed as shown on Standard Plan No. 104.

Page 71 Section 39.4.05 EXTRA FOR FURNISHING HIGH-EARLY-STRENGTH CEMENT
If the Contractor shall direct that high-early-strength cement be used on any part of the work in lieu of standard portland cement, and if there is no appropriate bid item, extra compensation shall be paid to the Contractor in an amount per yard equal to the difference between the price paid for him for standard portland cement and the price paid for him for high-early-strength cement.

New Section 39.4.07 TYPE 104B ALLEY PAVEMENT EDGE WALL
Measurements for payment of "Type 104A Alley Paving Edge Wall" shall be made on the basis of actual cubic yardage of concrete in the wall section.

The unit contract price per cubic yard shall be full compensation for all labor, tools, materials, equipment and other incidental work necessary to construct the wall, including the paving operation in accordance with the standard specifications for concrete driveways. Excavation shall be paid for at unit contract price bid for Structure Excavation.

New Section 39.4.08 TYPE 104A ALLEY PAVEMENT EDGE WALL
Measurements for payment of "Type 104. A Alley Paving Edge Wall" shall be made on a cubic yard basis for the actual width of the wall formed in place in accordance with the specifications shown on Standard Plan No. 104.1.

The unit contract price per cubic yard shall be full compensation for all labor, tools, materials, equipment and all necessary incidental work required to excavate and construct the reinforced concrete support wall complete in place below the elevation of the alley pavement sub-grade, in accordance with the dimensions and details shown on Standard Plan No. 104.1.

Page 72 Section 40.3.01D Stripping Forms and Finishing
Delete the second sentence in paragraph two.

Page 72 Section 40.3.01E Curing
Delete the second and third sentences in paragraph two.

Page 72 Section 40.3.02 TYPE A AND TYPE B CURB
Title shall be amended to read CURB.

Delete reference to Types A and B in paragraphs one, two and three.

Page 72 Section 40.3.03 TYPE C AND D LOW CURB
This section shall be deleted.

Page 72 Section 40.3.04 TYPE E SEPARATE CURB
This section shall be deleted.

New Section 39.4.05 TRANSITIONAL CURB
This section shall be deleted.

Page 73 Section 40.4.05 MEASUREMENT AND PAYMENT
Delete Bid Item No. 3.

Paragraph two shall be amended as follows:

"Concrete curb and curb gutter will be measured by the linear foot along the face of curb for the actual length constructed and no deductions will be made for driveways."

Paragraph three shall be amended as follows:

"Curbs do not include the pavement slab upon which they are built. The proportion of the pavement slab under- neath the curb will be paid for as concrete pavement."

Page 73 Section 40.5.03 PLACING AND FINISHING CEMENT CONCRETE PAVEMENT
Review and insert as follows:

PLACING AND FINISHING CEMENT CONCRETE DRIVeway

Page 74 Section 41.4 MEASUREMENT
Measurement of concrete driveways will be by the square yard for the class and thickness of concrete placed, excluding the area underneath the curb. Measurement of concrete driveways shall be by the square yard for the class and thickness of driveways according to the specifications, and in conformance with the methods shown on the standard plans.

Page 73 Section 41.5 PAYMENT
Delete Bid Items 2 and 3. Add the following new Bid Item:


New Section 42.3.05 SLOWDRAINS
Where shown on the construction plans for sidewalks or directed by the Engineer, four (4) inch galvanized steel pipe shall be placed under the sidewalk in one length and extended across the planting area to the roadway gutter line, or through curb if existing, as shown on Standard Plans.

The horizontal slope angle of the four (4) inch galvanized drain pipe, between the inlet elevation of the back section to provide positive drainage, will be established in the field by the Engineer at the time of excavating for the sidewalk construction.

The need for the drain pipe will be paid for on a basis of four feet for two feet depth at the gravel pocket.

The unit contract price shall include all labor, tools, materials, and equipment necessary to construct the sidewalk, including but not limited to, installation of the standard plan, including an excavation at the side of the pipe to make a grout pocket corresponding to slab shown on the standard plan, Section A-A, that is a minimum of three (3) feet in length parallel to the back of the sidewalk.

New Section 42.3.06 EXPANSION AND CONTRACTION JOINTS
Standard locations for expansion joints for sidewalks are:

(1) At street margins produced and at thirty (30) feet or twenty-eight (28) feet intervals for Type A or B as shown on Standard Plan No. 114.

(2) To separate concrete driveways, sidewalks and their landings from sidewalks as shown on Standard Plan Nos. 106, 107, and 115, respectively.

(3) Around the vertical base of fire hydrants, around utility poles and large diameter underground utility conduits.

(4) Longitudinally along both sides of cement concrete walks where they cross the price line and sidewalk area between solid manhole walls, building walls and pavement curbs.

No payment will be made for furnishing and placing expansion and contraction joints for cement concrete sidewalks. All costs thereof shall be considered incidental to the curbing and installed in the unit bid contract price of the proposal for sidewalks.

Payment for extra concrete joints as shown on the standard plans, Section B-B, will be made at the unit contract price for "Thickened Edge Wall".

Transverse and longitudinal expansion joints as shown on the standard plans will be thirty-six (36) inch thickened precast non-extending joint material, cut to a width equal to the full width of the curb, and extending from two (2) inches below the surface to one (1) inch below the surface. When stacked, they shall be placed with the top edge on the street, with the lower edge in the concrete pad and the bottom edge in the embankment in the sub-grade. All joints shall be in straight alignment, except where placed in curbed locations as required by the construction plans.

Construction joints for sidewalks shall conform to the applicable requirements for expansion joints for pavement, except for thickness of joint material being three-sixteenths (3/16) inch and width of two (2) inches. The top edge shall be one-eighth (1/8) inch below the finished surface of the sidewalk.
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Page 74 Section 42.4 MEASUREMENT
Measurement of cement concrete sidewalk will be by the square yard and for all use of concrete walk placed. Measurement for thickened edge of sidewalk will be by "Monolithic Concrete Sidewalk Curb and Sidewalk" Type 114.4.1.4.1 will be made by basing the base of the sidewalk by 1/2 inch of digested material.

The sidewalk shall meet the following requirements:

- Brightness: Type 114B1, 70% maximum
- Flexural strength - pounds total load up to 1,500 minimum
- Brightness shall be measured by equipment conforming to ASTM Designation E29 using a Brightness Standard of 85 percent per 25%. Flexural strength shall be measured by placing the balcony beam shown in 12-inch-thick section supports on five (5) inch centers and loading vertically at the center of the curved section by means of a flat plate.

New Section 42.4.02B TRAFFIC BUTTONS - TYPE 125C (LAMINARKERS)

New Section 42.4.02B1 Description
The markers shall be present, plastic markers in the form of a single-medium spherical segment, component, or any other physical damage interfering with appearance or configuration and shall conform to the details shown on the standard drawing. The markers shall not contain glass.

New Section 42.4.02B2 Physical Properties
The markers shall be of uniform composition and free from surface irregularities, cracks, chips, chipping and other physical damage interfering with appearance or configuration and shall conform to the details shown on the standard drawing. The markers shall meet the following requirements:

- Weight: ounces, 1.41 minimum
- Planeness of base: inches, 0.02 maximum
- Convertibility: inches, 0.05 maximum
- Brightness: 85% minimum
- Color: White
- Impact: resistance: inches, 15 minimum
- Titanium dioxide: % by weight, 21 minimum
- Weight: pounds, 100 minimum

New Section 42.4.02B3 Test Methods
Brightness shall be measured with equipment conforming to ASTM Designation E29 using a Brightness Standard of seventy-five per cent (75) percent.

Impact resistance shall be measured by allowing one (1) pound tensile ball to fall fifteen (15) inches (fall free) onto the markers supported by but not bonded to a steel base plate.

The titanium dioxide content will be determined by using a spectrophotometer. The test shall be done at a laboratory of the Materials Laboratory.

New Section 42.4.02A PHYSICAL PROPERTIES
The exposed surface shall be free of irregularities such as chips, cracks, and any marks interfering with appearance or configuration. The bottom surface may not show general convexity or concavity in excess of one-quarter (1/4) inch.

The moldig process shall be such that coarse aggregate particles on the cured surface are covered by not less than one-quarter (1/4) inch of digested material.

The buttons shall meet the following requirements:

- Brightness: Type 125B, 75% maximum
- Flexural strength: Type 125B, 70% minimum
- Brightness shall be measured by equipment conforming to ASTM Designation E29 using a Brightness Standard of ninety-five percent per 25%.

At the time of use, the contents of Packages A and B shall be thoroughly dispersed by mixing. One (1) volume or weight of Package A shall be mixed with one (1) volume or weight of Package B using a uniform gray color is achieved without visible streaks of white or black. Formulation may be reviewed, if approved by the Engineer.

New Section 42.4.02B ADHESIVE (EPOXY)

New Section 42.4.02B1 Description
The adhesive shall be furnished as two (2) components, each packaged separately. The components shall have the following composition:

- Parts by Weight
  - Package A: Epoxy Resin (1) 100.00
  - Titanium Dioxide (2) 3.10
  - Resin Grade Adhesive (3) 5.00
  - styrene content: 37.64

- Package B: N-Aminolysil Piperazine (5) 23.16
- Nonhydral (6) 52.00
- Carbon Black (7) 0.22
- Talc (4) 77.37
- Resin Grade Adhesive (3) 1.00

At the time of use, the contents of Packages A and B shall be thoroughly dispersed by mixing. One (1) volume or weight of Package A shall be mixed with one (1) volume or weight of Package B using a uniform gray color is achieved without visible streaks of white or black. Formulation may be reviewed, if approved by the Engineer.

New Section 42.4.02B2 Raw Materials
Raw materials for the adhesive shall meet the following specifications:

1. Epoxy Resin - viscosity, 5-7 poises at 25°C, equivalent viscosity 175-205; color (Gardner) 5 maximum; manufactured from epichlorohydrin and bisphenol A. The reactive diluent shall be butyl glycidyl ether.
2. Titanium Dioxide - TT-P00442, Type IV.
3. Resin Adhesive - Specific gravity, grams per milliliter, 2.50; moisture content, % by weight, 2.0; minimum; surface area, square meters per gram, 60 minimum; density, grams per cubic centimeter, 750-800; nature of surface change, electro-positive (negative).
4. N-Aminolysil Piperazine - 95.7, boiling point, 40°C, 4.3, oil absorption (DOP) per 100 pounds, 120, moisture: absolute, weight %, 0.54-0.56, wet bulk density in water, 2.3 per gram, per litre, settle 1 hour, 100 ml sample maximum; dry bulk density, pounds per cubic foot, 4.
5. Nonhydral - color (NAPA) 50 maximum; moisture content, 1500-1500 based on calcium which reacts with 3 nitrogens in the molecule; appearance, clear and substantially free of suspended matter.
6. Styrene Resin - color (NAPA) 50 maximum, hydrogen number, 254.5-255, distillation range, °C, 760 min, free-dry 255 minimum, 5.28 minimum, 93.25 maximum; density, water (K.F), 0.95 maximum.

New Section 42.4.02C INSTALLATION OF BUTTONS
Delete the word "concrete" in the first line.

New Section 42.4.02C1 Type 125A and 125B
The plastic traffic buttons shall be attached to the post-
ment by placing a tack coat of hot 95-100 penetration asphalt on the pavement and firmly pressing the traffic button onto it.

New Section
Section 44.0.01C2 Surface Preparation

All sand, dirt and loose extraneous material shall be swept or blown away from the marker location to the satisfaction of the Engineer.

New Section
Section 44.0.01C2(2) Marker Preparation

The marks, such as yellow or gray surface that characterizes the marker is not satisfactory as a bonding surface. A satisfactory bonding surface may be achieved by (1) sandblasting the working surface, (2) applying a fluid bonding bath, (3) sanding off the bottom of the marker, or (4) structurally bonding a layer of sand into the bottom surface during manufacture. Markers, whose surfaces have not been prepared by sanding or structurally bonding, may be prebleached in either the fluid leaching bath as a dry oven controlled between 275°F and 300°F, for not less than ten (10) minutes before setting.

New Section
Section 44.0.01C2(3) Adhesive Application

The adhesive shall be maintained at a temperature of 60° and be free from moisture during application. The catalyst shall be added to the base just before use and shall be applied to a smooth, uniform bond. Unpainted mixed adhesive shall be discarded when catalytic action has ceased sufficiently.

Delete the words "and aligned or directed by the Engineer. A displacement of not more than that caused by a minor change in the height or width of the established grade line shall be permitted." The Contractor shall remove and replace at his own expense any improperly placed markers. The markers shall be installed on dry pavement.

The marking of the marker shall take in not more than (15) minutes. Bonding shall be considered satisfactory when the developer a minimum bond strength in tension of not less than 500 pounds. When roadway sections are being applied to public traffic before or during the installation of the markers, the fifteen (15) minute wet-to-traffic period will be considered completed, and necessary flagging and traffic control will be required. Provided such delay in installation is not caused by failure of the Contractor to perform, the Contractor shall pay no more than the full amount of labor and materials shall remain the property of the Contractor.

Page 78 Section 44-4 MEASUREMENT

Type 123A traffic curb (A curb, Standard Plan No. 123) will be measured along the front face of curb and returns. Type 123A traffic curb (C curb, Standard Plan No. 123) traffic curb return and pigtail will be measured as for Type 123A and 123C. Present traffic return (Standard Plan No. 125) will be measured by "cufk."

Page 78 Section 44-5 PAYMENT

Payment will be made for each of the following bid items as included and shown in any particular contract:

Page 78 Section 44-5A MEASUREMENT

Type 123A block type present traffic curb (Standard Plan No. 124) will be measured by the linear feet along the front face of the curb and returns. Type 123C block type present traffic curb (Standard Plan No. 124) will be measured by the linear feet along the face of the curb. The unit contract price for each of the above curb items will be full compensation for all costs of labor, tools, and materials, and complete installation in accordance with the standard drawings and specifications.

Page 78 Section 45 BLOCK PRECAST TRAFFIC CURB

This heading shall be amended to read as follows:

Page 78 Section 45-5 PAYMENT

Page 78 Section 45-5A MEASUREMENT

Type 123A block type present traffic curb (Standard Plan No. 124) will be measured by the linear feet along the front face of the curb and returns. Type 123C block type present traffic curb (Standard Plan No. 124) will be measured by the linear feet along the face of the curb. The unit contract price for each of the above curb items will be full compensation for all costs of labor, tools, and materials, and complete installation in accordance with the standard drawings and specifications.

Page 78 Section 44-6 DESCRIPTION

Delete the words "Type 1 or Type 2" in line three of the first paragraph.

Page 79 Section 46-2 A CONDUIT

This entire section shall be amended as follows:

New Section
Section 46-2A4 Conduit, Rigid Steel Hot-Dip Galvanized

Rigid conduit shall be zinc-coated by the hot-dip galvanizing process in conformance with the requirements of ANS I Standard Specifiers' Laboratories Standard UL 6. This specification also covers couplings, elbows, bands, and fittings. The minimum thickness of zinc coating shall be 1.51 lbs, equivalent to 0.056 ounce per square foot of surface area.

The minimum average thickness may be determined by magnetic thickness gauge or by the acid stripping method of ASTM A 90. The minimum thickness at any point on the surface coating shall be determined only by magnetic testing method. The striping test shall be made in conformance with ASTM A 90. The test piece shall be 4 inches in length and 1 inch in width and shall be placed against the surface.

Inspection and Test. Conduits, couplings, elbows, bands and supplies are subject to inspection and test as outlined in Section 17 of ASTM B 235. The Prewire Test will not be considered a proof of compliance with this specification.

Errors and Omission. Failure to meet the requirements of this specification shall at the discretion of the owner, constitute grounds for rejection of:

Page 79 Section 46-2A8 CONDUIT

This section shall be amended to read as follows:

Page 79 Section 46-2A8 DESCRIPTION

Delete the third and fourth paragraphs.

Page 79 Section 46-2A8 PAYMENT

The following paragraph shall be added after the fourth paragraph:

"Plastic conduit shall be capped with an appropriate plastic cap."

Page 79 Section 46-2A8 CONDUIT

The next paragraph shall be amended to read as follows:

"Conduit shall be placed under existing pavement by approved jacking or boring methods. Pavement shall not be disturbed without the approval of the Engineer. The approval of the Engineer, small test holes may be cut in the pavement to locate obstructions. If the depth of the conduit below the surface of the street is within one (1) foot of the outside perimeter of the existing facilities, the facilities shall be uncovered for inspection purposes during the jacking or boring operation. Jacking or drilling pits shall be kept two feet clear of any edge of the type of pavement whenever possible. Excessive use of water that may be emitted or undrained, or softened, will not be permitted.

Delete the thirteenth and fourteenth paragraphs.

Page 79 Section 46-2A8 DESCRIPTION

The fifteenth paragraph shall be amended as follows:

"Conduit shall be placed under existing pavement by approved jacking or boring methods. Pavement shall not be disturbed without the approval of the Engineer. The approval of the Engineer, small test holes may be cut in the pavement to locate obstructions. If the depth of the conduit below the surface of the street is within one (1) foot of the outside perimeter of the existing facilities, the facilities shall be uncovered for inspection purposes during the jacking or boring operation. Jacking or drilling pits shall be kept two feet clear of any edge of the type of pavement whenever possible. Excessive use of water that may be emitted or undrained, or softened, will not be permitted."

The sixteenth paragraph shall be amended as follows:

"A 4500 lb (minimum strength) nylon pull cord shall be installed with at least two (2) kips or equivalent at each outlet, in all conduits which are to receive future conduits. A plastic cap shall remain in the conduit while the cord shall be passed through a small hole in the center.
of the cup. The excess card for each outlet shall be wound around and tied to its respective condensate.

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Section 47.03.06 SPREADING MULCH

The Contractor, providing that the required results are obtained to the satisfaction of the Engineer, shall apply the specified amount to the seed and fertilizer at the rate specified by the Engineer. Seed and fertilizer shall be applied at the rate and mixed specified at the discretion of the Engineer. Seed and fertilizer may be applied by one of the following methods:

(1) An approved type hydro-seeder which utilizes water in the carrying agent, and maintains a continuous agitator action that will keep seed and fertilizer mixed in uniform distribution until pumped from the tank. Pump pressure shall be such as to maintain a continuous, non-fluctuating stream of solution.

(2) Approved blow equipment with an adjustable dispersing device capable of maintaining a constant measured rate of material discharge that will ensure an even distribution of seed and fertilizer at the rates herein specified.

(3) helicopters properly equipped for aerial seeding and fertilizing. helicopters shall be equipped with the following:
(a) two hoppers or seed compartments capable of containing a minimum of one hundred (100) pounds of seed or fertilizer
(b) Power-driven, readily adjustable dispersing mechanisms capable of maintaining a constant rate of distribution of seed or fertilizer
(c) Where liquid fertilizer is furnished in bins of dry granular fertilizer, the helicopter shall be equipped with two hoppers or containers capable of containing a minimum of fifteen (15) gallons each. Daniel equipment shall be by a spray boom of sufficient size and length, fitted with the proper nozzle and liquid fertilizer in liquid form specified.

(4) Approved power-driven drills or power equipment.

Areas inaccessible to above methods of application shall be seeded and fertilized by approved hand methods. Distributors of the material shall be uniform and at the rates specified by the Engineer.

It shall be the Contractor's responsibility to provide qualified personnel experienced in all phases of the seeding and fertilizing operation, equipment and methods as herein specified.

New Section 47.03.06 SPREADING MULCH
of the crop. The excess cord for each outlet shall be wound around and tied to the connecting cord."

Page 18

Section 47.2.02 FERTILIZER

Fertilizer shall be a standard grade of organic or inorganic fertilizer of the kind and quality specified herein. It may be separate or a mixture containing the percentage of total nitrogen, available phosphorus acid and water-soluble potash in the amounts specified. All fertilizers shall be furnished as standard unopened containers with weight, name of plant materials and manufacturer's guaran-
tee as indicated on the label. Analysis current and all in accordance with State and Federal laws. Acceptable commercial fertilizer may be supplied in one of the following forms:

(1) A dry free-flowing granular fertilizer suitable for application by agricultural fertilizer spreaders.

(2) A soluble fertilizer ground to a fineness that will permit complete suspension of insoluble particles in water, suitable for application by power sprayer.

(3) A granular or pellet fertilizer, suitable for appli-
cation by lighter equipment.

(4) A non-soluble liquid fertilizer.

Commercial fertilizer formulation and rate of application shall be as specified in the special provisions.

New Section

Section 47.2.04 MULCH

New Section

Section 47.2.04A Hay

All mulch material shall be in an air dried condition free of excess seeds, weed seeds and other materials detrimental to plant life. Unless otherwise specified in the special provisions mulch materials shall be hay of approved field green indigenous to the area. Hay shall be seasoned before being used and shall be acceptable to the Engineer. Hay mulch as specified shall be suitable for spreading with a windrow cutter. Rate of application shall be as specified in the special provisions.

New Section

Section 47.2.04B Wood Celluose Fiber

Wood cellulose fiber mulch shall be specially processed wood fiber containing natural maceration inhibiting factors and shall be dyed a suitable color to facilitate inspec-
tion of the placement of the material. It shall be manu-
factured in such a manner that after addition and agitation in slurry tanks with fertilizers, grass seed, water and other materials added, the fibers in the material will become uniformly impregnated with grass seed, and after application, will allow the absorption and percolation of moisture.

Wood cellulose fiber shall be supplied in packages having a net weight not in excess of eighty (80) pounds. Each package of the cellulose fiber shall be marked by the manu-
facturer as to the amount of material and the number of packages shall be acceptable to the Engineer.

New Section

Section 47.3.05 SPREAD MULCH

Asphalt emulsion used as a tine-down for mulch shall be a Type II emulsion conforming to the requirements of 7T-151.0.
New Section 47-3.05A Hay
Mulch material of the type herein specified shall be baled, bailed and evenly applied at the rates indicated, and shall be spread on seeded areas within forty-eight (48) hours after seeding unless otherwise specified. Distribution of mulch material shall be by means of an approved type mulch sprayer which utilizes forced air to blow mulch material on seeded areas. The sprayer shall produce a uniform distribution of the hay, without cutting or breaking it into short stalks. Areas beyond the range of the mulch sprayer shall be matched by approved hand methods. Distribution of the material shall be uniform and at the rate specified.

New Section 47-3.05B Wood Cellulose Fiber
Wood cellulose fiber utilized as a mulch may be applied with seed and fertilize in one operation by approved hydraulic equipment. The equipment shall have a forced-air agitation system with an operating capacity sufficient to cover seeded field, and homogeneously mix a thirty of the specified amount of fiber, fertilizer, seed and water. Distribution and discharge lines shall be large enough to prevent stoppage and shall be equipped with a hydraulic discharge spray nozzle which will provide a uniform distribution of the surly.

New Section 47-3.06 APPLICATION OF ASPHALT EMULSION
Mulch material shall be anchored in place with asphalt emulsion herein specified. Asphalt emulsion shall be sprayed into the mulch as it leaves the blower pipe and shall be uniformly mixed with the mulch. Asphalt emulsion as specified shall be applied at the rate of one hundred (100) gallons per acre. Any mulch disturbed or displaced following application shall be removed and repelled as specified.

New Section 47-3.07 PLACING JUTE MATTING
Jute matting shall be unraveled parallel to the flow of water and the actual width of the path by the placing of seed and fertilize. Where more than one strip is required to cover the seeded areas, they shall overlap a minimum of four (4) inches. Ends shall overlap at least six (6) inches with the universe arc on top. The universe arc of each strip of matting shall be buried in six (6) inches aloft with the soil firmly tamped on top. The Engineer may require that any other edge exposed to more than a normal flow of water or strong current be buried in a similar manner. Check slots shall be placed between the ends of strips by placing a sight line of matting at least six (6) inches vertically into the soil. These shall be tamped and tripled the same as universe arc end. Check lots must be one and so that one check slot or one end occurs within fifty (50) feet of slope. Edge of matting shall be buried around the edges of catch basins and other structures as herein described. Matting must be smooth for seeing and smooth and in contact with the soil at all points. Jute matting shall be held in place by approved wire staples, pins, spikes or wooden stakes driven vertically into the matting shall be fastened at intervals not more than three (3) feet apart in three (3) rows for each strip of matting, with one (1) row along each edge and one (1) row alternately spaced in the middle. All ends of the matting and check slots shall be fastened at six (6) inch intervals across their width. Length of fanning devices shall be sufficient to securely anchor matting against the soil and prevent flooding with the finished grade.

New Section 47-3.08 CONTRACTOR'S RESPONSIBILITY FOR WORK
The Contractor shall be responsible for all work herein described in accordance with Section 7 and the following requirements as directed by the Engineer:

(1) Protect all areas involved against vehicle and pedestrian
(2) Remove and fertilize areas failing to show uniform stand of grass after germination of seed, or damage through any cause before final inspection.

Maintenance and protection during a suspension of work shall be as herein described in accordance with Section 8 and as directed by the Engineer.

New Section 47-3.09 FINAL INSPECTION AND ACCEPTANCE
Acceptance of areas receiving seed, fertilize and mulch as herein specified shall be based on uniform stand of grass at the time of final inspection. Areas failing to show uniform stand of grass after germination, or damage through any cause prior to final inspection shall be reseeded as herein specified at the Contractor's expense.

New Section 47-4.01 MEASUREMENT
New Section 47-4.01.01 TOP SOIL
Measurement for top soil shall be by the cubic yard at the base conveyance at the point of delivery.

New Section 47-4.02 SEEDING AND FERTILIZING
The quantity of seed and fertilize to be used for will be ground slope measurement in acres of actual seeding and fertilizing completed and accepted.

New Section 47-4.03 MULCHING
The quantity of mulching to be paid for will be by ground slope measurement in acres of actual mulching completed and accepted, including anchoring with asphalt emulsion or by any other means specified, in accordance with these specifications and as shown on the plans.

New Section 47-4.04 JUTE MATTING
The quantity of jute matting to be paid for will be by the square yard measurement of surface area covered and accepted in accordance with the special provisions and the plans.

New Section 47-4.05 SOIL CONDITIONERS
The quantity of soil conditioners to be paid for will be by the ton. Contractor shall furnish duplicate bills of lading to the Engineer.

New Section 47-5 PAYMENT
New Section 47-5.01 TOP SOIL
"Top Soil:" including compost, will be paid for per cubic yard, which price shall include the furnishing of all materials, labor, equipment and all items required to complete the work as specified.

New Section 47-5.02 SEED AND FERTILIZER
Payment for seeding and fertilizing will be made at the unit contract price per acre for "Seeding and Fertilizing," which price shall include the furnishing of all materials, labor, equipment and all items required to complete the work as specified.

New Section 47-5.03 MULCHING
Payment for mulching will be made at the unit contract price per acre for "Mulching," which price shall include the furnishing of all materials, labor, equipment and all items required to complete the work as specified.

New Section 47-5.04 JUTE MATTING
Payment for jute matting will be made at the unit contract price per square yard of surface area covered by "Jute Matting," which price shall include the furnishing of all materials, labor, equipment and all items to complete the work as specified.

New Section 47-5.05 WATER
Water, unless otherwise provided in the special provisions, will be paid for by the improvement, in accordance with Section 5.15.

New Section 47-5.06 SOIL CONDITIONERS
Payment for soil conditioners will be made at the unit contract price per ton for "Soil Conditioners," which price shall include the furnishing of all materials, labor, equipment and all items required to complete the work as specified.

New Section 48 ROADSIDE PLANTING
New Section 48-1 DESCRIPTION
Where designated on the plans, trees, shrubs and ground covers shall be furnished and planted by the Contractor in accordance with accepted horticultural practices, these specifications and as directed by the Engineer. Trees, shrubs and ground covers horticultural plantings for the referred to collectively as "plants" or "plant material.

New Section 48-2 MATERIALS
New Section 48-2.01 NOMENCLATURE
Nomenclature for plant names and varieties shall be in accordance with the latest edition of "Standardized Plant Names" as prepared by the American Joint Committee on Horticultural Nomenclature.

New Section 48-2.02 QUALITY OF PLANT MATERIAL
All plant material furnished shall conform to the applicable requirements described in the current issue of "American Standard for Nursery Stock," and in addition theretos shall meet the following requirements:

(a) All plant material shall comply with State and Federal laws with the respect to inspection for plant diseases and insect infestation. Inspection certificates required by law shall accompany each shipment of plant material and shall be filed with the Engineer. All plant material specified shall be first-class representatives of their normal species or varieties in horticulturally good condition with normal well developed branch system and vigorous root systems. They shall be free from disease and insect infestation, disfiguring knots, scarred, injured, abraded or killed by such pests. All plants cut back from large sizes to meet specified sizes will not be accepted.

(b) All plants shall be on nursery stock unless otherwise specified.

(c) Plants shall not have cuts over three-fourths (3/4) inch diameter which have not completely healed over. Leader shall be present.

(d) Ground plants furnished in pots or other containers shall be autoclaved or otherwise treated and equal to field grown stock.

(e) When as specified, collected plant material shall conform in quality, size and grade as for nursery stock, except that roots and half shrubs shall not exceed (11/2) (1 1/2) greater in diameter than required of nursery grown stock.

New Section 48-3.01 HANDLING AND SHIPPING
All plants shall be dug with care by experienced workers immediately before shipment. Plants in good condition shall be packed for shipment according to standard practices for the type of plant being shipped. The root systems of shipped plants shall not be permitted to dry out at any time. Plants shall be protected at all times from all freezing temperatures during transit. When transported a considerable distance in closed vehicles, plants shall receive adequate ventilation or "curing." In open vehicles, plants are to be protected by tarps, canvas or other suitable material. The top layer of any shipment shall be covered with tarps or canvas. All turf material shall be furnished bare root (BAR) unless otherwise specified. All live plants shall be well watered and balled and burlapped (BB) unless otherwise specified. Buxus or "inside" habit which are not balled and burlapped shall be at all times handled by the hand of each plant and the plant. Under the circumstances, all plants may be shipped in suitable metal or other containers should the Contractor determine that the plants would be well developed to hold the earth intact after removal from the container without being root bound.

New Section 48-4.01 TAGGING PLANT MATERIAL
Plants delivered shall have legible labels attached to each individual plant delivered as a separate unit or to each box. Labels shall give the necessary descriptive information as to horticulural name, size, age, caliber or other data required.
to identify in conformance to specifications. When the label is detached, calculate, estimate, etc., always using more than one plant, information on the label shall show the quantity together with the other required information.

New Section 49-2.05 INSPECTION OF PLANT MATERIAL

The Contractor shall, as soon as practical, inform the Engineer as to the source of plant materials for the project. All plants intended for use by the Contractor are subject to inspection at any time by the Engineer. Approval of plant material for a project shall not be considered as final acceptance. The Contractor shall notify the Engineer not less than two (2) days in advance of delivery of plants from the nursery.

All plants will be inspected by the Engineer on arrival at the project and before the time of planting. Root condition of plants furnished in containers shall be determined by removal of the plant from the container. Plants not meeting the requirements herein specified shall be immediately removed from the project and replaced by the Contractor at his own expense.

New Section 49-2.06 SUBSTITUTION OF PLANTS

No substitution of plant material will be permitted unless evidence is submitted in writing to the Engineer that a specified plant cannot be obtained and has been substantiated under the award of the contract. If substitution is permitted, it can be made only with written approval by the Engineer. The nearest variety, size and grade as approved by the Engineer shall then be furnished.

New Section 49-2.07 TEMPORARY STORAGE

Plant material delivered and accepted shall be planted immediately. Plants that cannot be planted within one (1) day of delivery shall be watered in accordance with accepted horticultural practice.

(a) Bare root plants shall be placed in trenches with roots covered with moist earth or other suitable material. All materials supplied in bundles shall be laid on the ground. hoops and placed in the bundle by the handler. Bundles and placed in the water

(b) Balled and burlapped plants shall have the root ball protected with wet straw, earth, sawdust, or other acceptable material.

Plants stored under temporary conditions shall be protected at all times from extreme weather conditions, and shall be kept moist. All plants that must be stored longer than one month shall be planted in nursery rows and maintained by the Contractor at his own expense.

New Section 49-2.08 TOPSOIL

Topsoil shall conform to the requirements of Section 55, including any soil conditions specified in the special provisions.

New Section 49-2.09 PLANTING SOIL

Planting soil shall be a mix of sandy loam, peat, cow manure, or other ingredients in the combination and proportion specified in the special provisions. Mixed planting soil shall have a pH range of 5.0 to 6.0. The Contractor shall notify the Engineer as to the source and location he is going to mix planting soil. Any planting soil mixed without approved soils by the Engineer shall be held at the locations shown on the plans. The phallus shall be a minimum of twenty (20) feet from the plan. For a depth of six inches. Ground cover shall have a minimum backfill of twelve (12) inches, measured from the top (2.0) feet (2.0) feet is the length of the hole. The balance of the hole shall be filled with planting soil.

(f) Planting shall be done by experienced workmen in accordance with recognized horticultural practice. All plants shall be set plumb and at such an elevation that if backfill settlement plants will bear the same relationship to the finished grade as they were planted in the nursery.

(g) Bare root plants shall be set in the plant holes with roots spread out in a natural position. Backfill material as specified shall then be worked in and around the roots filling all voids. Filling or tamping of backfill material around roots shall be done in such a manner as not to damage the roots. Balled and burlapped material shall have all diameters or cuts out, and the burrs shall be laid back from the top half of the hole. This shall be done only after the plant is placed in its final position and before completion of the backfill. Plants supplied in containers shall be removed from the containers in such a manner to prevent disturbance of the root system or material in which they were planted. Under no circumstances shall the plant be removed from the container by pulling the main stem. Plants removed from their containers shall be planted without delay, in the manner described for balled and burlapped plants.

A shallow depth of backfill at the top of a planting of a ridge of one (1) to three (3) inches high and equal in diameter by the first third of the plant shall be left at the top of each plant. Immediately after a plant is planted and backfilled, the backfill shall be filled with water.

(h) All excess or unsuitable material excavated from plant holes shall be removed and disposed of off the project site and to the satisfaction of the Engineer.

New Section 49-3.05 PRUNING, STAKING AND GUARDING

Before planting, all bare root stock shall have damaged or non-rooted material removed with care. After planting, all plant material shall be pruned in conformance with the best horticultural practice, approved by the Engineer. The type of plant. Top pruning shall remove all damaged twigs and branches, and commercial feeding and watering half of the roots. Growth removal to be carried out of bare root shall not exceed one-third (1/3) of the top. Where otherwise specified or directed by the Engineer. Removal of top growth shall be in such a manner as not to injure the plant. Growth material characteristics of the plant. Cuts greater than three-fourths (3/4) inch in diameter are not to be made. Approved iron wound dressing or pruning shall be done by trained professionals using professional methods of pruning, dressing, or cleaning the bark and shall be in living wood where the wound can heal properly.

All deciduous trees shall be staked at the time of planting. Stakes shall be driven in the ground with the stake in height shall be staked with one troughs by three-inch by two-inch (2" x 2") x (2") stakes, staked 20 (4) stakes. The stake shall be placed in the plan hole and driven a minimum of one (1) foot into firm ground at the time of planting, before backfilling around the roots. The stake shall be fastened to the stake with two (2) rope and burlap cord each. Tie shall be spaced two feet (6") apart and shall be fastened on a point approximately three feet (3') the height of the tree. Tie shall be nylon cord securely attached to the posts. Loops shall be formed around the trunk of the tree and tied in at least four (4) inch diameter space open after the burlap protection has been applied. Good quality rubber hose, brown in color, shall be used to protect the bark of the tree. If the cost of staking is broken during planting, the unprotected areas of the stake shall be removed after installation is complete. All stakes shall be placed to the windward side of the tree. The Contractor shall stake each (1) tree as a sample and get the approval of the Engineer before making further installations.

Deciduous trees over twelve (12) feet in height and all evergreen shrubs or trees over four (4) feet in height shall be gorged with three (3) guy wires or cables. Guy wires shall be two (2) strands of twelve (12) gauge wire twisted, passed through a loop of garden hose around the tree trunk at a point approximately three feet (3') the height of the tree and fastened securely to a stake placed approximately three-fourths (3/4) the height of the trunk or main stem. Guy wires shall be spaced equal distances apart.

New Section 49-3.05 CULTIVATION AND CLEAN-UP

Upon completion of planting all excess material shall be removed and disposed of off the "bearded" area, or area that shall be brought to uniform grade finish with walks, curbs, pavements and driveways. The soil material from each individual plant shall be cut and loosened to a depth of three (3) inches and all stones, roots and other debris shall be removed. A zone three (3) feet in diameter around each plant shall be cut and loosened and all debris shall be cleared and removed and the area shall be cultivated as specified and areas not less than one (1) foot around small shrubs and ground covers. Where trees and shrubs are planted in groups or mass plantings the entire area shall be cut and loosened and all debris shall be cleared and removed and the area shall be cultivated as specified. Cultivated area shall be neatly edged with a sharp edged tool.

New Section 49-3.06 FERTILIZERS AND SOIL CONDITIONS

Fertilizers and soil conditions when called for in the special provisions shall be thoroughly and uniformly incorporated into the topsoil at the rates specified.
or other compounds in quantities that would be detrimental to plant life.

New Section

Section 48.30 CARE DURING CONSTRUCTION

The Contractor shall issue adequate and proper care of all plant material and work done on this project until the contract is completed and accepted by the City. Adequate and proper care shall consist of keeping all plant material in a healthy, growing condition, by watering, cultivating, pruning, spraying and any other necessary operations. This work shall also include keeping the grass, litter and other debris along with retaining the finished grades in a neat and uniform condition.

New Section

Section 48.39 PROTECTION OF EXISTING FACILITIES

See sections 5.09 and 5.10.

New Section

Section 49.10 REPLACEMENT

All plants set in a healthy, growing condition at the time of final inspection shall be removed and replaced in species, size and grade by the Contractor at his own expense.

New Section

Section 49.5 MEASUREMENT AND PAYMENT

Payment will be made for each of the following items as are included and shown in any particular contract:

1. "Trees," per each.
2. "Shrubs," per each.
3. "Ground Cover Plants," per each.

The price per each for "Trees," "Shrubs" and "Ground Cover Plants" shall be full compensation for all costs necessary for furnishing, planting, cultivating and the particular purpose called for on the plans.

The price per cubic yard for "Top Soil," "Planting Soil" or for "Planting Mulch," measured in the loading conveyance at the point of delivery, shall be full compensation for all costs necessary for furnishing and placing as shown on the plans.

All incidental work required to complete the Roadsides planting specified herein but not specifically mentioned in these specifications shall be considered as incidental to the Roadsides planting and all costs therefore shall be included in the unit contract prices of the bid items.

New Section

Section 49.01 SPRINKLER IRRIGATION SYSTEM

New Section

Section 49.01-1 DESCRIPTION

The work under this section shall consist of furnishing all materials and labor required to install a sprinkler irrigation system in accordance with these specifications and the details shown on the plans.

New Section

Section 49.02 MATERIALS

All materials shall be new of the best quality obtainable and shall comply strictly with the drawings and specifications. Materials shall be protected from all conditions of all applicable City and/or County plumbing ordinances and shall be subject to testing as specified herein.

Prior to beginning any work, the Contractor shall submit to the Owner for approval, a complete materials list together with descriptive matter and manufacturer's name and number covering all irrigation system material to be furnished under the contract.

New Section

Section 49.20 PIPE AND FITTINGS

Galvanized Pipe:

Galvanized pipe shall be standard weight, hot-dipped galvanized iron or steel pipe, threadless and coupled. Pipe shall meet the current requirements of ASTM Designation A 120, and shall be furnished in standard lengths. All pipe fittings shall be standard thread galvanized malleable iron fittings.

Plastic Pipe:

P.V.C. Plastic pipe shall be extruded from unplasticized virgin resins of polyvinyl chloride material, gray in color. The material shall be non-toxic, non-flammable and conform to Commercial Standard No. CS 257-60, as published by the U.S. Department of Commerce, February 15, 1960. All plastic pipe fittings shall be of the same manufacturer as the plastic pipe specified above.

Pipe size and type shall be as specified on plans.

New Section

Section 49.20-2 CONTROL TUBEING

Control tubing shall be copper refrigeration tubing meeting the current requirements of ASTM Designation B 390 or polyvinyl chloride refrigeration tubing. Tubing and fittings shall be capable of withstand a three-hundred (300) p.s.i. operating pressure and shall be of the size indicated on the plans.

New Section

Section 49.02 AUTOMATIC CONTROLLERS

Where called for on the drawings, the Contractor shall furnish and install on a concrete base, automatic controllers as herein specified. They shall be electronic timed device for automatically opening and closing control valves for pre-determined periods of time and shall be so designed that all normal adjustments will be conveniently located for use by the operator. Controllers shall be mounted in a weatherproof metal housing with hanger and lock or locking devices. Bond shall be key provided and three (3) sets of keys provided. Operating features shall include the following:

(a) Each valve in the circuit shall be adjustable for setting to remain open for any desired period of time—from one (1) to thirty (30) minutes.
(b) Controller adjustments shall be such that the open cycle may be doubled or repeated not less than three (3) times during the complete watering cycle.
(c) Adjustments shall be provided whereby any number of days may be omitted and whereby any one or more positions on the controller can be canceled. When adjustments are made they shall continue automatically within a fourteen (14) day cycle until the operator desires to make new adjustments.

Each controller shall be operated manually both on and off whenever desired.

(c) Controllers shall provide for resetting of the start and closing of irrigation and be advanced from one position to another.

(f) Controllers shall provide an "on-off" switch and fuse assembly.

(g) Controllers shall have a power failure cutout.

New Section

Section 49.02.04 SPRINKLER HEADS

Sprinkler heads shall be of the swirl, pattern and coverage shown on the plans. All heads shall be constructed on heavy duty bronce, bronze or stainless steel. Sprinklers shall be designed so that spray adjustments can be made by either an adjustment screw or interchangeable nozzles. Watering areas shall be precision machined for accurate performances and shall be easily removed without removing the housing from the pipe. All turf heads shall be designed with tuft flanges having two gripping holes to facilitate removal of the head.

New Section

Section 49.02.05 VALVE PROTECTIVE SLEEVES

All valves shall be equipped with a protective sleeve and cap as shown on the plans. Protective sleeves shall be plain concrete pipe of the size and length called for on the plans.

New Section

Section 49.02.06 GATE VALVES

Gate valves when called for on the plans shall have heavy duty bronze conforming to the requirements of ASTM Designation B 62. Valves shall be of the same size as the pipes on which they are placed and shall have union or flange connections. Service rating for non-choked water shall be three-hundred (300) p.s.i. Valves shall be of the double disk, taper seat type, with rising stem, union bonnet and blindflanged. Manufacturer's name, type of valve and size shall be cast on the valve.

New Section

Section 49.02.07 CONTROL VALVES

Manual section control valves shall be bronze angle valves, renewable dike type, with rising stem and either screwed or union bonnet, fitted for key operation. Service rating shall be not less than one-hundred fifty (150) p.s.i. non-choked cold water.

Automatic remote control valves shall be bronze or brass, pattern as specified with flanged or screwed outlet. Screwed valves shall be provided with union connections or a short brass nipple with brass union. Valves shall be a "normally closed" design and shall be provided with a reversed set of keys provided. Operating features shall include the following:

(a) Each valve in the circuit shall be adjustable for setting to remain open for any desired period of time—from one (1) to thirty (30) minutes.
(b) Controller adjustments shall be such that the open cycle may be doubled or repeated not less than three (3) times during the complete watering cycle.
(c) Adjustments shall be provided whereby any number of days may be omitted and whereby any one or more positions on the controller can be canceled. When adjustments are made they shall continue automatically within a fourteen (14) day cycle until the operator desires to make new adjustments.

Each controller shall be operated manually both on and off whenever desired.

New Section

Section 49.02.08 QUICK COUPLER VALVES

Quick Coupler valves shall have a service rating not less than one hundred fifty (150) p.s.i. Body of the valves shall be a single brass alloy 45-A as given in ASTM Designation B 145. Base of the valve shall be such that it will open only upon inserting a coupling device, and will close as the coupling is removed from the valve. Leakage of water between the coupling and valve body when in operation will not be accepted. The valve body receiving the coupling shall be designed with worm gear type slow motion smooth action from one position to another. Couplings shall be of the type described as an "on-off" switch and fuse assembly. Couplings shall be designed so that spray adjustments can be made by either an adjustment screw or interchangeable nozzles. Watering areas shall be precision machined for accurate performances and shall be easily removed without removing the housing from the pipe. All turf heads shall be designed with tuft flanges having two gripping holes to facilitate removal of the head. Couplings shall be of one piece construction with steel re- liefed side handle attached. All couplings shall have standard male pipe threads at the top. Couplings shall be furnished with all quick coupler valves, unless otherwise specified.

New Section

Section 49.02.09 DRAIN VALVES

Drain valves shall be bronze or brass gate valves with a service rating of three hundred (300) p.s.i. Drain valves shall be furnished with cross stop. The conditions shall furnished automatic operating key. Each drain valve shall be placed in a drain pit which shall be constructed in accordance with the details on the plans.

New Section

Section 49.10 HOSE QUICKS

Hose hobs shall be constructed of bronze or brass, angle threaded to accommodate a three-fourths (3/4") water hose connection and shall be key operated. Design shall be such as to present no operation by wrench or pliers.

New Section

Section 49.11 VACUUM BREAKERS

When called for in the plans and special provisions, vacuum breakers meeting the following requirements shall be furnished and installed. All vacuum breaker installations are subject to inspection by the Engineer.

New Section

Section 49.11A Atmospheric Vacuum Breakers

Atmospheric vacuum breakers shall have all bronze bronze and be of the same dimensions as those called for herein. Breakers shall be considered as incidental to the roadway planting and all costs therefore shall be included in the unit contract prices of the bid items.

New Section

Section 48.30 DESCRIPTION

When called for on the drawings, the Contractor shall furnish and install on a concrete base, automatic controllers as herein specified. They shall be electronic timed device for automatically opening and closing control valves for pre-determined periods of time and shall be so designed that all normal adjustments will be conveniently located for use by the operator. Controllers shall be mounted in a weatherproof metal housing with hanger and lock or locking devices. Bond shall be key provided and three (3) sets of keys provided. Operating features shall include the following:

(a) Each valve in the circuit shall be adjustable for setting to remain open for any desired period of time—from one (1) to thirty (30) minutes.
(b) Controller adjustments shall be such that the open cycle may be doubled or repeated not less than three (3) times during the complete watering cycle.
(c) Adjustments shall be provided whereby any number of days may be omitted and whereby any one or more positions on the controller can be canceled. When adjustments are made they shall continue automatically within a fourteen (14) day cycle until the operator desires to make new adjustments.

Each controller shall be operated manually both on and off whenever desired.

New Section

Section 49.02.07 QUICK COUPLER VALVES

Quick Coupler valves shall have a service rating not less than one hundred fifty (150) p.s.i. Body of the valves shall be a single brass alloy 45-A as given in ASTM Designation B 145. Base of the valve shall be such that it will open only upon inserting a coupling device, and will close as the coupling is removed from the valve. Leakage of water between the coupling and valve body when in operation will not be accepted. The valve body receiving the coupling shall be designed with worm gear type slow motion smooth action from one position to another. Couplings shall be of the type described as an "on-off" switch and fuse assembly. Couplings shall be designed so that spray adjustments can be made by either an adjustment screw or interchangeable nozzles. Watering areas shall be precision machined for accurate performances and shall be easily removed without removing the housing from the pipe. All turf heads shall be designed with tuft flanges having two gripping holes to facilitate removal of the head.
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approved check valves, inlet and discharge shut-off valves and other fittings. Assembly for distribution shall be as specified on plans and in special provisions. Unless otherwise specified, Armaflex type insulations shall have a service rating of 300°F for non-shock cold water.

New Section
Section 49.3 CONSTRUCTION DETAILS
All work shall conform to the local plumbing code having jurisdiction. The Contractor shall apply and pay for all permits having to do with the work.
All scaled dimensions are approximate. The Contractor shall check and verify all dimensions on the site before proceeding with any work as part of the contract. Before starting work on the sprinkler system, the Contractor shall carefully note all finished grades. Finish grades changed in the course of the work shall be restored to the original grades and contours.

New Section
Section 49.3.1 ITEMS OF MATERIALS
Concrete shall be used for wetted surfaces not subject to freezing.

New Section
Section 49.3.2 EXCAVATION ADJACENT TO TREES
Care shall be exercised by the Contractor when excavating adjacent to and around existing trees. Where trees or other vegetation exist (two (2) inches and greater in diameter, except in the direct path of the pipe or section lines), the sides shall be hand-dug and returned to their natural state. Where roots are exposed they shall be wrapped in a bag for protection and to prevent vegetation during the freeze-thaw cycle. Trees subject to damage by machinery shall be protected by rubber or other approved material.

New Section
Section 49.3.3 PIPING
All steel pipes shall be minimum of twenty-four (24) inches below finished grade measured from the top of the pipe. Steel, plastic, or section lines shall be a minimum of ten (10) inches below finished grade measured from the top of the pipe. Pipes shall be aligned to drain without obstruction. Unless otherwise specified, drain valves shall be placed only at the low point of all lateral or section lines. All live lines located under existing pavement shall be placed in conduits having a minimum of four (4) inches and greater in diameter and shall be hand-dug and returned to their natural state. Where trees or other vegetation exist (two (2) inches and greater in diameter, except in the direct path of the pipe), the sides shall be hand-dug and returned to their natural state. Where roots are exposed they shall be wrapped in a bag for protection and to prevent vegetation during the freeze-thaw cycle. Trees subject to damage by machinery shall be protected by rubber or other approved material.

New Section
Section 49.3.4 FLUSHING AND TESTING
All new installations shall be thoroughly flushed and tested with clean water. After flushing, all outlets, control valves, and test pipes shall be closed and the finished grade restored to existing conditions. Upon completion of all flushing and testing, all test connections shall be removed from the system and the system shall be returned to the condition as it existed prior to installation of the test connections.

New Section
Section 49.3.5 INSTALLATION
Location of pipe, sprinkler heads, valves and other equipment shall be in such a manner as to be of the age and type indicated. No changes shall be made except as approved by the Engineer. Location of sprinkler heads located within seven (7) feet shall be installed on temporary high racks approved by the Engineer. Where the rack has been approved and the rack has a maximum height of two (2) inches and greater in diameter, except in the direct path of the pipe or section lines, the sides shall be hand-dug and returned to their natural state. Where roots are exposed they shall be wrapped in a bag for protection and to prevent vegetation during the freeze-thaw cycle. Trees subject to damage by machinery shall be protected by rubber or other approved material.

New Section
Section 49.3.6 INSTALLATION
Location of pipe, sprinkler heads, valves and other equipment shall be in such a manner as to be of the age and type indicated. No changes shall be made except as approved by the Engineer. Location of sprinkler heads located within seven (7) feet shall be installed on temporary high racks approved by the Engineer. Where the rack has been approved and the rack has a maximum height of two (2) inches and greater in diameter, except in the direct path of the pipe or section lines, the sides shall be hand-dug and returned to their natural state. Where roots are exposed they shall be wrapped in a bag for protection and to prevent vegetation during the freeze-thaw cycle. Trees subject to damage by machinery shall be protected by rubber or other approved material.

New Section
Section 49.3.7 CONTROL TUBING INSTALLATION
Control tubing shall be placed with the main supply line. Tubing shall be bundled together for four (4) wings of the system at the location of the building entry. Location of the hand control tubing shall be to the side of the pipe, and a minimum of ten (10) inches from any gavanized pipe.

New Section
Section 49.3.8 FLUSHING AND TESTING
All new installations shall be thoroughly flushed and tested with clean water. After flushing, all outlets, control valves, and test pipes shall be closed and the finished grade restored to existing conditions. Upon completion of all flushing and testing, all test connections shall be removed from the system and the system shall be returned to the condition as it existed prior to installation of the test connections.

New Section
Section 49.4 JOINTING
All galvanized steel pipe shall have sound, clean cut, standard pipe threads well fitted. All pipes shall be well rammed to the full diameter and bars removed before assembly. Threaded joints shall be made up with the best quality roller lead paste, applied smoothly and evenly to the male thread only. All screwed joints shall be made tight with tongs and wrenches without the use of handle extensions. Any joints that leak shall be cleaned and remade with new material. Cutting or threading to remove joints will not be permitted.

New Section
Section 49.4.3 BACKFILL
Backfill shall be placed with the main supply line. Tubing shall be bundled together for four (4) wings of the system at the location of the building entry. Location of the hand control tubing shall be to the side of the pipe, and a minimum of ten (10) inches from any gavanized pipe.

New Section
Section 49.4.4 MEASUREMENT AND PAYMENT
Payment shall be made for the following bid items as measured and shown in any particular contract:

Manual Sprinkler Irrigation System Complete, lump sum
Automatic Sprinkler Irrigation System Complete, lump sum.

The lump sum contract prices for "Manual Sprinkler Irrigation System Complete" and/or "Automatic Sprinkler Irrigation System Complete" shall be final compensation for all labor, materials, tools and equipment necessary for the construction and installation of the complete sprinkler system as shown on the plans.

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All additional material and labor, not shown on the plans, added for herein and which are required to complete the sprinkler system, shall be considered as incidental to the construction and shall be paid for at the prevailing market prices. No additional compensation will be allowed.

Page 81 Section 50.3.1 REFERENCE POINTS
Delete the words "monuments and" in the second line of the second paragraph.

Page 81 Section 50.3.2 PRECAST CONCRETE MONUMENTS
This section shall be deleted in its entirety.

Page 81 Section 50.3.3 POUR ED MONUMENTS
This section shall be deleted in its entirety.

Page 81 Section 50.4 MEASUREMENT AND PAYMENT
Delete Bid Items 1 and 2.
In the second paragraph, fourth line, delete the words "monuments and"

Page 82 Section 51.1 SIDEWALK DRAIN FOR BUILDING DOWNSPOUT
This section shall be deleted in its entirety.

Page 82 Section 52.2.1 REMOVAL OF PAVEMENT
Existing pavement such as concrete, asphalt, brick, bluestone, or combinations of the various materials which constitute a rigid type of pavement and which is four (4) inches or more in thickness, shall be removed as shown on the plans or directed by the Engineer.
In the removal of pavements for the purpose described above, extreme care shall be taken to prevent damage to any pavement that is to remain in place, and to leave vertical drainage planes in order that the paved surface will be as durable as it was disturbed.
Pavement breakers such as a "hedgehog ball" shall not be used and paving breakers shall be of such types as will not cause damage to the pavement upon which they are used.
This section shall be deleted in its entirety.

Page 82 Section 52.2.2 REMOVAL OF ASPHALT PAVEMENT
Removal of existing pavement, i.e., bituminous mixtures as a surfacing upon earth or granular subgrades averaging four (4) inches and less in thickness, when required shall be removed as common excavation, except as may otherwise be specified in the specifications.

Page 82 Section 52.2.2A PAVEMENT REMOVAL, Class A
This section shall be deleted in its entirety.

Page 82 Section 52.2.2B PAVEMENT REMOVAL, Class AA
This section shall be deleted in its entirety.

Page 82 Section 52.2.2D PAVEMENT REMOVAL, Class B
This section shall be deleted in its entirety.

Page 82 Section 52.2.2D PAVEMENT REMOVAL, Class C
This section shall be deleted in its entirety.

Page 82 Section 53.1.1 REMOVAL OF ASPHALT CONCRETE PAVEMENT
The second paragraph of this section shall be amended as follows:
Where asphalt concrete pavement exists in planting strips and is to be removed, it will be considered as part of the clearing and grubbing and no payment will be made therefore.
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The third paragraph of this section shall be amended as follows:

Side streets approaching to the project and street appro-
aches at each end of the project paved with asphalt con-
crete, on earth or gravel base and which are to be re-
moved, will be paid for as common excavating.

The fourth paragraph of this section shall be amended as follows:

Immediately prior to the placing of asphalt concrete against the sides of the street, the existing edge shall be removed by coring the existing pavement vertically a sufficient distance from the line of excavation to avoid damaged areas (not to exceed three (3) feet).

Page 28 Section 52.2.06 REMOVAL OF CEMENT CON-
CRETE SIDEWALKS

The last moved in the third sentence shall be amended to read the "prevail."
Section 58-2.01A General
All material used in the construction of the fence shall be new, iron or steel material shall be galvanized. Imperfections in the material shall be limited to minor scratches, or material upon which various surface treatments of galvanizing have not been acceptable. These defects in the material shall be compensated for in accordance with the requirements of ASTM Designation A 153. Other materials shall be galvanized in accordance with the requirements of ASTM Designation A 153. Section 58-2.01A General

Section 58-2.01B Tie Wire
Tie wire shall be nine (9) gauge aluminum wire or nine (9) gauge galvanized iron wire meeting the requirements of ASTM Designation A 116. Galvanizing shall be Class 1.

Section 58-2.01C Chain Link Gates
Gate frames shall be constructed of not less than one (1) inch by one and one-half (1 1/2) inch nominal diameter hot-dip galvanized pipe with nominal weight of 2.72 pounds per linear foot. The centers of the gate frame shall be fastened together and locked with a malleable iron fitting designed for the purpose, or they may be welded. Welding shall conform to the requirements of Section 11.2.3.3. Chain tees shall be three-eighths (3/8) inch galvanized iron adjustable chain links.

Section 58-2.01D Cable Attachments
All cable attachments shall be hot-dip galvanized steel using either a (3/8) inch galvanized steel cable conforming to the requirements of ASTM Designation A 123, Standard Grade. Galvanizing shall be Class A.

Section 58-2.01E Braces and Trestl Rods
Composite braces shall be hot-dip galvanized material of the same type and size as the top rail. Tension trestl rods shall be three-eighths (3/8) inch round galvanized rods with drop forged turnbuckles, or other approved type of adjustment.

Section 58-2.01F Fittings
Fittings shall be hot-dip galvanized suitable cast iron or pressed steel. Fittings for any particular fence shall be those furnished by the manufacturer of the fence.

Section 58-2.01H Chain Link Fence Fabric
Chain link fence fabric shall consist of eleven (11) gauge wire (0.170 inch in diameter) for fences under sixty (60) feet in length and twelve (12) gauge wire (0.156 inch in diameter) for fences sixty (60) inches or over in length. The wire shall be aluminum alloy complying with the American Society for Testing and Materials specifications for 1100-O for 0.170 or 0.156 inch wire. The wire may be iron or steel wire which shall meet all of the requirements of ASTM Designation A 922. Galvanizing shall be Class 1 and shall be done after warping.

Section 58-2.01G Fittings
Fittings shall be hot-dip galvanized suitable cast iron or pressed steel. Fittings for any particular fence shall be those furnished by the manufacturer of the fence.

Section 58-2.01I Tie Wire
Tie wire shall be nine (9) gauge aluminum wire or nine (9) gauge galvanized iron wire meeting the requirements of ASTM Designation A 116. Galvanizing shall be Class 1.

Section 58-3 Construction
Top rails shall pass through the ornamental tops of the line posts, forming a continuous surface. Top rails shall be held in place by (1 5/8) inch straps of 20-gauge (0.047) inch thickness of fence. Lengths of top rail shall be joined by (1 5/8) inch couplings. Top rails shall be securely fastened to terminal posts by pressed steel fittings.
New Section

Section 58.3.01C Top Tenon Cable

Top tenon cable shall pass through the ornamental top of a masonry chimney and the length of cable shall be used between pull posts. The cable shall pass through the top post and down to the base of the next base post where it shall be attached to the base of the line post with a turnbuckle in the manner shown on the Standard Plan. Sufficient tension shall be applied to the cable to allow a maximum sag of one-fourth (1/4) inch between base posts after the chain link mesh has been attached to the cable. The Contractor shall provide temporary tracing on pull posts when applying tension to one length of cable at a time, to prevent similar stresses in the pull post.

After tension has been applied to the cables, a wire rope clip shall be placed around both cables, one on each side of the pull posts, and the clips securely tightened. Clips shall be placed in close to the pull post to prevent the deflection of the post if one of the cables should be parted. A length of cable shall be connected to the end post and the end post at the top shall be connected to the posts as shown on the Standard Plan.

Eye bolts shall have a shoulder on the eye end and shall be provided with a nut and lock washer. Where the eye bolt is to be installed through a pipe section, two (2) lead washers and one (1) steel washer shall also be provided. A lead washer shall be placed against the shoulder of the eye, and a lead washer backed by the steel washer placed between the lead washer and lock washer. The washers shall be inserted sufficiently to seal the hole in the pipe.

A galvanized iron strap one-fourth (1/4) inch in thickness by two (2) inches in width, formed as shown on the Standard Plan shall be provided for the attachment of the strap to the base of the H column post in order to take the strain off the cable tensioning all the way to the base of the H column post. All holes drilled in the post sections shall be cleaned and water-creted as specified for weldless areas on gun bores where the eye bolts are installed. The ends of all cables shall be wired with annealed aluminum wire passed around the cable and the line cable as shown on the Standard Plan. The setting shall be at least one (1) inch in width.

New Section

Section 58.3.01D Chain Link Fabric

Chain link fabric on Type No. 1 fence shall be placed on the posts away from the road, and fabric band shall be placed on each of the fabric bars except that on every fabric of both types of fence shall be placed on the face of the post which is on the outside of the curve. The chain link fabric on Type No. 1 fence shall be placed on front of the posts designated by the number one (1) inch above the ground and on straight grade between posts by excavating high points of ground,凡有监理人员认为应由监理单位审批的施工图,凡有监理人员认为应由监理单位审批的施工图。The fabric on Type No. 2 fence shall be placed on the face in a manner similar to that shown in Fig. 58-4. The chain link fabric of both types of fence shall be placed on the face of the post which is on the outside of the curve. The chain link fabric on Type No. 1 fence shall be placed on front of the posts designated by the number one (1) inch above the ground and on straight grade between posts by excavating high points of ground. Final trimming of all fabric shall be permitted only upon approval of the Engineer. The fabric on Type No. 2 fence shall be formed into a pattern that matches the ground and on straight grade between posts by excavating high points of ground. The fabric shall be stretched taut and securely fastened to the posts. Fastening to end, gate, corner, and pull posts shall be placed on the bars and fabric bands spaced at one (1) foot intervals. The fabric shall be cut and clips attached independently at all pull and corner posts. Fastening in tie posts shall be made with metal bands or other approved method, attached at fourteen (14) inch intervals. The chain link fence shall be fastened to the top rail with tie wires spaced at eighteen (18) inch intervals, or to the top tenon cable with tie wires spaced at two foot six-inch (2'-6") intervals. Rolls of wire fabric shall be joined by using a single strand into the ends of the rolls to form a continuous mesh.

New Section

Section 58.3.01E Chain Link Gates

Chain link fabric shall be fastened to the end bars of the gate frame by steel strips and fabric bands, and to the top and bottom bars of the gate frame by tie wires in the same manner as specified hereinafter for the chain link fence fabric, or by other standard methods as approved by the Engineer.

Welded connections on gate frames where the spelter coating has been burned shall be thoroughly cleaned by wire brushing and all traces of the welding flux and base or cracked spelter removed. The clean areas shall then be painted with two (2) coats of zinc oxide dust paint, or, in the case of welded connections, with a zinc rich alkyd or zinc oxide enamel in the ratio of one (1) part zinc oxide to four (4) parts zinc dust by weight.

The drop bar locking device for the metal gates shall be provided with a twelve (12) inch round by eighteen (18) inch deep footing of Class C concrete, concreted at the top and provided with a hole to receive the locking bar. The depth of the penetration of the locking bar into the footing shall be as specified by the manufacturer of the locking device.

New Section

Section 58.3.01F Cement Concrete Mowing Strip

The bottom of the fence shall be provided with a cement concrete mowing strip in accordance with the cross section detail as shown on the plans. The concrete mowing strip shall be constructed of concrete one and two-third (1 2/3") thick by eight (8) feet wide and shall be placed on a subgrade which has thoroughly compacted to a depth of twelve (12) inches. The concrete, the subgrade and forms should be thoroughly wetted.

The concrete mowing strip shall be finished after the completion of the concrete base forming a neat edge with a one-fourth (1/4) inch crown centering it in the mowing strip. The concrete expansion joints shall be placed in the slab opposite each post.

The surface of the concrete shall be troweled smooth with a steel trowel. Edges shall be edge to a radius of one-quarter (1/4) inch. Concrete shall be cured in accordance with Section 39.30-3.

New Section

Section 58.4 MEASUREMENT

Chain link fence will be measured by linear foot of compound, exclusive of any opening.

Measurement of the concrete mowing strip shall be the actual length constructed measured on the slope.

New Section

Section 58.5 PAYMENT

Payment will be made for each of the following items at the rate shown in the schedule:

1. "Chain Link Fence Type No. 1," per linear foot.
2. "Chain Link Fence Type No. 2," per linear foot.
3. "Doubled 14 Chain Link Gate," per each.
4. "Double 10, 12 Chain Link Gate," per each.
5. "Cement Concrete Mowing Strip," per linear foot.

Payment for the various items specified above shall be calculated from the beginning to the end, using materials, tools and equipment necessary or incidental to the construction of the work. No provision for cost of concrete cutting, trenching, filling, tamping, concrete footings, miscellaneous hardware, smoothing the exterior surfaces of the ground at the fence line, or clearing the line for the fence, and disposing of all debris to the satisfaction of the Engineer. The final payment shall be made after the work has been completed to the satisfaction of the Engineer.

Page 90 Section 60.1 DESCRIPTION

Pipe used in sanitary sewer and storm drain construction, unless otherwise specified, shall be of cement concrete, vitrified clay, cast iron or asbestos cement. Culvert pipe, when otherwise specified, shall be cement. All sanitary sewer and storm drain pipe shall have flexible gasketed joints unless otherwise specified.

Page 90 Section 60.10A1 Concrete Pipe, Reinforced

The final paragraph shall be amended to read as follows:

"Both bolts and spacers shall be reinforced in pipe thirty inches (30") or more in diameter and the spigot ends shall have a groove to contain an O-ring type solid rubber gasket."

Page 90 Section 60.10A11 Bituminous Coated Piped in Vent Metal Pipe

The words "piped invert" shall be deleted from the first line of the first paragraph.

Part B. Thickness of coating shall be amended by deleting the second sentence.

New Section

Section 60.30.1E Cement Coated Pipe in Vent Galvanized Corrugated Steel Pipe

Bituminous coated paved invert galvanized corrugated steel pipe shall conform to requirements of Section 60.30.1E and, in addition, an additional bituminous material shall be specified to form a continuous and uniform layer of one-eighth inch (1/8") above the crests of the corrugations.

Page 90 Section 60.30.2A Flexible Gasketed Joints

Hard pipe, hard clay or tile fill will not be classified as solid rock excavation. Sandstone, siltstone, shale or other non-oligogenic rocks which are soft, weathered or extensively fissured will not be classified as solid rock excavation. Soft rock is defined as one which has a modulus of elasticity of less than 200,000 psi or unconfined compressive strength at field moisture contents of less than 2,000 psi.

All materials removed shall be replaced with satisfactory waste materials from the area or from imported bedding or backfill, as determined by the Engineer. All costs for backfilling including the use of select material required shall be considered as incidental to this item.

Page 90 Section 60.30.1G EXCAVATION

The first sentence in paragraph three shall be amended as follows:

"Grade cuts used with corrugated metal pipe with bands of the "Angle-Lag," "Rod and Lag" or "O'lock" types shall be made of two-thirds-inch (2/3") thick by six (6) inch maximum minimum wall closed synthetic rubber pipe per ASTM Designation A540, Grade SCE-45, coated in the form of a cylinder with a diameter of approximately ten percent (10%) less than the outside diameter of the pipe."

Add the following paragraph after paragraph five:

"Grade cuts used with Type No. 4 bands shall be O-ring gaskets of material meeting ASTM C493 of thirteen sixteenths (13/16") inch minimum cross sectional diameter. The gaskets, if specified, are to be placed in the ground first at the govee pipe in the ground."

Page 90 Section 60.30.2B Coupling Bands for Corrugated Steel Pipe

Add the following Item No. 4.

4. The type of bands described as "Type No. 4 band shall be fabricated sixteen (16) gage galvanized steel bands which must into the second annular corrugated from the end of each pipe section. The bands shall be at least ten (10) inches wide. The gaskets shall be as specified in Section 60.30.1E. Couplings, metal bands or other approved method, attached at fourteen (14) inch intervals. The coupling shall be fastened to the top rail with tie wires spaced at eighteen (18) inch intervals, or to the top tenon cable with tie wires spaced at two foot six-inch (2'-6") intervals."

The final paragraph, after the third paragraph, shall be added:
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"Whenever a trench is excavated in paved roadway, sidewalk, or other improved area, a vertical trench section will be provided, the maximum trench width at the surface of the ground not to exceed the width called for below the concrete surface as specified above. If the Contractor exceeds this width, he will be required to pay for any additional material as stated.

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"According to Section 63.1-038, the Contractor shall be required to comply with the specified items as directed by the Engineer.

"Where structural excavation occurs below that required for Class B bedding in accordance with the standard plans and it does not exceed the inches (A) more than required for Class B bedding the Contractor may replace the structural excavation at his expense with Class B bedding material in lieu of foundation material specified in Section 63.1-038.

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"Class B bedding for pipe shall conform to the cross section details shown on Standard Plan No. 177. The bottom of the trench as excavated shall be graded properly to provide a uniform depth of bedding material below the outside diameter of the pipe.

"The unit contract price per linear foot for Class B bedding shall be full compensation for furnishing all labor, equipment, and materials necessary to place the Class B bedding as required on the plans or directed by the Engineer.

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"Class C bedding shall meet the requirements outlined for Class B bedding except that bedding material need be placed only to approximately the horizontal diameter of the pipe.

Page 34

"The unit contract price for the cubic yard for "Trench Excavation and Backfill (pipe size)," shall be full compensation for all labor, materials, tools and equipment required to excavate and backfill the trench in accordance with the plans and specifications. If the contract price does not cover the work and expense of trench excavation, foundation material and bedding material.

Page 34

"The unit contract price for the cubic yard for "Trench Excavation and Backfill (pipe size)," shall be full compensation for all labor, materials, tools and equipment required to excavate and backfill the trench in accordance with the plans and specifications. If the contract price does not cover the work and expense of trench excavation, foundation material and bedding material.

Page 35

"The final paragraph shall be amended to read as follows:

"The unit contract price for the cubic yard for "Trench Excavation and Backfill (pipe size)," shall be full compensation for all labor, materials, tools and equipment required to excavate and backfill the trench in accordance with the plans and specifications. If the contract price does not cover the work and expense of trench excavation, foundation material and bedding material.

Page 35

"The unit contract price for the cubic yard for "Trench Excavation and Backfill (pipe size)," shall be full compensation for all labor, materials, tools and equipment required to excavate and backfill the trench in accordance with the plans and specifications. If the contract price does not cover the work and expense of trench excavation, foundation material and bedding material.

Page 35

"The unit contract price for the cubic yard for "Trench Excavation and Backfill (pipe size)," shall be full compensation for all labor, materials, tools and equipment required to excavate and backfill the trench in accordance with the plans and specifications. If the contract price does not cover the work and expense of trench excavation, foundation material and bedding material.

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"Bid Item Nos. 15, 16, 17, and 19 shall be deleted. Add the following bid items:

"Asphalt Mix "Excavation and Backfill in Solid Rock," per cubic yard.

Page 35

"The last sentence in the first paragraph shall be amended as follows:

"Ladder rungs shall be specified for each manhole."
Page 26

located entirely away and separate from the catch basin, or the pipe connection between the catch basin outlet casing and the sewer to which it is connected. These items will be paid for as separate contract bid items in the proposal, as specified in Section 66.

Page 103 Section 64-5.01 CATCH BASIN AND INLET
This section shall be deleted.

Page 103 Section 64-5.02 TRAP
This section shall be deleted.

Page 105 Section 66-1 DESCRIPTION
A side sewer is considered to be that portion of a sewer line that will be constructed between a main sewer line and a residence or other buildings in which the disposal origi- nates. It does not include any of the internal piping or connecting appurtenances, the installations of which is cont- rolled by a municipal code, ordinance or regulation.

The general requirements for construction of sewers in other sections of these specifications shall apply for con- struction of side sewers unless they are inconsistent with any of the provisions of this particular section and the specifications shall apply alike to all side sewers on public rights of way and private property.

Page 105 Section 66-3.02 EXCAVATION AND BACK- FILL
Excavation and backfilling for side sewers shall conform to the requirements of Section 61, excepting that no backfill in excess of that required to hold the pipe in true align- ment shall be placed prior to the inspection.

Page 106 Section 66-3.04A Inspection
Side sewer shall meet the inspection and leakage require- ments specified in Section 62, except as noted for backfill in Section 66-3.02.

Page 106 Section 66-3.04A Requirements
Item No. 1 shall be amended as follows:
1. Pipe and Connections. Side sewer shall be not less than six inches (6") in diameter unless otherwise specified. No roof drain, area drain, or subsurface drain shall be connected to a side sewer which is connected to a separate main line sanitary sewer. Add Item No. 5 and 6:
5. Minimum Cover. For minimum cover above side sewer pipe in streets, refer to Section 66-3.04A and Standard Plan No. 176.
6. Under circumstances where sanitary sewer must cross over the watermain, the sewer pipe shall be of cast iron pipe with no joint within nine (9') feet of the watermain.

Page 106 Section 66-5 PAYMENT
Delete Bid Item No. 3.

New Section 69-3.01A CONNECTIONS TO EXISTING STORM AND SANITARY SEWERS
When making a connection to an existing storm or sanitary sewer line, or manhole the Contractor shall ex- cavate and expose the existing facility where shown on the plan. In the event there is no existing tee or wyse, the actual graft or insertion of a tee or other connection shall be made by the Owner.

Page 107 Section 69-4 MEASUREMENT
Delete the final paragraph.

Page 107 Section 69-5 PAYMENT
Delete Bid Item No. 4.

Page 109 Division IV - WATER DISTRIBUTION

Page 110 Section 72-2.02 ASBESTOS-CEMENT PIPE
This section shall be deleted.

Page 110 Section 73-3.04 GRADE AND ALIGNMENT
The second sentence in paragraph one shall read as follows:
"Trenches for the pipe shall be opened in accordance with the lines and grades given or to the standard depth of cover provided in Standard Plan No. 095.

Page 111 Section 73-2.07 COMPACTION OF BACKFILL
The following two paragraphs shall be added:
"The backfill shall be compacted to ninety-five percent (95%) of the maximum density determined by the 'Com- paction Control Test' specified in Sections 13-3.04E.

"Compacting of the trench backfill shall be considered an incidental cost to the construction and all costs in connection therewith shall be included in the unit price bid for the pipe in place.

Page 111 Section 73-2.07C SOURCE OF WATER FOR WATER- SETTLING
Source of water will depend upon local conditions and shall be as provided in Section 16 of City of Seattle special provisions.

Page 111 Section 73-2.08 BANK RUN GRAVEL FOR TRENCH BACKFILL
Paragraph one shall read as follows:
"Selected backfill material shall consist of bank run gravel as specified in Section 20 excepting, however, that one hundred percent (100%) of the material shall pass the two and one-half (2 1/2") inch square opening.

Page 111 Section 73-3.02 TRENCH EXCAVATION AND BACKFILL
Full compensation for 'Trench Excavation and Back- fill' shall be regarded as included in the unit price bids of 10 linear feet for 'Watermain' of the various sizes and classes as listed in the proposal of the contract, except where bank run gravel is required.

Page 112 Section 73-3.06 BANK RUN GRAVEL FOR TRENCH BACKFILL
The following shall be added:
"Payment for mechanical tamping or other approved method of compaction shall be included in the unit price bid for the material in place.

"Payment shall also include the cost of disposing of the unsuitable material.

Page 112 Section 74-2.03 LAYING OF PIPE ON CURVES
Delete reference to asbestos-cement pipe.

Page 113 Section 74-2.04 Couplings for Asbestos Cement Pipe
This section shall be deleted.

Page 114 Section 74-2.08T Cleaning and Assembling Joint
This section shall be deleted.

Page 114 Section 74-29C Short Lengths and Field Cut Joints
This section shall be deleted.

Page 114 Section 74-2.08B Coupled Pipe - 4" and Larger
Next to last paragraph shall read as follows:
"Pipe for outdoor service above ground shall be pro- tected with one coat primer and one coat coal tar paint approved by the Engineer.

Page 115 Section 74-2.12 FIELD TESTS
Paragraph three shall read as follows:
"The Contractor shall furnish all labor and equipment necessary to make the tests except for pressure gages which will be furnished by the Engineer.

Paragraph four shall be deleted.

Page 115 Section 74-2.33A Flashing
Sections of pipe to be flashjointed shall be first flashed to remove any solids or contaminated material that may have become lodged in the pipe. If no hydrant is installed at the end of the main, then a tap shall be provided large enough to develop a velocity of at least 2.5 fps in the main. Taps required for chlorination or flushing purposes will be furnished and installed by the Owner. Where dry cal- cium hypochlorite is used for disinfection of the pipe, flushing shall be done after disinfection.

The Contractor shall be responsible for disposal of removed water flashed from mains and shall neutralize the water for protection of aquatic life in the receiving water before disposal into any natural drainage channel. However, disposal may be made to any available sanitary sewer provided the rate of disposal will not overload the sewer.

Page 117 Section 74-3.05 PAYMENT FOR WATERMAIN AND WATER SERVICE CONNECTIONS
Paragraph three shall be amended to read as follows:
"Full compensation for excavation and backfilling of trenches, pipeline, accessories such as hydrants, hydrant connections, gate valves, etc., shall be regarded as included in the items or items necessitating construction in such manner.

Page 117 Section 74-3.05 TRENCH EXCAVATION AND BACKFILL FOR WATER SERVICE CONNECTIONS
This section shall be deleted.

Page 117 Section 74-4.01 MEASUREMENT OF WATER- MAINS FOR UNIT PRICE PAYMENT
This section shall be deleted.

Page 117 Section 74-4.02 PAYMENT FOR WATERMAIN CONSTRUCTION UNDER UNIT PRICE METHOD
This section shall be deleted.

Page 117 Section 75-1 DESCRIPTION
The valves shall be suitable for ordinary waterworks service intended to be installed in a vertical position onSelect pipe lines for water distribution systems.

The minimum requirements for all gate valves shall, in- cluding design, material, and workmanship, conform to the stand- ards of the AWPA C-10064. All materials used in the manufacture of waterworks gate valves shall conform to the AWPA Standards designed for each material listed. All gate valve operating stems shall be equipped with a brass (C") operating nut. All gate valves shall open counter- clockwise.

The Owner will accept only gate valves of the following manufacturers as approved by the Board of Standardization conforming to these specifications:
Page 117 Section 7.12.04 GATE VALVES 16-INCH AND LARGER
Second sentence in paragraph two shall read as follows:
"The valves shall be equipped with by-passes and valves of the same make and model standard in the specifications of AWWA..."

The following shall be added:
"Prior to shipment, these certified copies of performance tests, complying with Section 23 of the AWWA C-500 Standard Specifications shall be submitted to the Engineer..."

"The Contractor shall furnish, to the Engineer for approval, shop drawings of double square bottom gate valves.

Page 119 Section 7.3.05 HYDRANT DIMENSIONS
The dimensions and details shall be as shown on the standard drawings.

The second sentence in the last paragraph shall read as follows:
"Cups shall be threaded to fit the corresponding nozzles and shall be fitted with suitable resilient gasket..."