CITY OF SEATTLE

Supplement
to
Standard Specifications
for
Municipal Public Works Construction

1976

and
Standard Plans
Tenth Edition

N. ALBERG
FOREWORD


For every City of Seattle sponsored public works project, the supplements contained herein, the 1975 publication of Standard Specifications for Municipal Public Works Construction, the laws of the State of Washington, the Charter and ordinances of the City of Seattle, the project proposal, the project plans and the City of Seattle Traffic Control Manual for In-Street Work 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.

TABLE OF CONTENTS

DIVISION I - General Requirements and Covenants

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Definitions and Terms</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Proposal Requirements and Conditions</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Award and Execution of Contract</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Scope of Work</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Control of Work</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Control of Materials</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>Legal Relations and Responsibility to the Public</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>Prosecution and Progress</td>
<td>11</td>
</tr>
<tr>
<td>9</td>
<td>Measurement and Payment</td>
<td>13</td>
</tr>
</tbody>
</table>
DIV. I GENERAL REQUIREMENTS AND COVENANTS

Section 1-1.02 ENGINEER

Amend entire section as follows:

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, 7.15A, 7.15D, 7.17 and 7.18 the term "Engineer" shall mean the City Engineer of The City of Seattle.

Section 1-1.03 CONSULTING ENGINEER

Amend title to read:

Section 1-1.03 CONSULTANT

Amend as follows:

In the first line of the paragraph, change word "engineer" to consultant.

Section 1-1.06 SPECIAL PROVISIONS

Add the following sentence at the end of the section:

"The term general conditions are synonymous to special provisions."

Section 1-1.12 CONTRACT

Amend the second paragraph as follows:

The contract documents are complementary and what is called for by one shall be as binding as if called for by all. In case of discrepancies, specifications shall govern over plans. Supplemental specifications shall govern over standard specifications and special provisions shall govern over specifications and plans. Where appearing on plans or drawings, dimensions denoted by actual figures shall govern. In case of any ambiguity or dispute over interpretation of the provisions of the contract the decision of the Owner shall be followed by the contractor.

Section 1-1.18 WORK

In the third line of the paragraph after the word "therefore" add the words "shall be."

Section 1-1.20 LIQUIDATED DAMAGES

In the third line of the paragraph after the word "each" add the word "working."
Section 2-1.02 EXAMINATION OF PLANS, SPECIFICATIONS SITE OF WORK
After the 5th paragraph, add the following:

Disturbed soil samples are obtained using the Standard Penetration procedure in which a 2-inch O.D. split-spoon or Cov sampler is driven a distance of 18 inches by means of a 140 lb. hammer dropping 30 inches. Unless otherwise noted, the samples are taken at 5-foot intervals as shown on the log of each boring. Blow counts are taken for three successive 6-inch intervals and the number of blows required to drive the sampler the final 12 inches is recorded as the standard penetration resistance.

Section 2-1.03 INTERPRETATION OF CONTRACT DOCUMENTS
In the seventh line of the second paragraph after the figure "(S)" add the word "working.

Section 2-1.10 SUPPLEMENTAL PROPOSALS
Delete the 2nd paragraph in its entirety and substitute the following:

Where the proposal calls for alternates, additive and/or deduct, the Board of Public Works reserves the right to award the contract on the basis of the base bid and alternates, plus or minus, to determine the lowest bidder.

Section 2-1.13 REJECTION OF PROPOSAL
Following the sentence, in parenthesis, change Section 2-1.10 to read Section 2-1.06.

NEW SECTION
2-1.15A PREVENTION OF ENVIRONMENTAL POLLUTION AND PRESERVATION OF PUBLIC NATURAL RESOURCES

A. AIR POLLUTION

"The Contractor shall not cause or allow the discharge of particulate matter, the emission of any air contaminants or odor bearing gases in excess of the limits specified under Regulation I of the Puget Sound Air Pollution Control Agency, Article 9 - Emission Standards."

The Contractor shall maintain air quality within the National Emission Standards for Hazardous Air Pollutants. Air pollutants being defined as that to which no ambient air quality standard is applicable and which in the judgment of the Administrator of the Environmental Protection Agency Clean Air Act may cause, or contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness.

B. WATER POLLUTION CONTROL

"It shall be unlawful for any person to throw, drain, run or otherwise discharge into any of the waters of this state or to cause, permit or suffer to be thrown, run, drained, allowed to seep or otherwise be discharged into such waters any organic or inorganic matter that shall cause or tend to cause pollution of such waters." (RCW 90.48.080)

Section 29 of Ordinance 97016 stipulates the various types of discharge prohibited in the public sewer system or any drainage ditch in the City of Seattle.

In order to effectively control water pollution, erosion and related damage, the contractor will be expected to perform work of a temporary nature. This work might include but is not limited to the following water quality considerations:

Diversions of Uncontaminated Water: Storm water shall be diverted around the project to prevent pick up of silt. This may be accomplished by pumping, improving ditches, lining channels or by placing metal, plastic or concrete gravity pipe.

Interception of Rainwater: Interception of rainwater shall be intercepted and routed around construction site to prevent silt erosion by the use of gravel trenches, French drain tile, wall points, or interceptor ditch.

Turbid Water Treatment Before Discharge: Turbid water from the construction site shall be treated by settling before being discharged into a stream or other State waters. Turbidity may be removed by the use of lagoons or holding ponds, settling basins, overflow weir, polymer water treatment, discharging to ground surface, by percolation, evaporation or by passing through gravel, sand or fiber filters.

Filling: Only select sands and gravels shall be placed in direct contact with water.

Erosion Control: Erosion control shall be exercised by minimizing exposed areas and slopes. Plastic sheet cover shall be placed over exposed ground area to protect from rain erosion. Other alternative methods for erosion control under certain situations include netting, mulching with binder and seeding.

Chlorine Residual from Watermain Testing or Cleaning: Water containing chlorine residual from watermain testing and cleaning shall not be discharged directly into storm drains, stream or State waters. Chlorine water may be discharged into sanitary sewer or disposed on land for percolation. Chlorine residual may be reduced chemically with reducing agent such as sodium thiosulphate. Water shall be continually tested for chlorine residual.

Vehicle and Equipment Washing: Water used for washing vehicles and equipment shall not be allowed to enter storm drains, stream or other State waters unless separation of petroleum products, fresh concrete products or other deleterious material is accomplished prior to discharge. Detergent solution may be discharged into sanitary sewer or allowed to be held on the ground for percolation. Recirculation system for detergent washing is recommended. Steam cleaning units shall provide a device for oil separation.

Oil and Chemical Storage and Handling: Handling and storage of oil and chemicals shall not be made adjacent to waterway. The storage shall be made in dike tanks and barrels with drip pans provided under dispensing area. Shut-off and lock valves shall be provided on tanks. Shut-off nozzles shall be provided on hoses. Oil and chemicals shall be dispensed only during daylight hours unless the dispensing area is properly lighted. No disposal of waste shall be allowed on oil and chemical spills. Fencing shall be provided around oil storage. Locks shall be provided on valves, pumps and tanks.
In the event a sanitary sewer line is encountered and repair or relocation work is required, the Contractor shall provide blocking and sealing of the sanitary sewer line. Sanitary sewer flow shall be pumped out, collected and hauled by tank truck or pumped directly to a sanitary system manhole for discharge. The existing sewer shall be maintained by the contractor without interruption of service by the use of temporary sewer bypass. In addition, the excavated materials adjacent to the ruptured sanitary sewer line shall be removed from the project and deposited in refuse trucks for haul to a sanitary fill site. Equipment or tools in contact with the above materials shall be washed by pressure water lines and the attendant wash water discharged into a sanitary sewer line for transmission to a sewage treatment plant.

The Contractor shall also be responsible for temporary water pollution control measures at work areas (eg. equipment, storage sites, etc.) not located within the construction area.

Should rutting and erosion occur the Contractor shall be responsible for restoring damaged areas and for clean-up of eroded material including that in ditches and culverts.

In the event that work is suspended for an extended period of time, the contractor shall take all action necessary to control erosion, pollution and runoff during the shut down period.

Both State and Federal statutes are applicable to oil spills occurring in the State's navigable and interstate waters. Violations of the State and Federal laws are subject to penalty from both entities.

Federal statutes on oil spills were enacted under the Federal Water Pollution Control Act Amendments of 1972. A copy of these laws may be obtained by contacting: Office of Public Affairs, Region 10, U.S. Environmental Protection Agency, 1200 Sixth Avenue, Seattle, Washington 98101, Telephone 206/642-1203.

Some of the State statutes which apply to the spillage of oil and any other petroleum related product into the waters of Washington State are: RCW 90.43.320, 90.43.325, and 90.48.330.

Some statutes on oil spills covering liability of the Contractor, penalty for violation, liability in damages for injury or death of fish, animals or vegetation are: RCW 90.48.335, 90.48.336, 90.48.338, 90.48.350, 90.48.910, and 90.48.142.

It shall be the responsibility of the Contractor to report all incidents of oil spills or contaminated discharges into State waters and immediately notify the City of Seattle Inspector, together with the following authorities: U.S. Coast Guard (Seattle) 284-2361 or 624-2902. If for any reason this agency cannot be reached, call the Department of Ecology at 885-1900.

In the event of a sanitary sewage spill, notification should also be made to the following: Seattle-King County Health Department, 283-2065; Metco, 284-5100.


C. NOISE POLLUTION

The contractor shall take all reasonable measures for the suppression of noise resulting from his operations. Mobile engine driven cranes, loaders and similar material handling equipment; engines used in stationary service for standby power; and air compressors for high and low pressure service shall be equipped with exhaust and air intake silencers designed for the maximum degree of silencing. The type of silencer required is that for use in critical noise problem locations such as high density residential, hotel and hospital areas.

The contractor shall conduct his performance of contract work consistent with the applicable regulations set forth in the Washington Administrative Code pursuant to the Washington Noise Control Act of 1974 and with applicable local noise control regulations.

D. LIABILITY

The contractor shall be liable for the payment of all fines and penalties resulting from his failure to comply with the Federal, State and local pollution control regulations set forth herein even though a City Inspector is on the job at the time of the violation.

All costs involved with these preventative measures are to be considered as incidental to the construction of this project and shall be included in the bid price for the various items which comprise this contract.

If the successful bidder must undertake additional work due to the enactment of new or the amendment of existing statutes, ordinances, rules or regulations occurring after the submission of the successful bid, the awarding agency shall issue a change order setting forth the additional work that must be undertaken, which shall not invalidate the contract. The cost of such a change order to the awarding agency shall be determined in accordance with the provisions of the contract for change orders or force accounts or, if no such provision is set forth in the contract, then the cost to the awarding agency shall be the contractor's costs for wages, labor costs other than wages, vital expenses, materials, equipment rentals, insurance and subcontracts attributable to the additional activity plus a reasonable sum for overhead and profit. PROVIDED, That such additional costs to undertake work not specified in the contract documents shall not be approved unless written authorization is given the successful bidder prior to his undertaking such additional activity.

Payment for all costs incurred in performing additional work as may be required will be made in accordance with Sections 9.03 or 9.04.

In the event there is a delay on a project and the delay is caused by litigation which exceeds six months, the contractor may then elect to terminate the contract and to delete the completion of the contract and receive payment in proportion to the amount of the work completed plus the cost of delay.

Section 3-1.01A BIDDING ERRORS

In the fourth line of the second paragraph after the words "The job then," change the word "shall" to "may."
Add the following paragraph:

The Owner will assess damages against the contractor, which will be considered on a case by case basis.

Section 3-1.05 FAILURE TO EXECUTE CONTRACT

Amend the entire section as follows:

Upon failure to enter into the contract and furnish the necessary bond within the time specified in Section 3-1.03, the proposal guaranty which accompanied the bid, whether in form of a bond, check or cash deposit, shall be forfeited to the Owner and the Owner shall re-advertise for such work.

Section 3-1.07B PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE

(change third paragraph to read)

Bodily injury liability coverage with limits of not less than $500,000 for bodily injury, including accidental death, to any one person, and subject to that limit for each person, in an amount not less than $1,000,000 for each accident; and property damage coverage in an amount not less than $100,000 for each accident.

Section 4-1.03 INCREASE OR DECREASE OF WORK

Delete the first sentence in the second paragraph.

Section 4-1.04 EXTRA WORK

Change the second paragraph to read as follows:

Extra work which involves a major change in the nature or scope of the contract must have the written consent of the surety on the bond.

Section 4-1.07 SALVAGE

Amend entire section as follows:

If indicated on the plans or in the special provisions, all castings, pipe and any other material taken from any of the discarded facilities shall be carefully salvaged and delivered to the Owner in good condition and in such order of storage as the Engineer may direct; otherwise, such material shall belong to the Contractor and be removed by him from the site.

Section 5-1.01 AUTHORITY OF ENGINEER

Add the following paragraph:

"The Engineer shall decide any and all questions which may arise as to the quality or acceptability of materials furnished and work performed and as to the rate of progress of the work, and all questions as to acceptable fulfillment and performance of the contract on the part of the Contractor and as to compensation. The decision of the Engineer in such matters shall be final."

Section 5-1.01B

This section shall be deleted.

Section 5-1.02 AUTHORITY AND DUTIES OF INSPECTORS

Amend first sentence in the second paragraph as follows:

An assistant will not be authorized to approve or accept any portion of the work constructed contrary to the plans and specifications, nor to issue any instructions contrary to the plans and specifications.

Section 5-1.03 COOPERATION BY CONTRACTOR

Add the following after the second sentence:

"Should the prime contractor elect not to appear on the job when only sub-contract work is being performed the contractor shall, by letter to the engineer, delegate this responsibility to one person in each subcontractor firm. Delegation of such authority will not relieve the prime contractor the responsibility for all work and material furnished, nor shall this release the contractor of his obligations or liability under the contract and the contractor's bond."

New Section

Section 5-1.09A PROVISIONS FOR WATER COURSES, SIERS AND DRAINS

The Contractor shall provide for the flow of all water courses, including streams, ditches, drains and combined sewers, intercepted during the progress of the work and shall completely restore the same in as good condition as he found them or shall make such final provisions for them as the City Engineer may direct. The Contractor shall not obstruct the gutter of any street but shall use all proper measures to provide for the free passage of surface water.

The Contractor shall make provisions to take care of all surplus water, mud, silt, slickings or other run-off pumped from excavations or resulting from sluicing or other operations, and shall be responsible for any damage or whatever nature resulting from his failure to provide for the adequate control of run-off.

No direct payment shall be allowed for the above work. Payment for the cost thereof shall be included in the prices bid for the various items which comprise the improvement.

Section 5-1.10 DAMAGE TO EXISTING IMPROVEMENTS AND UTILITIES

Add the following:

In cases where a storm drain is to be located within a planting strip, the contractor shall be responsible to protect the existing curb, gutter and sidewalk from damage. If the planting strip is not sufficiently wide so that the tracks of the trenching machine will clear the curb and sidewalk, the contractor will be required to use tineer pade of sufficient thickness, or other means approved by the Engineer, to protect the improvements.

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The Contractor shall be required to demonstrate to the Engineer, the method of procedure he will follow in order to protect these existing improvements adequately before proceeding with construction of storm drains in the planting strip.

Section 5-1.12 MAINTENANCE OF WORK AFTER ACCEPTANCE
Delete the last sentence in the second and fourth paragraphs.

Section 5-1.15 VERBAL AGREEMENTS
Change title to read:
Section 5-1.15 ORAL AGREEMENTS
In the first and fifth lines of the paragraph, change the word "verbal" to "oral."

New Section

Section 6-1.01A OFFSHORE ITEMS CERTIFICATE
In accordance with Section 2, Chapter 139 Laws of Washington, 1967, the Contractor shall furnish the Owner a certificate setting forth the nature and source of offshore items in excess of Two Thousand Five Hundred Dollars ($2,500) which have been utilized in the performance of the contract. Offshore items shall mean those items procured from sources beyond the territorial boundaries of the United States including Alaska and Hawaii.

This certificate shall be delivered to the Owner upon completion of the contract. The retained percentage specified in Section 9-1.05 will be withheld until this certificate of offshore items is received by the Owner.

Section 6-1.02 SAMPLES AND TESTS
In the fifth paragraph, change USASI to ANSI, American National Standards Institute.

Section 6-1.03 SPECIAL METHODS OF TEST
Add the following to the end of the first paragraph:
"and from the Materials Laboratory of the Seattle Engineering Department."

Section 7-1.03 ACCIDENT PREVENTION
In the ninth line of the first paragraph after the words "General Safety Standards" add the following: "and other safety standards and rules applicable to the work."

Amend the second paragraph as follows:
The work shall be performed in strict conformance with the requirements of the Occupational Safety and Health Act (OSHA) and the Washington Industrial Safety and Health Act of 1973 (WISHA). In cases of conflict, the more stringent requirement shall apply.

Section 7-1.09 STATE SALES TAX
Add the following paragraph:
Items of the proposal indicated as not being subject to State Sales Tax as defined in Rule 171 of the State Revenue Act of 1935 shall have included in the prices bid, Business and Occupation Tax, Use Tax and Retail Sales Tax on all materials, equipment and supplies used or consumed in the performance of those items of the contract.

Section 7-1.15 MAINTENANCE OF TRAFFIC
Sections 7-1.15A, 7-1.15B, 7-1.15C, 7-1.15E, 7-1.15G, 7-1.15H, and 7-1.15I shall be deleted.

The following shall be added:
(The Contractor shall conduct all work and operations in street areas in accordance with the City of Seattle "Traffic Control Manual for In Street Work.")

Section 7-1.15D EXISTING TRAFFIC SIGNS AND FACILITIES
The first sentence shall be amended as follows:
The Contractor will make all necessary adjustments to traffic signals and traffic signal actuators.

Amend the last sentence as follows:
Upon completion of the project, the Contractor will reset all such signs in their permanent location.

The following shall be added:
Preservation, maintenance and resetting of all signs, as outlined above, shall be considered as incidental to the construction, and all costs in connection therewith shall be considered to be included in the prices bid for the various items comprising the improvement, unless otherwise specified in the special provisions.

Section 7-1.15F LOCAL AND EMERGENCY TRAFFIC
The 2nd paragraph shall be deleted.
In the 3rd paragraph, delete the word "reasonable" in the 2nd and 4th lines.
Add the following:
Ingress to and egress from all properties shall be maintained as near as possible to that which existed prior to the commencement of construction. The contractor shall notify all property owners and/or tenants, where street and alley closures
or restrictions may interfere with their access, at least twenty-four (24) hours in advance for residential property and at least forty-eight (48) hours in advance for commercial property.

The contractor shall coordinate his activities with all disposal firms operating in the project area so that refuse disposal service will not be interrupted at any time.

Section 7-1.15J DUST CONTROL

Delete the second sentence and add the following:

Dust control shall be considered as incidental to the construction and all costs in connection therewith shall be considered to be included in the prices bid for the various items comprising the improvement.

New Section

Section 7-1.15K STREET CLEANING

Contractors working dump trucks and/or other equipment on paved streets and roadways will be required to clean said streets if required by the City Engineer during the day at the conclusion of each day's operation.

If the streets are not properly cleaned and/or the condition of the excavation warrants, the City Engineer shall direct the Contractor to provide facilities to remove clay or other deposits from the tires or between wheels before trucks and/or other equipment will be allowed to travel over paved streets.

Any violation of the above requirements shall be sufficient ground for the City Engineer to order the streets in question cleaned by others, the cost of the operation to be paid by the Contractor.

All costs in connection with the above work shall be considered as incidental to the construction and payment shall be considered to be included in the prices bid for the various items comprising the improvement.

Section 7-1.16 TRAFFIC CONTROL WITHIN AND AROUND THE PROJECT

This section shall be deleted.

Section 7-1.17 TRAFFIC CONTROL SIGNS

This section shall be deleted.

Section 7-1.18 PROCEDURE FOR ACQUIRING SIGNS

This section shall be deleted.

Note: All deleted preceding sections pertaining to traffic are covered in the 1976 Edition of the City of Seattle Traffic Control Manual in In-Street Work. All costs for conducting work in accordance with this Manual shall be included in the unit bid prices in the proposal unless otherwise provided in the Special Provisions.

Section 7-1.22 SANITARY PROVISIONS

Add the following sentence:

Such accommodation shall also be made available for use by City employees assigned to the improvement.

Section 8-1.01 CONSTRUCTION SCHEDULE

Amend entire section as follows:

"After being awarded the contract, the Contractor shall prepare and submit to the Engineer for approval a progress schedule in form and substance satisfactory to the Engineer showing the proposed dates of commencement and completion of the various items of work and which will guarantee completion of the project within the time required.

When specified in the Special Provisions, a tentative progress schedule shall be submitted prior to the preconstruction conference and the final progress schedule shall be submitted within two weeks after the preconstruction conference. In all other cases, the progress schedule shall be submitted within two weeks after the date of the notice to proceed.

When specified in the Special Provisions, the progress schedule shall be in Critical Path or PERT form.

The Contractor shall submit to the Owner for approval revised supplementary progress schedules conforming with the times of construction and delays which may have been encountered in the performance of the work. No payments will be made to the Contractor on any estimate until a progress schedule or supplemental revised progress schedule has been approved by the Owner.

The approval of the progress schedules by the Owner shall not relieve the Contractor of responsibility or waive or modify any provisions or requirements of the contract.

Adequate equipment and forces shall be made available by the Contractor to carry out the schedule to completion of the contract within the time specified in the Special Provisions."

Section 8-1.02 NOTICE TO PROCEED AND PROSECUTION OF THE WORK

Add the following paragraph:

"The Contractor shall also be responsible for securing all labor necessary for completion of the project within the time allowed. A shortage of labor in any job classification involved in the work will not be considered an unavoidable delay for which an extension of time will be allowed."

Section 8-1.04 SUSPENSION OF WORK FOR AN EXTENDED PERIOD OF TIME

Amend the first paragraph as follows:

"In the event that a suspension of work is ordered in writing by the Engineer for an extended period of time due to unsuitable weather, the work shall be placed in such condition that no damage will occur during the suspension period and all
roadways through the construction area that may have been affected by the work shall be placed in a safe, smooth and unobstructed condition for use by public traffic with access to abutting property. If, in the opinion of the Engineer the work interrupted by the suspension could have been performed prior to occurrence of the unsuitable weather had the Contractor diligently prosecuted the work when conditions were suitable, the cost of placing the work in the above conditions shall be borne by the Contractor. If, in the opinion of the Engineer, the work could not have been performed prior to the occurrence of the unsuitable weather, the cost of placing the work in the above conditions will be borne by the Owner as extra work in accordance with Section 9-1.03. If the Contractor fails to do the work as above specified, the Owner will perform such work and if the expense thereof is determined to be the Contractor's, the Owner will deduct the cost thereof from any moneys due or to become due the Contractor."

Delete second subparagraph in its entirety.

Section 8-1.05 CONTRACT TIME

Delete 2nd sentence of the first paragraph.

Beginning with the 3rd sentence in paragraph two, the remainder of the paragraph shall be amended to read as follows:

Legal holidays shall be: January 1st; February 12th, Lincoln's Birthday; the third Monday of February, being celebrated as the anniversary of the birth of George Washington; May 30th, Memorial Day; July 4th; Labor Day; the second Monday of October, to be known as Columbus Day; November 11th, Veteran's Day; Thanksgiving Day; Christmas Day and the day on which any general election is held throughout the state. Whenever any legal holiday falls on a Sunday, the following Monday shall be a legal holiday. Whenever any holiday falls on a Saturday, the preceding Friday shall be a legal holiday for City employees only and are working days with respect to the contract.

Delete the fourth paragraph.

Section 8-1.07 UNAVOIDABLE DELAYS

Add the following after the third paragraph:

"The contract period allowed for completion of the project has been extended sufficiently to allow for periods of normal inclement weather which should be anticipated to be performed. If the contractor elects not to perform work during periods of normal inclement weather, he will not be entitled to an extension of time for periods of non-work.

"Abnormal inclement weather such as prolonged periods of snow, sub-freezing temperatures, above average rainfall or other unusual weather disturbances during which periods the Contractor elects not to perform work will be declared "unavoidable days due to weather conditions" which shall be an unavoidable delay for which he will be entitled to an extension of time."

Add the following at the end of the last paragraph:

"except as provided otherwise above."
costs for major subcontracted work shall be considered to be included except when the Contractor can show by written pre-bid agreement with the subcontractor or by other acceptable evidence that these costs have been excluded.

Based on the lump sum contract price for "mobilisation," partial payments will be made as follows:

1. When 50% of the total original contract amount is earned from other bid items, 50% of the amount bid for mobilisation, or 50% of the total original contract amount, whichever is the least, will be paid.

2. When 10% of the total original contract amount is earned from other bid items, 100% of the amount bid for mobilisation or 10% of the total original contract amount, whichever is the least, will be paid.

3. Upon completion of all work on the project, payment of any amount bid for mobilisation in excess of 10% of the total original contract amount will be paid.

Nothing herein shall be construed to limit or preclude partial payments otherwise provided by the contract.

Section 9-1.03 PAYMENT FOR EXTRA WORK

Add the following to this section:

"When extra work is performed and paid for by acceptable lump sum or mutually agreed prices, the Contractor or subcontractor actually performing the work will be limited to markups of 10% overhead plus 10% profit separately applied on direct costs of labor including employment taxes, fringe benefits and related labor costs on materials to be entered into the work, and on the ownership or rental costs of construction plant and equipment employed during the time of the extra work.

When extra work is performed by an approved subcontractor or a subcontractor to an approved subcontractor, each contractor superior to the subcontractor actually performing the work will be allowed in turn a percentage markup on the subordinate contractor's total cost including that contractor's markup based on the following schedule:

(a) On the first $10,000.00 of total cost (including markups) of extra work done by all subcontractors subordinate to the Contractor or a given subcontractor, and additional markup in the amount of 10% of the total cost including overhead and profit of the contractor performing the work will be allowed.

(b) When the accumulated total cost of extra work exceeds $10,000.00 including markups of all subcontractors subordinate to the Contractor or to a given subcontractor, an additional markup in the amount of 5% of the total cost including overhead and profit of the contractor performing the work will be allowed.

The above allowable markups shall cover bonding and insurance costs."

Section 9-1.05 PROGRESS PAYMENTS, FINAL PAYMENT, RETAINED PERCENTAGE

Amend the first two sentences of paragraph one as follows:

The Contractor shall be entitled to monthly progress payments corresponding to the stage of the work. Progress estimates will be prepared by the Engineer not later than thirty (30) days after commencing work, and every thirty (30) days thereafter, if so entitled, for the duration of the construction and in accordance with the provisions of R.C.W. 60.28.010. These shall be based upon an approximate estimate of quantities of work completed and considered acceptable, multiplied by the unit prices or estimated percentages of lump sum prices established in the contract.

Chapter 38, 1st Extraordinary Session, 1970, Laws of Washington amending R.C.W. 60.28.010, .020 and .050 provides that at the option of the Contractor, (1) the retained percentage may be held in a fund by the public body until at least thirty (30) days following the final acceptance of the work, or (2) it may be placed in escrow with a bank or trust company by the public body until at least thirty (30) days following final acceptance.

Should the Contractor choose to adopt the above option (2), said Contractor shall, at the time he enters into a contract with the City, fully agree to the following stipulations on a form provided by the City and made a part of the contract for the work to be performed:

1. The Contractor assumes full responsibility to pay all costs which may accrue from escrow services and/or brokerage charges.

2. The Contractor further agrees to assume all risks in connection with the investment of said retained percentage in securities.

Retainage cannot be reduced for any reason below the five (5) percent minimum limit required by law.

The first sentence of paragraph two shall be amended as follows:

Costs of materials, properly stored, protected and insured at the site of the work will be paid on monthly estimates as requested by the Contractor.

Delete Paragraph four.

Amend the last paragraph as follows:

Payment of the retained percentage shall be withheld for a period of thirty (30) days following the final acceptance by the Owner, and shall be paid the Contractor at the expiration of said thirty (30) days provided the following conditions are met:

(a) An Offshore Items Certificate has been delivered to the Owner per Section 6-1.01A.

(b) Releases have been obtained from the State Department of Labor and Industries, the State of Washington Employment Security Department, and all other departments and agencies having jurisdiction over the activities of the Contractor."
c) On contracts totaling more than Twenty Thousand Dollars ($20,000.00), a release has been obtained from the Washington State Tax Commission.

d) No claims, as provided by law, have been filed against the retained percentage. In the event claims are filed, the Contractor shall be paid such retained percentages less an amount sufficient to pay any such claims, together with a sum sufficient to pay the cost of such action, and to cover attorney fees as determined by the Owner.
c) On contracts totaling more than Twenty Thousand Dollars ($20,000.00), a release has been obtained from the Washington State Tax Commission.
d) No claims, as provided by law, have been filed against the retained percentage.

In the event claims are filed, the Contractor shall be paid such retained percentages less an amount sufficient to pay any such claims, together with a sum sufficient to pay the cost of such action, and to cover attorney fees as determined by the Owner.
DIVISION II - STREETS AND RELATED CONSTRUCTION

Section 12-4 ORNAMENTAL AND DANGER TREES

Change title to read:

PRESERVATION OF EXISTING TREES

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

If the Contractor damages or destroys a tree which he has been directed to preserve, he shall replace it in species, size and grade with a healthy tree acceptable to the Engineer, and guarantee the tree to live for a period of one (1) year. In the event the tree fails to survive for the one-year period, it shall be replaced in species, size and grade. 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 inch 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.

Section 12-4.01 DESCRIPTION

This section shall be deleted.

Section 12-4.02 MEASUREMENT, ORNAMENTAL AND DANGER TREES

This section shall be deleted.

Section 12-4.03 PAYMENT

This section shall be deleted.

Section 13-1.01 CLASSIFICATION

Amend 1st paragraph to read as follows:

Roadway excavation, comprising all materials within the roadway, planting and sidewalk areas, but excluding trench excavation and borrow pits, will be classified under headings of “Common Excavation” and “Solid Rock Excavation,” in accordance with specifications therefor.

Delete the 2nd paragraph.

Amend the 3rd paragraph to read as follows:

Solid Rock Excavation shall cover the removal and disposal of solid rock, i.e., ledge rock that requires systematic drilling and blasting for its removal and also boulders exceeding one-half cubic yard in volume. Hard pan, hard clay or glacial till will not be classified as solid rock excavation. Sandstone, siltstone, shale or other sedimentary 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 content of less than 2,000 psi.

Delete paragraphs 5, 6 and 7.

Section 13-2.02C SEWERS AND APPURTENANCES
Amend 1st paragraph to read as follows:
In order to prevent the falling of earth or debris into sewer manholes in which construction work is being done, all existing manholes on grading and paving improvements shall be located and uncovered by hand work and a shield placed over the manhole channel. This shield shall remain in place until the grading or subgrading operation is completed. Within twenty-four (24) hours thereafter all earth or debris shall be carefully cleaned off and the shield removed. Special care shall be exercised to see that no earth or debris falls into the sewer channel. No direct payment shall be allowed for the above mentioned work. Payment for the cost thereof shall be included in the price bid for various items which comprise the improvement.

Section 13-3.10C EMBANKMENT CONSTRUCTION
1st sentence of the 4th paragraph, add "or below" after the work "above". Also amend one-fourth (1/4) to three-fourths (3/4).

Section 13-3.10E COMPACTION CONTROL TEST
Amend 1st paragraph as follows:
Optimum moisture content and maximum density for other than granular materials shall be determined in accordance with ASTM Designation D 698, Method C.

Amend 2nd paragraph as follows:
For granular materials, required density shall be determined 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.

Section 13-3.11 BORROW
Amend the 1st and 2nd paragraphs as follows:
Borrow shall consist of suitable material obtained from pits for the construction of embankments, subgrade, planting strips, sidewalk areas or shoulders and other facilities. 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.

Section 13-3.12 STRIPPING QUARRIES AND PITS
This section shall be deleted.

Section 13-3.14 AERATION EQUIPMENT
This section shall be deleted.

Section 13-4 MEASUREMENT
Paragraph two shall read as follows:
"Borrow will be measured by the ton at the point of delivery."

Paragraph three shall be deleted.

Section 13-5 PAYMENT
Bid item 3, 4, 5, 6, 7, 8, 9, 10, 12, 14 and 17 shall be deleted.
Bid item 2 shall be amended to read as follows:
"Common Excavation," per cubic yard.

Bid item 11 shall read as follows:
"Common Borrow," per ton.

Paragraph two shall be revised to read as follows:
"The unit contract prices for such types and classes of excavation and borrow listed above shall be full compensation for excavating loading, placing or otherwise disposing of the material as shown on the plans, as specified herein or as directed by the Engineer, and shall include the removal and disposal, the wasting or stock-piling of forest debris or any top soil organic matter or other deleterious matter from the surface of a cut or fill, as specified or as may be directed by the Engineer."

Paragraph three shall be deleted.

Paragraph eleven shall be deleted.

Paragraph twelve shall be deleted.

Paragraphs fourteen and fifteen shall be deleted.

Section 14 HAUL
This section shall be deleted in its entirety.

Section 15-2.01 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."

-3-
Section 15-4 PAYMENT
Paragraph one, delete bid item No. 8.
Paragraph four shall be deleted.

Section 16-1.01 WATER FOR STREETS
The first sentence shall be amended to read as follows:
"Water for compacting embankment, constructing subgrade, placement of screened gravel 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."

Section 16-2.01 WATER SUPPLY
Amend the first paragraph as follows:
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.
Delete the 2nd paragraph.

Section 16-2.02 REQUIREMENTS AND RESPONSIBILITY
Title shall be amended to read:
REGULATIONS FOR USE OF FIRE HYDRANTS
The entire section shall be amended as follows:
The Contractor shall use only those hydrants designated by the Seattle Water Department, and in strict accordance with its requirements for hydrant use as stipulated in Ordinance 65877 and as outlined in the following regulations:
1. A written permit will be required for the use of any 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 employee 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 to which the meter is affixed. (The above will preclude the necessity 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 valves 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 to be charged at the current rate.
8. The Contractor will be required to make a deposit for valves for one full day’s operation when a permit is issued, and the Water Department will set additional valves ahead and in sequence with paving operations.

Section 16-3.03 WATER FOR SETTLING TRENCHES
This section shall be deleted in its entirety.

Section 16-4
This section shall be deleted.

Section 16-5 PAYMENT
This section shall be amended to read as follows:
"All costs for water shall be considered by the contractor as incidental to the construction, and no separate payment therefor will be made."

NEW SECTION
Section 20 MINERAL AGGREGATES
Section 20-1 DESCRIPTION
Mineral aggregate shall be free of wood, roots, bark and other extraneous material. Classification of mineral aggregates shall be by type number, and
### REQUIREMENTS FOR MINERAL AGGREGATES

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<th>Aggregate Description</th>
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<th>Specific Gravity</th>
<th>Sieve Analysis—Percent Passing By Weight</th>
<th>Grade Limitation</th>
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*Rock Run Gravel for use other than support of Portland cement concrete pavement shall meet the following additional requirements:*

- **Grades B and C:**
  - Grading shall be maintained in accordance with theLimits for Rock Run Gravel, Section 21.2-20.04.
  - Grading shall be maintained in accordance with theLimits for Rock Run Gravel, Section 21.2-20.04.

**Graded Gravel:**

- Grading shall be maintained in accordance with the Limits for Graded Gravel, Section 21.2-20.04.

- Grading shall be maintained in accordance with the Limits for Graded Gravel, Section 21.2-20.04.

**Crushed Gravel:**

- Grading shall be maintained in accordance with the Limits for Crushed Gravel, Section 21.2-20.04.

- Grading shall be maintained in accordance with the Limits for Crushed Gravel, Section 21.2-20.04.

**Crushed Rock:**

- Grading shall be maintained in accordance with the Limits for Crushed Rock, Section 21.2-20.04.

- Grading shall be maintained in accordance with the Limits for Crushed Rock, Section 21.2-20.04.

**Graded Gravel:**

- Grading shall be maintained in accordance with the Limits for Graded Gravel, Section 21.2-20.04.

- Grading shall be maintained in accordance with the Limits for Graded Gravel, Section 21.2-20.04.

**Crushed Gravel:**

- Grading shall be maintained in accordance with the Limits for Crushed Gravel, Section 21.2-20.04.

- Grading shall be maintained in accordance with the Limits for Crushed Gravel, Section 21.2-20.04.

**Crushed Rock:**

- Grading shall be maintained in accordance with the Limits for Crushed Rock, Section 21.2-20.04.

- Grading shall be maintained in accordance with the Limits for Crushed Rock, Section 21.2-20.04.

- The maximum size of stone that can enter the pores being applied must not exceed 10 inches, except that in no case shall the maximum size exceed 36 inches.
of oil per square yard of surface to be treated. Before succeeding applications of dust palliative are applied, the preceding application shall have thoroughly dried, as approved by the Engineer. Dust palliative 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 oiled streets to such limits as designated by the Engineer to prevent tracking of oil onto adjacent existing concrete pavement. Sand shall also be used where, in the opinion of the Engineer, the oil penetration is unsatisfactory.

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."

Section 23-5 PAYMENT
Bid items 7, 9, 10 and 11 shall be deleted.
Add the following bid item:
"Dust Palliative," per barrel.

Paragraph six, regarding water, shall be deleted.
Paragraphs eight and nine regarding maintenance rock and preparing stockpile sites shall be deleted.
Delete the following in the final paragraph:
"also for all expenses incurred in consequences of or discontinuance of work covered by these specifications."

Section 24-2.01 SAND FILLER
The 2nd paragraph shall be amended as follows:
Sand filler shall meet the requirements for Type No. 11 as outlined in the Mineral Aggregate Table in Section 20.

Section 24-2.02 CRUSHED FILLER
This section shall be amended as follows:
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.

Section 24-5 PAYMENT
Delete bid items No. 3 and No. 4.
Delete the 2nd paragraph.

Section 25-2 MATERIALS
This entire section shall be amended to read as follows:
Screened gravel surfacing shall consist of crushed, partially crushed, or naturally occurring granular materials from approved sources, and shall meet the requirements for Type No. 16 as outlined in the Mineral Aggregate Table in Section 20.

Section 25-5 PAYMENT
The last paragraph shall be deleted.

Section 26-2.01 CLASSES AND GRADING OF BANK RUN GRAVEL
This entire section shall be amended to read as follows:
Bank run gravel shall be substantially free from weed, roots, bark or other extraneous material. It shall have such characteristics of particle size that it will compact readily to a firm, stable course, and shall meet the requirements for Type Nos. 19 or 20 as outlined in the Mineral Aggregate Table in Section 20.

Section 26-2.03 BANK RUN GRAVEL FROM SOURCES PROVIDED BY THE CONTRACTOR
This entire section shall be amended to read as follows:
Bank run gravel furnished from sources provided by the Contractor, shall be produced from approved sources. The grading and quality shall be as specified in Section 20.
If bank run gravel from sources furnished by the Contractor has lower resistance value or higher swell pressure, it may be used if approved by the Engineer; provided that the thickness of crushed surfacing is increased over that shown on the plans by such an amount as the Engineer determines necessary to compensate for the lower values. The bank run gravel shall be decreased in thickness by an amount equal to the required increased thickness of crushed surfacing. The volume of crushed surfacing required to compensate for resistance value lower than, or swell pressure higher than, that specified above shall be measured for payment as "Bank Run Gravel, Class A or Class B," and not included by the Contractor in his unit contract price for "Bank Run Gravel, Class A or Class B."

Section 26-3.04 FIT OPERATIONS
This section shall be deleted.

Section 26-5 PAYMENT
Bid items 3, 4, 5, 6 and 7 shall be deleted.
Paragraphs 3, 4, 5 and 6 shall be deleted.
Section 34-2.02A GENERAL REQUIREMENTS
In the 3rd paragraph delete the words "in accordance with the provisions of Section 22."

Section 34-2.02B TEST REQUIREMENTS
First line of the first table shall read as follows:

<table>
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<tr>
<th>CLASS OF ASPHALT CONCRETE</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
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<td>I Fracture, size above U.S. No. 10</td>
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Add the following sentence:
Fractured aggregate shall have two or more mechanically fractured surfaces.

Section 34-2.02C GRADING OF MINERAL AGGREGATES
Add the following paragraph:
Requirements for mineral aggregates for asphalt concrete MC 250 and MC 800 shall be the same as for asphalt concrete Class B.

Section 34-2.03
Add the following paragraph:
Requirements for mineral aggregates for asphalt concrete MC 250 and MC 800 shall be the same as for asphalt concrete Class B.
For MC 250 and MC 800, the asphalt content shall be 4.0 to 5.0%.

Section 34-3.10 PRELEVELING FOR ASPHALT CONCRETE
Amend the 3rd paragraph as follows:
Add the words "Leveling Course" after "Asphalt Concrete Pavement Class...."

Section 34-3.12 JOINTS
The entire section shall be amended as follows:
The placing of the top or wearing course shall be as nearly continuous as possible.

Immediately following the completion of the top of wearing course, all joints where the asphalt concrete meets existing asphalt concrete pavements, portland cement concrete pavements, oil mats, concrete curb, concrete gutter, etc., shall be painted with a cutback asphalt or an SS-1 emulsified asphalt as described in Section 34-3.02, and shall immediately be covered with clean dry sand. The painted strip shall be directly over the joint and shall not exceed more than one and one-half (1-1/2) inches on either side of the joint. No painting shall be performed when the pavement is wet or damp.

Section 34-3.13 SURFACE SMOOTHNESS
The entire section shall be amended as follows:
The finished surface of the top or wearing course shall be of uniform texture, smooth, true to crown and grade, and free from defects of all kinds. The finished surface shall not vary more than one-fourth (1/4) inch from the lower edge of a ten-foot (10') straight edge placed on the surface parallel to the center line, excepting at intersections where, in the opinion of the Engineer, this may be impracticable. No portion of the finished pavement shall vary more than one-fourth (1/4) inch from a template cut to exact section shown on the plans or as staked by the Engineer, when placed at right angles to the center line on the finished surface.

When deviations in excess of the above tolerances are found, the surface shall be corrected by the addition of asphalt mixture to low places or the removal of material from high places, followed by further rolling. This shall be done as soon after the first rolling as possible and before the pavement mixture becomes chilled. Correction of defects shall be performed until there are no deviations anywhere greater than the allowable tolerances.

Section 34-3.20 TRAFFIC AND DETOURS
This section shall be amended as follows:
The maintenance of traffic and the handling and care of traffic signs shall meet the requirements outlined in the City of Seattle Traffic Control Manual for In Street Work or in the special provisions.

Section 34-5 MEASUREMENT AND PAYMENT
Amend bid item No. 3 by adding the words "or per ton."
Delete bid item No. 4 and insert the following:
"Asphalt Concrete Pavement, Class ..... (Leveling Course) per ton."
Delete bid items 6, 7, 8 and 9.

Section 34-5.03 PRIME COAT AGGREGATE
In the first line in paragraph one, add "or per ton" after per cubic yard.
In the first line in paragraph four add "or by the ton" after the cubic yard.

Section 34-5.04 ASPHALT FOR TACK COAT
Delete this section and substitute the following:
Change title to read: ASPHALT CONCRETE PAVEMENT CLASS..... (Leveling Course)
The Unit contract price per ton for asphalt leveling course shall be full
compensation for all costs of material, labor, tools and equipment necessary
for the application of the levelling course as specified.

Section 34-5.06 MINERAL AGGREGATES IN STOCKPILE
This section shall be deleted.

Section 34-5.07 BLENDING SAND
This section shall be deleted.

Section 34-5.08 FURNISHING MINERAL FILLER
This section shall be deleted.

Section 34-5.09 WATER
This section shall be deleted.

Section 34-5.10 REMOVING EXISTING PAVEMENT
In the 5th line, delete the word "heretofore" and add the words "in Section
52" after specified.

Section 36-3.03 JOINTS
Change 10' intervals to 15' and add "or shall match existing transverse joints
or cracks in existing pavement" at the end of first sentence.

At the end of the paragraph, add the following:
"Joists shall not be placed in conflict with curb dowels."

Section 37-2.02 CONCRETE AGGREGATES
Amend as follows:
Concrete aggregates shall be manufactured from sand and gravel.

Section 37-2.02C2 VAC IN LOS ANGELES MACHINE
In the 3rd line of the paragraph, change 35 to 30.

NEW SECTION
Section 37-2.06C NON-EXTRUDING JOINT FILLER
Non-extruding joint filler shall be used in all sidewalk, sidewalk driveway
crossings, stairways, curb and curb and gutter sections.

Section 37-2.13 JOINT-SEALANTS
At the end of the 1st paragraph, add the following:
"or the Materials Laboratory, Seattle Engineering Department, City Municipal
Building, Seattle, Washington."

NEW SECTION
Section 37-3.06A COLORING CONCRETE
Cement concrete which is to be used to patch all existing cement concrete surfaces
shall have added to it, at the time of mixing, a coloring agent which will
produce a non-glare color satisfactory to the Engineer, and which shall be
dry lamp black or approved equal in an amount not to exceed two (2) pounds per
cubic yard of concrete.

All costs of furnishing and using a coloring agent shall be considered as
incidental to the construction and shall be included in the bid prices of the
various items comprising the project.

Section 37-3.08 CONSISTENCY OF CONCRETE
Add the following paragraphs:
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 and one-half
(3-1/2) inches.

Section 37-3.08 READY MIXED CONCRETE
Fourth paragraph, Item No. 2 and the 1st paragraph under Item No. 3 shall be
deleted.

NEW SECTION
Section 39-3.13A ROADWAY BALLAST
During periods of inclement weather the contractor shall furnish and place
Type 2 material to protect the sub-grade prior to paving. This material is
to be used only at the direction of the Engineer and is not intended as
an aid to fine grading. Prior to placing the ballast the contractor shall
remove and dispose of soft and unstable subgrade material. The ballast shall
be compacted as specified in Section 15. Vibratory compactors will not be
allowed.
This item will not be considered a major bid item.

Payment will be made at the price bid per ton for "Roadway Ballast," which
shall be full compensation for furnishing and placing the material including
removing and disposing of unsuitable material.

Measurement shall be by the ton at the point of loading. Duplicate copies of
the weight bills shall be furnished the Engineer.

Section 39-3.13C SAWSNED CONTRACTION JOINTS
Add the following at the end of the 1st paragraph:
"Transverse joints shall be sawed at a maximum of sixty (60) foot intervals
or such other spacing as directed by the Engineer, as soon as the cut can
be made without undue raveling of concrete. Intermediate joints shall be sawed thereafter."

Section 39-3.18D TRANSVERSE CONSTRUCTION JOINTS

In line 2 of paragraph 3, delete the words "extra concrete"

Section 39-3.18J LONGITUDINAL CONSTRUCTION JOINTS

2nd paragraph, 3rd line, after the words per linear foot add "for each edge."

Section 39-3.20G EMULSIFIED ASPHALT

This section shall be deleted.

Section 39-3.22 CONCRETE PAVEMENT CONSTRUCTION IN SINGLE LANE

Title shall be amended to read as follows:

CONCRETE PAVEMENT CONSTRUCTION IN SINGLE, DOUBLE OR MULTIPLE LANES

The following shall be added to the first paragraph:

Concrete pavement 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 required to construct a thickened edge section, as shown on Standard Plan.

No separate payment will be made for the thickened edge for 25-foot wide pavement, but the cost shall be included in the price bid for "Cement Concrete Pavement," per square yard.

Thirty-two (32) foot, thirty-six (36) foot, forty (40) foot and forty-four (44) foot pavement sections shall be paved in two (2) operations, with additional compensation for thickened edges, if required. Should the Contractor be allowed to pave thirty-two (32) foot, thirty-six (36) foot, forty (40) foot and forty-four (44) foot pavements in more than two (2) operations, then thickened edges, if required, shall be constructed at no additional expense to the Owner. Pavement widths greater than forty-four (44) feet will be paved as specified in the special provisions.

Section 39-3.23 CONCRETE BASE PAVEMENT

This section shall be amended as follows:

Item No. (2) Delete last sentence.

Item No. (3) Delete.

-13-

Item No. (4) Amend as follows:

Dummy or through joints shall be constructed unless otherwise noted in the special provisions.

Section 39-3.25 EXTRA CONCRETE FOR ALLEY APPROACH RAMP

The 2nd paragraph shall be amended to read as follows:

Payment for placing and finishing such cement concrete ramps above plan grade of alley pavement will be made at the unit price bid per cubic yard for "Extra Concrete for Alley Approach Ramp" for the additional thickness of concrete required for construction of such ramps. Measurement for payment shall be by the cubic yard for the actual amount of extra concrete so placed.

NEW SECTION

Section 39-3.30 CEMENT CONCRETE ALLEY PAVEMENT

Cement concrete pavement shall be constructed as shown on Standard Plan No. 104.

NEW SECTION

Section 39-3.30A EDGE SUPPORT WALLS FOR ALLEY PAVEMENT

Where called for on the plans or in the special provisions, the Contractor shall construct "Type 104B Alley Pavement Edge Wall," as detailed on Standard Plan No. 104B for the concrete section under the pavement base along the edge of the alley pavement, or "Type 104.1 Alley Pavement Support Wall," as detailed on Standard Plan No. 104.1.

Payment shall be as specified under Section 39-4.

After removal of forms, all exposed concrete wall surfaces that will be permanently in view above the ground line shall be finished to a uniform Class 3 surface finish, as specified in Division V, Structural and Related Specifications.

NEW SECTION

Section 39-3.30B CURB FOR ALLEY PAVEMENTS

Where types of curb are required along the sides of alley pavement in accordance with the plans or as directed by the City Engineer, the curb shall be constructed complete upon the top of the alley pavement and will be paid for as "Cement Concrete Alley Curb, Type 106C" per linear foot.

Construction of curb upon alley pavement shall conform to the applicable requirements therefor specified in Section 40-3.02B.

Measurement for Payment of curb constructed with alley pavement shall be by the linear foot for the actual length of the curb constructed on top of the alley pavement slab. The unit contract price shall be full compensation for all labor, tools, equipment, materials and incidental work necessary to construct the curb complete in place on top of the alley pavement.

-14-
NEW SECTION

Section 39-3.31 CONCRETE UNDERPINNING

Where directed by the City Engineer, existing concrete foundations left above grade shall be supported with concrete underpinning. Concrete shall be Class 5(3/4).

Measurement and Payment: Payment shall be made at the price bid per cubic yard for "Concrete Underpinning," which will be full compensation for the concrete, forms, excavation and backfilling.

Measurement shall be of the actual amount placed as computed by the City Engineer.

Section 39-4 MEASUREMENT AND PAYMENT

Add the following bid items:

(7) "Type 1048 Alley Pavement Edge Wall," per cubic yard.

(8) "Type 104.1 Alley Pavement Support Wall," per cubic yard.

(9) "Cement Concrete Alley Pavement, (class, thickness)" per square yard.

(10) "Concrete Underpinning," per cubic yard.

Section 39-4.03 STEEL REINFORCING BARS

Add the following at the end of the 1st paragraph:

Reinforcing steel bars shall be used to reinforce pavement around castings, as directed by the City Engineer. Reinforcing steel shall be one-half (1/2) inch round deformed billet steel bars according to ASTM Designation A 615 Grade 40.

NEW SECTION

Section 39-4.07 TYPE 1048 ALLEY PAVEMENT EDGE WALL

Measurement for payment of "Type 1048 Alley Pavement Edge Wall" will be made on the basis of actual computed cubic yards 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 complete in place the inverted wall section under the pavement edge simultaneously with the paving operation in accordance with the standard plan and these specifications. Excavation shall be paid for at unit contract price bid for Structure Excavation.

NEW SECTION

Section 39-4.08 TYPE 104.1 ALLEY PAVEMENT SUPPORT WALL

Measurement for payment of "Type 104.1 Alley Pavement Support Wall" will be made on a cubic yard basis for the actual length of the wall formed in place in accordance with the details 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.

Section 40-3.01D STRIPPING FORMS AND FINISHING

Amend as follows:

2nd line in 2nd paragraph, delete the words "For Type A Curb" and capitalize "the".

Section 40-3.01E CURING

Delete the 2nd and 3rd sentences in paragraph two.

Section 40-3.02 TYPE A AND TYPE B CURBS

Title shall be amended to read CURBS.

Delete references to Type A and B in paragraphs one, two and three.

Section 40-3.03 TYPE C AND TYPE D LOW CURBS

This section shall be deleted.

Section 40-3.04 TYPE E SEPARATE CURB

This section shall be deleted.

Section 40-3.05 TRANSITIONAL CURB

This section shall be deleted.

Section 40-4 MEASUREMENT AND PAYMENT

Delete bid item No. 3

Add the following at the end of 2nd paragraph:

"and no deductions will be made for driveways."

Section 41-4 MEASUREMENT

Amend the entire section as follows:

Measurement for cement concrete driveways will be by the square yard for the class and thickness of driveways actually placed in conformance with the methods shown on the standard plans, excluding the area underneath the curb.

Section 42-1 PAYMENT

Delete bid items 2 and 3.

Section 42-3.01 EXCAVATION AND SUBGRADE

Amend the first sentence in paragraph one to read as follows:

Excavation for sidewalks shall be as described in Section 13-1.01, unless otherwise
provided for in the Special Provisions.

The following paragraphs shall be added to this section:

Quantities for the earthwork shall be computed to the top surface of the sidewalk and no additions or deductions shall be made for the volume of the sidewalk. Payment for the quantities of earthwork involved in the sidewalk subgrade and the preparation of the subgrade shall be included in the unit price bid for "Cement Concrete Sidewalk."

It is expected there will be sufficient suitable native material excavated from various portions of the improvement to fill low areas in the sidewalk subgrade and planting strip area when needed and no further payment will be allowed for fill material.

The contractor shall estimate for himself the amount of earthwork involved in excavating below the top surface of the sidewalk including subgrading and for excavation of planting strip area.

Section 42-3.03 PLACING AND FINISHING CEMENT CONCRETE SIDEWALK

Add the following at the end of the 4th paragraph:

"or to match adjacent existing sidewalk."

Section 42-3.03A DEPRESSED CURB (WHEELCHAIR RAMP)

Add the following:

The wheel chair ramp shall be measured and paid for as "Cement Concrete Sidewalk" and shall include the necessary earthwork.

The depressed curb shall be measured and paid as "Cement Concrete, Curb, Type 108C."

NEW SECTION

Section 42-3.05 SIDEWALK DRAINS

Where shown on the construction plans for sidewalks or directed by the Engineer, four (4) inch approved drain 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 Plan No. 117.

The horizontal slope angle of the four (4) inch 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.

Sidewalk drain pipe will be paid for on a basis of linear feet for inlet depths at the gravel pocket.

The unit contract price shall include all labor, tools, drain in accordance with the details shown on the standard plan, including an excavation at the

inlet end of the pipe to make a gravel pocket corresponding to that 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

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, stairways and their landings from sidewalks as shown on Standard Plans Nos. 106, 107, and 115, respectively.
3. Around the vertical barrel of fire hydrants, around utility poles and large diameter underground utility cover castings when located in the sidewalk area.
4. Longitudinally between concrete walks, curbs, paved planting strips and solid masonry or concrete walls where they abut.

No payment will be made for furnishing and placing expansion and contraction joint materials for cement concrete sidewalks. All costs therefor shall be considered incidental to the construction and included in the unit bid contract prices of the proposal for sidewalk.

Payment for extra concrete placed as shown on the standard plan. Section 5-8 will be made at the unit contract price for "Thickened Edge for Sidewalk."

Transverse and longitudinal expansion joints as shown on the standard plans shall be three-eighths (3/8) inch thickness preformed non-extruding joint material, cut to a width equal to the full depth of the concrete where located, plus one-half (1/2) inch. When installed, they shall be placed with top edge one-eighth (1/8) inch below the finished surface of the concrete, in a perpendicular plane to the surface and with the bottom edge embedded in the subgrades. All joints shall be in straight alignment, except where placed in curved locations as required by the construction plans.

Contraction 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.

Section 42-5 PAYMENT

Add the following bid item:

7. "4-inch Sidewalk Drain (Depth)," per linear foot.

Section 43 CEMENT CONCRETE COMBINED SIDEWALK CURB AND GUTTER

Amend title to read:

Section 43 CEMENT CONCRETE COMBINED SIDEWALK, CURB, GUTTER AND MONOLITHIC CEMENT CONCRETE CURB AND SIDEWALK
Section 43-4 MEASUREMENT

Add the following paragraph:

Measurement for monolithic cement concrete curb and sidewalk shall be from the face of curb to back edge of sidewalk as shown on Standard Dwg. 11A-1.

Section 44 PRECAST CONCRETE TRAFFIC CURB CLASS I, TRAFFIC BUTTONS, AND EXTENDED TRAFFIC CURB

Amend title to read:

Section 44 PRECAST TRAFFIC CURB, TRAFFIC BUTTONS, AND EXTENDED TRAFFIC CURB

Section 44-1 DESCRIPTION

Delete the words "Class I" from the last line of the paragraph.

Section 44-2.01 PRECAST CONCRETE TRAFFIC CURB CLASS I, AND TRAFFIC BUTTONS

Amend title to read:

Section 44-2.01 PRECAST CONCRETE TRAFFIC CURB

Section 44-2.02 ALUMINUM COVERED TRAFFIC BUTTONS

The title and section shall be amended as follows:

Section 44-2.02 PLASTIC COVERED TRAFFIC BUTTONS

Plastic traffic button size and shape shall conform to the details shown on the standard drawing.

NEW SECTION

Section 44-2.02A TRAFFIC BUTTONS - TYPE 125A and 125B

NEW SECTION

Section 44-2.02A1 DESCRIPTION

Plastic traffic buttons shall be white in color, essentially in the form of a single-based modified spherical segment (with shoulder). They shall be composed of thermosetting resins, pigments and clean, fine gravel and white sand, and shall be of uniform composition throughout.

NEW SECTION

Section 44-2.02A2 PHYSICAL PROPERTIES

The exposed surface shall be free of irregularities such as chips, cracks, and mold marks interfering with appearance or application. The button surface may have molded patterns, but must not show general convexity or concavity in excess of one-quarter (1/4) inch.

The molding process shall be such that coarse aggregate particles on the curved surface are covered by not less than one-sixteenth (1/16) inch of pigmented material.

The buttons shall meet the following requirements:

Weight - Pounds

<table>
<thead>
<tr>
<th>Type</th>
<th>9.0 maximum</th>
</tr>
</thead>
</table>

Brightness

<table>
<thead>
<tr>
<th>Type 125A</th>
<th>Type 125B</th>
</tr>
</thead>
<tbody>
<tr>
<td>80% minimum</td>
<td>70% minimum</td>
</tr>
</tbody>
</table>

Flexural strength - pounds total load

| 2,500 minimum |

Flexural strength will be measured by placing the button base down on two (2) three-quarter (3/4) inch round supports on five (5) inch centers and loading vertically at the center of the curved section by means of a flat plate.

NEW SECTION

Section 44-2.02B TRAFFIC BUTTONS - TYPE 125C (LAND MARKERS)

NEW SECTION

Section 44-2.02B1 DESCRIPTION

The markers shall be precast, plastic markers in the form of a single-based spherical segment, composed of thermosetting resins, pigments, and inert and shall be of uniform composition throughout. The markers shall not contain glass.

NEW SECTION

Section 44-2.02B2 PHYSICAL PROPERTIES

The markers shall be of uniform composition and free from surface irregularities, cracks, checks, shipping and other physical damage interfering with appearance or application and shall conform to the detail shown on the standard drawing.

The markers shall meet the following requirements:

Property

<table>
<thead>
<tr>
<th>Weight</th>
<th>4.14 minimum</th>
</tr>
</thead>
</table>

Flatness of base:

| Concavity | 0.02 maximum |
| Convexity | 0.05 maximum |

Brightness

| 80% minimum |

Color

| White |

Impact Resistance

| 15 minimum |

Titanium dioxide

| 7 by weight |

Resin content

| 21 minimum |

NEW SECTION

Section 44-2.02B3 TEST METHODS

Brightness will be measured with equipment conforming to ASTM Designation E97 using a Brightness Standard of seventy-five per cent (75%).

-19-

-20-
Impact resistance will be measured by allowing a one (1) pound steel ball to fall fifteen (15) inches (free fall) onto the marker, supported by but not bonded to a steel base plate.

The titanium dioxide content will be determined by a boiling (W.L.) 50% HNO₃ solution, filtering, and measuring the absorbance of the filtrate at about 410 millimicrons. This method is calibrated with known samples using ASTM Designation D 921.

Resin content will be determined by ashing and igniting representative portions of the marker.

Additional information on the test methods is available from the Materials Laboratory.

NEW SECTION

Section 44-2.0284 ADHESIVE (EPOXY)

NEW SECTION

Section 44-2.0284(1) DESCRIPTION

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

<table>
<thead>
<tr>
<th>Package</th>
<th>Components</th>
<th>Parts by Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Package A</td>
<td>Epoxy Resin (1)</td>
<td>100.00</td>
</tr>
<tr>
<td></td>
<td>Titanium Dioxide (2)</td>
<td>7.31</td>
</tr>
<tr>
<td></td>
<td>Resin Grade Asbestos (3)</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td>Talc (4)</td>
<td>37.64</td>
</tr>
<tr>
<td>Package B</td>
<td>N-Aminomethyl Piperazine (5)</td>
<td>23.16</td>
</tr>
<tr>
<td></td>
<td>Nonylphenol (6)</td>
<td>52.00</td>
</tr>
<tr>
<td></td>
<td>Carbon Black (7)</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td>Talc (4)</td>
<td>77.37</td>
</tr>
<tr>
<td></td>
<td>Resin Grade Asbestos (3)</td>
<td>1.00</td>
</tr>
</tbody>
</table>

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

NEW SECTION

Section 44-2.0284(2) RAW MATERIALS

Raw materials for the adhesive shall meet the following specifications:

1. Epoxy Resin - Viscosity, 5-7 poises at 25°C.; epoxide equivalent 175-205; color (Gardiner) 5 maximum; manufactured from epichlorohydrin and bisphenol A. The reactive diluent shall be butyl glycidal ether.

2. Titanium Dioxide - TT-P-006442. Type IV.

3. Resin grade Asbestos - Specific gravity, grams per milliliter 2.45; moisture content, % by weight, 2.0 maximum; surface area, square meters per gram - 60 approximately; reflectance, C. E. brightness, 72-76; nature of surface change, electro-positive (cathodic); PH in water, 9-13; bulking value, gallons per 100 pounds, 4.3; oil absorption (DOP) pounds per 100 pounds, 120; refractive index at 25°C., 1.54 - 1.56; wet bulk density in water, after dispersion, 4 grams per liter, settling 1 hour, 100 ml clean maximum; dry bulk density, pounds per cubic foot, 4.

4. Talc - Percent passing U. S. No. 325 sieve, 94-96; maximum particle size, 70 microns; oil absorption (Gardiner-Cohenan), 6-7 ml per 20 grams; linessd in oil (Magna) 1-2; specific surface, 0.3 - 0.6 square meter per gram; consistency (40% suspension in linseed oil), 53-60 K.U.

5. N-Aminomethyl Piperazine-color (APHA) 50 maximum;amine value, 1250-1350 based on titration which reacts with 3 nitrogens in the molecule; appearance, clear and substantially free of suspended matter.

6. Nonyl Phenol-Color (APHA) 50 maximum; hydroxyl number, 245-255; distillation range, °C. at 760 mm, first deep 295 minimum, 32-298 minimum, 925-325 maximum; water, % (K.F.) 0.05 maximum.

7. Carbon Black - TT-P-343, Form 1, Class B.

NEW SECTION

Section 44-2.0284(3) PHYSICAL REQUIREMENTS OF MIXED ADHESIVE

Mixed adhesive shall meet the following requirements:

A blend of one (1) part of Component A and one (1) part of Component B shall exhibit the following properties:

<table>
<thead>
<tr>
<th>Gel Time (100 gm Batch)</th>
<th>5-30 Minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength (1-16 in film between steel blocks cured 24 hours at 70° F.)</td>
<td>1,000 psi (Minimum)</td>
</tr>
<tr>
<td>Shrink B Hardness</td>
<td>70-80</td>
</tr>
<tr>
<td>Deformation Temp</td>
<td>30</td>
</tr>
</tbody>
</table>

NEW SECTION

Section 44-2.0284(4) ACCEPTANCE

The manufacturer shall certify that each batch of adhesive conforms to these specifications.
The lot or batch number shall appear on the certificates, on all samples, and on all lots of adhesives delivered. A one (1) pint sample of the A and B components shall be sent to the Materials Laboratory by the supplier no less than ten (10) days before using.

Section 44-3.01 PRECAST CONCRETE CURB AND TRAFFIC BUTTONS

Amend title to read:

Section 44-3.011 PRECAST CONCRETE TRAFFIC CURB

Section 44-3.01A4 PLACING CONCRETE

Delete the words "or buttons" in the final paragraph.

Section 44-3.01A5 REMOVAL OF FORMS

Delete the words "or buttons" in the second paragraph.

Delete the words "and buttons" in the third line of the second paragraph.

Section 44-3.01A FINISH

Amend the first paragraph to read as follows:

"Curb shall have a smooth, glossy finish on all exposed surfaces."

Section 44-3.01A12 REPAIRING CURB

Delete the words "or buttons" in the second line of the second paragraph.

Section 44-3.01A13 IDENTIFICATION MARKING

Delete the words "or buttons" from the first line of the second paragraph.

Section 44-3.01A14 SHIPPING

Delete the words "or buttons" from the first line.

Section 44-3.01A15 SAMPLES

Delete the words "or button" from the second line. Delete the words "and buttons" from the third line from the bottom of the paragraph.

Section 44-3.01C INSTALLATION OF BUTTONS

This section shall be deleted.

NEW SECTION

Section 44-3.01C2 TYPE 126C (LANE MARKERS)

NEW SECTION

Section 44-3.01C2(1) 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.
Section 44.4 MEASUREMENT

This section shall be amended as follows:

Type 123A traffic curb (A curb, Standard Plan No. 123) will be measured along the front face of curbs and returns. Type 124C traffic curb (C curb, Standard Plan No. 123) traffic curb nosing and dividers (Standard Plan No. 123) will, respectively be measured as for Type 123A and Type 123C.

Precast concrete traffic curbs (Standard Plan No. 125) will be measured by "each".

Section 44-5 PAYMENT

Amend bid items No. 1, No. 2 and No. 3 as follows:

1. "Precast Traffic Curb Type ( )," per linear foot.
2. "Precast Traffic Button Type ( )," per each.

Delete bid items No. 4 and No. 5.

Section 45 BLOCK PRECAST TRAFFIC CURB CLASS II

Amend title as follows:

Section 45 BLOCK PRECAST TRAFFIC CURB

Section 45.4 MEASUREMENT

This section shall be amended as follows:

Type 124A block type precast traffic curb (Standard Plan No. 124) will be measured by the linear foot along the front face of the curb and returns. Type 124C block type precast traffic curb (Standard Plan No. 124) will be measured by the linear foot along the axis of the curb. Precast nosing pieces and dividers (Standard Plan No. 123) will be measured as for Type 124A and Type 124C traffic curbs respectively.

Section 45-5 PAYMENT

Amend the two bid items to read as follows:


Section 46.2.04 CONDUIT

This entire section shall be amended as follows:

NEW SECTION

Section 46-2.04A CONDUIT, RIGID STEEL HOT-DIP GALVANIZED

Rigid steel conduit shall be zinc-coated by the hot-dip galvanizing process and shall meet the requirements of ANSI C80.1 and Underwriters' Laboratories Standard UL6. This specification also covers couplings, elbows, and nipples.

Zinc Coating. The minimum average thickness of the zinc coating shall be 1.72 mils, equivalent to one (1) ounce per square foot of surface area. The minimum thickness of any point on the surface shall be 1.38 mils, equivalent to 0.8-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 A90. The minimum thickness at any point on the surface shall be determined only by magnetic thickness gauge.

Inspection and Test. Conduit, couplings, elbows, and nipples are subject to inspection and test upon receipt in accordance with the referenced specifications.

The Freeze Test will not be considered as proof of compliance with this specification.

Rejection and Replacement. Failure to meet the requirements of this specification shall, at the discretion of the Owner, constitute grounds for rejection of:

A. The lot as received in whole or part, or
B. Future bids to supply the product of the manufacturer, or
C. Both A and B.

The supplier shall at his own expense replace any rejected conduit or fittings with an equal amount complying with this specification.

Reference Specifications: ANSI C80.1; ASTM A90; UL6, latest revisions.

Approved Manufacturers: Armaco, Clifton, Knight, Republic, Rome, Steelduct, Western, Wheatland, Youngstown.

NEW SECTION

Section 46-2.04B CONDUIT, RIGID POLYVINYL CHLORIDE

This specification covers Rigid Unplasticized Polyvinyl Chloride Conduit, Schedule 40, for applications such as direct burial, encasement in concrete, pole risers and corrosive exposures.
Conduit in this specification shall comply with the U. S. Department of Commerce Commercial Standard C207 for Rigid Unplasticized Polyvinyl Chloride Pipe, latest revision.

Diameters and wall thickness shall be as indicated on Table 1 of C207 for Schedule 40 pipe.

Lengths - Polyvinyl chloride conduit shall be furnished in 10 foot lengths, except where 20 foot lengths are expressly ordered. The color shall be medium to dark gray.

Polyvinyl chloride conduit shall be furnished unthreaded. One cementable coupling shall be furnished with each length. The conduit shall be packed in such a manner as to prevent damage in ordinary handling and transportation. Each package shall be marked with the gross and net weights and name and address of the manufacturer. The conduit may be subject to inspection and tests as indicated in C207.

The supplier shall at his own expense replace any rejected conduit.

NEW SECTION

Section 46-2.04 CONDUIT, ALUMINUM RIGID METALLIC

This specification covers the ordering, purchase and acceptance of Aluminum Rigid Metallic Conduit and associated elbows, nipples, bends, and couplings as electrical raceway.


The material shall be Aluminum-Alloy extruded tube of 6063 alloy with a T62 temper in accordance with ASTM B-235.

Trade sizes and dimensions of threaded conduit, elbows, bends and couplings shall be in accordance with Underwriters' Laboratories, Inc. UL 6.

Identification and UL label shall be in accordance with Underwriters' Laboratories, Inc. UL 6.

The threaded end, other than the end to which the coupling is attached, shall be protected by a suitable cover.

Packing, marking, and shipping shall be in accordance with Section 16 of ASTM B-235.

Conduit, elbows, bends, and couplings may be subject to inspection and test as outlined in Section 17 of ASTM B-235.

Conduit, elbows, bends and couplings shall be inspected in accordance with the provisions of Underwriters' Laboratories, Inc. UL 6.

The supplier shall at his own expense replace any rejected conduit.

Section 46-3.04 CONDUIT

The following paragraph shall be added after the fourth paragraph:

"Plastic conduit to rigid steel conduit connections shall be made with a plastic female adapter."

The first line in paragraph six shall read as follows:

"The threads on all steel conduit shall be well painted with..." etc.

Add the following sentence at the end of the seventh paragraph:

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

Begin the ninth paragraph with the word "Steel."

The twelfth paragraph shall be amended to read as follows:

Conduit shall be placed under existing pavement by approved jacking or boring methods. Paving shall not be disturbed without the approval of the Engineer. Upon 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 the edge of any type of pavement wherever possible. Excessive use of water such that pavement might be undermined, or subgrade softened, will not be permitted.

Delete the thirteenth and fourteenth paragraphs.

The fifteenth paragraph shall be amended as follows:

"Conduit terminating in standards or pedestals shall extend vertically above the foundation and shall be sloped towards the handhole opening."

The sixteenth paragraph shall be amended as follows:

"Conduit entering through the bottom of a pull box shall be located near the end wall from the direction of the run to leave the major portion of the box clear. Conduit shall terminate six (6) inches to eight (8) inches below the pull box lid and shall be spaced at least three (3) inches from the wall of the box."

The next to the last paragraph shall be amended as follows:

"A 450ft test (minimum strength) nylon pull cord shall be installed, with at least two (2) feet of excess cord at each outlet, in all conduits which are to receive future conductors. A plastic cap shall remain on the unused conduits and the cord shall be passed through a small hole in the center of the cap. The excess cord for each outlet shall be wound around and tied to its respective conduit."
Section 46-4 MEASUREMENT AND PAYMENT

Bid Item No. 2 shall be amended as follows:

2. "( ) Conduit (Diameter)," per linear foot.

The last paragraph shall be amended as follows:

"The unit contract price per linear foot, measured by the actual length of completed conduit in place for ( ) Conduit (Diameter), shall be full compensation for furnishing all conduit, conduit connections, elbows, bend caps, reducers, couplings, unions, pull boxes and junction boxes for placing the conduit in accordance with the above provisions, including all excavation or jacking required, backfilling of the trenches, chipping of pavement and bedding of the conduit and all other work incidental to the construction of the conduit."

NEW SECTION

Section 47 EROSION CONTROL

NEW SECTION

Section 47-1 DESCRIPTION

Erosion control shall consist of preparing slopes, placing and compacting top soil, seeding, fertilizing and mulching all graded and disturbed areas in accordance with these specifications, the details shown on the plans and the special provisions.

NEW SECTION

Section 47-2 MATERIALS

NEW SECTION

Section 47-2.01 TOP SOIL

Top soil material shall conform to the requirements of Section 55-2.01.

NEW SECTION

Section 47-2.02 SEED

Grasses, legumes, or cover crop seed of the type hereinafter specified shall conform to the standards for "Certified" grade seed or better, as outlined by the State of Washington Department of Agriculture "Rules for Seed Certification" latest edition. Seed shall be furnished in standard containers on which shall be shown the following information:

1. Seed name
2. Lot number
3. Net weight
4. Percentage of purity
5. Percentage of germination (in cases of legumes percentage of germination to include hard seed.)
6. Percentage of weed seed content and inert material clearly marked for each kind of seed in accordance with applicable State and Federal laws.

Upon request, the Contractor shall furnish to the Engineer duplicate copies of a statement signed by the vendor certifying that each lot of seed has been tested by a recognized seed testing laboratory within six (6) months before the date of delivery on the project. Seed which has become wet, moldy, or otherwise damaged in transit or storage will not be accepted.

Seed mix and rate of application shall be as specified in the special provisions.

NEW SECTION

Section 47-2.03 FERTILIZER

Fertilizer shall be a standard commercial grade of organic or inorganic fertilizer of the kind and quality specified herein. It may be separate or in a mixture containing the percentage of total nitrogen, available phosphoric acid and water-soluble potash in the amounts specified. All fertilizers shall be furnished in standard unopened containers with weight, name of plant nutrients and manufacturer's guaranteed statement of analysis clearly marked, 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 spreader.
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 pelleted fertilizer, suitable for application by blower equipment.

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

NEW SECTION

Section 47-2.04 MELCH

NEW SECTION

Section 47-2.04A STRAW

All straw mulch material shall be in an air dried condition free of noxious weeds, weed seeds, and other materials detrimental to plant life. Straw shall be seasoned before bailing or loading and shall be acceptable to the Engineer. Straw mulch as provided shall be suitable for spreading with mulch blower equipment. Rate of application shall be as specified in the special provisions.
NEW SECTION

Section 47-2.04  WOOD CELLULOSE FIBER

Wood cellulose fiber mulch shall be specially processed wood fiber containing no growth or germination inhibiting factors and shall be dyed a suitable color to facilitate inspection of the placement of the material. It shall be manufactured in such a manner that after addition and agitation in slurry tanks with water, the fibers in the material will become uniformly suspended to form a homogenous slurry. When hydraulically sprayed on the ground, the material shall allow the absorption and percolation of moisture.

Each package of the cellulose fiber shall be marked by the manufacturer to show the air dry weight content. All mulch material must be acceptable to the Engineer.

NEW SECTION

Section 47-2.05  ASPHALT EMULSION

Asphalt emulsion used as a tie-down for mulch shall be a standard SS-1 emulsion conforming to the requirements of Section 37-1.01.

NEW SECTION

Section 47-2.06  JUTE MATTING

Straw mulch will not be required where jute matting is specified. Jute matting shall be of a uniform open plait weave of undyed and unbleached single jute yarn. The yarn shall be of a loosely twisted construction and shall not vary in thickness by more than one-half its normal diameter. Jute matting shall be furnished in rolled strips as follows:

Length approximately fifty (50) yards.

Matting width shall be forty-eight (48) inches with an average weight of 0.92 pounds per square yard. A tolerance of plus or minus one (1) inch in width and five per cent (5%) in weight will be allowed.

NEW SECTION

Section 47-2.07  EXCELSIOR MATTING

Excelsior matting shall be a machine produced mat of wood excelsior covered on one side with a woven netting of twisted paper composition.

The excelsior matting shall have a minimum dry weight of wood fibers of 0.8 pounds per square yard, plus or minus 5%. It shall be of uniform thickness, with the fiber evenly distributed over the entire area of the mat.

The woven netting shall have a 3 inch maximum mesh size.

The width of matting and net shall be 36 inches, and the rolls shall be approximately 150 feet long.

NEW SECTION

Section 47-2.08  SHEAR BOARDS

Where shear boards are required, as determined by the Engineer, they shall be furnished and installed by the Contractor. Details of the installation shall be similar to that shown in Standard Plan #206. Boards shall be 2 x 10 rough finished lumber. The top edge of the installed boards shall project two inches above the grade of the ground.

NEW SECTION

Section 47-3  CONSTRUCTION DETAILS

NEW SECTION

Section 47-3.01  PREPARATION

Before the placing of top soil, all soil conditioners shall be applied at the rate specified in the special provisions. All areas shall be cultivated to a depth of two (2) inches unless otherwise specified.

Cultivation of the soil may be done by farm disk, harrow or other suitable equipment approved by the Engineer. This operation shall be done at right angles to the natural flow of water on the slope unless otherwise ordered by the Engineer. All cost and expense incurred in performing the work herein specified shall be considered incidental to other bid items on the project and no additional compensation will be made.

NEW SECTION

Section 47-3.02  PLACEMENT OF SOIL

Top soil shall be evenly spread over the specified areas to the depth shown on the plans or as otherwise ordered by the Engineer. After the top soil has been spread, all large clods, hard lumps and litter shall be raked up, removed and disposed of by the Contractor.

Top soil shall not be placed when the ground or top soil is frozen, excessively wet or in the opinion of the Engineer, in a condition detrimental to the work.

All damage occurring to existing roadbeds, shoulders, walls, curbs or other existing adjacent structures or areas due to the Contractor’s operations in hauling and placing the top soil shall be repaired by the Contractor at his own cost and expense.

NEW SECTION

Section 47-3.03  COMPACTION

All top soil shall be compacted unless otherwise specified or ordered by the Engineer. Compaction shall be by sheepfoot roller, cleated crawler tractor or similar equipment approved by the Engineer, which will produce a minimum of one hundred fifty (150) pounds per square inch ground pressure. Equipment shall be so designed and constructed to produce a uniform rough textured surface.

-31-

-32-
ready for seeding and mulching, and which will bond the top soil to the 
underlying material. The entire area shall be covered by a minimum of 
four (4) passes or two (2) round trips of the roller or approved equipment. 
Compaction equipment shall be operated parallel to the natural flow of water on 
the slopes unless otherwise ordered by the Engineer. Conveying the roller or 
approved equipment up and down the slopes shall be by means devised by the 
Contractor, providing that the required results are obtained to the satisfaction 
of the Engineer. After compaction, the finished grade of the top soil shall 
be one (1) inch below the top of all curbs, catch basins and other structures. 

If, in the opinion of the Engineer, water is required to condition the top soil 
for rolling, it shall be immediately furnished and applied by the method and 
and in the amount designated by the Engineer.

NEW SECTION

Section 47-3.04 SEEDING

The Contractor shall notify the Engineer not less than twenty-four (24) hours 
in advance of any seeding operation and he shall not begin the work until areas 
prepared or designated for seeding have been approved. Following the Engineer’s 
approval, seeding of the approved slopes shall begin immediately.

Seeding shall not be done during windy weather or when the ground is frozen.
Seed shall be placed at the rate and mix specified herein or as directed by 
the Engineer. Seed and fertilizer may be sown by one of the following methods:

1. An approved type, hydro-seeder which utilizes water as the carrying 
   agent, and maintains continuous agitation through paddle blades. It 
   shall have an operating capacity sufficient to agitate, suspend and 
   mix into a homogeneous slurry of the specified amount of seed and 
   water or other material. Distribution and discharge lines shall be 
   large enough to prevent stoppage and shall be equipped with a set 
   of hydraulic discharge spray nozzles which will provide a uniform 
   distribution of the slurry.

2. Approved blower equipment with an adjustable disseminating device 
   capable of maintaining a constant measured rate of material discharge 
   that will insure an even distribution of seed and fertilizer at the 
   rates herein specified.

3. Helicopters properly equipped for aerial seeding shall have the 
   following:
   (a) Two hoppers or seed compartments capable of containing a minimum 
       of one hundred (100) pounds of one grass seed, or granular 
       fertilizer.
   (b) Power-driven, readily adjustable disseminating mechanisms 
       capable of maintaining a constant, measured rate of distribution 
       of seed, or granular fertilizer.

(c) Where liquid fertilizer is furnished in lieu of dry granular 
    fertilizer, the helicopter shall be equipped with two barrels 
    or containers capable of containing a minimum of fifteen (15) 
    gallons each. Distribution shall be by a spray boom of sufficient 
    size and length, fitted with proper nozzles to distribute uni-
    formly liquid fertilizer as herein specified.

(4) Approved power-drawn drills or seeders.

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

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

Section 47-3.04A FERTILIZING

Fertilizer shall be applied in accordance with the procedures and requirements 
for seeding in Section 47-3.04 at the rates and analysis specified.

NEW SECTION

Section 47-3.05 SPREADING MULCH

47-3.05A STRAW

Mulch material of the type herein specified shall be furnished, hauled 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 
spreader which utilizes forced air to blow mulch material on seeded area.
The spreader shall produce a uniform distribution of the hay, without cutting 
or breaking it into short stalks. Areas beyond the range of the mulch spreader 
shall be mulched by approved hand methods. Distribution of the material shall 
be uniform and at the rate specified.

NEW SECTION

Section 47-3.06 APPLICATION OF ASPHALT EMULSION

Mulch material shall be anchored in place with asphalt emulsion as herein 
specified. Asphalt emulsion shall be sprayed into the mulch as it leaves the 
blower pipes 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 
reapplied as specified.

NEW SECTION

Section 47-3.07 PLACING JUTE OR EXCELSIOR MATTING

Jute or excelsior matting shall be unrolled parallel to the flow of water 
immediately following the establishment of the finished grade. Seed and 
fertilizer shall be placed prior to the placing of excelsior matting. Where
more than one strip of jute matting is required to cover the given area, they shall overlap the adjacent mat a minimum of 4 inches. The excelsior matting shall be placed adjacent to the preceding strip. The ends of both jute and excelsior matting shall overlap at least 6 inches with the upgrade section on top. The up-slope end of each jute and excelsior strip of matting shall be staked and buried in a 6 inch deep trench with the soil firmly tamped against the mat. Three stakes per width of matting (one stake at each overlap) shall be driven below the finish grade line prior to backfilling of the trench. The Engineer may require that any other edge exposed to more than normal flow of water or strong prevailing winds be staked and buried in a similar manner. With the jute matting only, check slots, when specified, shall be placed between the ends of strips by placing a tight fold of the matting at least 6 inches vertically into the soil. These shall be tamped and stapled the same as up-slope ends. Check slots must be spaced so that one check slot or one end occurs within each 50 feet of slope. Rolling of jute matting, when specified, shall be with a grid type roller.

Edges of matting shall be buried around the edges of catch basins and other structures as herein described. Matting must be spread evenly and smoothly and in contact with the soil at all points.

Jute and excelsior matting shall be held in place by approved wire staples, pins, spikes or wooden stakes driven vertically into the soil. Matting shall be fastened at intervals not more than three feet apart in three rows for each strip of matting, with one row along each edge and one 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 fastening devices shall be sufficient to securely anchor matting against the soil and driven flush with the finished grade.

NEW SECTION

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 with barricades.
2. Reseed and fertilize areas failing to show a 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 and in accordance with Section 6 and as directed by the Engineer.

NEW SECTION

Section 47-3.09 FINAL INSPECTION AND ACCEPTANCE

Acceptance of areas receiving seed, fertilizer and mulch as herein specified shall be based on a 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

Section 47-4 MEASUREMENT

NEW SECTION

Section 47-4.01 TOP SOIL

Measurement for top soil shall be by the cubic yard in the haul conveyance at the point of delivery.

NEW SECTION

Section 47-4.02 SEEDING AND FERTILIZING

The quantity of seeding and fertilizing to be paid for will be ground slope measurement in square feet of actual seeding and fertilizing completed and accepted.

NEW SECTION

Section 47-4.03 MULCHING

The quantity of mulching to be paid for will be by ground slope measurement in square feet 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

Section 47-4.04 JUTE MATTING AND EXCELSIOR MATTING

The quantity of jute matting and excelsior matting to be paid for will be by the square foot measurement of surface area covered and accepted in accordance with the special provisions and the plans.

NEW SECTION

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

Section 47-5 PAYMENT

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

1. Furnishing and placing top soil, per cubic yard.
2. Placing top soil, per cubic yard.
3. Seeding and fertilizing, per square foot.
4. Hydro-seeding, per square foot.
5. Mulch (Type), per square foot.
6. Matting (Type), per square foot.
7. Soil conditioners, per ton.
8. Shear boards, per linear foot.

NEW SECTION

Section 48 ROADSIDE PLANTING

NEW SECTION

Section 48-1 DESCRIPTION

Where shown on the plans, trees, shrubs and ground covers shall be furnished and planted by the Contractor in accordance with accepted horticultural practice, these specifications and as directed by the Engineer. Trees, shrubs and ground covers will hereinafter be referred to collectively as "plants" or "plant material."

NEW SECTION

Section 48-2 MATERIALS

NEW SECTION

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

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 thereto shall meet the following requirements:

(a) All plant material shall comply with State and Federal laws with 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 healthy growing condition with normal well developed branch system and vigorous root systems. They shall be free from disease and insect infestation, disfiguring knots, sunscald, abrasions of the bark, broken tops, torn roots and any other objectionable features. Plants cut back from large sizes to meet specified sizes will not be accepted. All plants shall be nursery grown stock unless otherwise specified.

(b) Plants shall not have cuts over three-fourths (3/4) inch diameter which have not completely healed over. Leader shall be intact on all plants.

(c) Ground plants furnished in pots or other containers shall be acclimated to outside conditions and equal to field grown stock.

(4) When so specified, collected plant material shall conform in quality, size and grade as for nursery stock, except that roots and ball shall be one-third (1/3) greater in diameter than required of nursery grown stock.

NEW SECTION

Section 48-2.03 HANDLING AND SHIPPING

All plants shall be dug with care by experienced workmen immediately before shipment. Plants shall be packed for shipment according to standard practice for the type of plant being shipped. The root system of all plants shall not be permitted to dry out at any time. Plants shall be protected at all times against heat and freezing temperatures, sun, wind, climatic or seasonal conditions during transit. When transported a considerable distance in closed vehicles, plants shall receive adequate ventilation to prevent "sweating." In open vehicles, plants are to be protected by tarpaulins or other suitable cover material. All deciduous plant material shall be furnished bare root (BR) unless otherwise specified. All evergreen plant material shall be furnished balled and burlapped (B&B) unless otherwise specified. Broken or "Naked" balls will not be accepted. All balled and burlapped plants shall all times be handled by the ball of earth and not the plant. Unless otherwise specified, all plants may be supplied in suitable metal or other containers should the Contractor so desire. Container grown plants shall be well developed to hold the earth intact after removal from the container without being root bound.

NEW SECTION

Section 48-2.04 TAGGING PLANT MATERIAL

Plants delivered shall have legible labels attached to each individual plant delivered as a separate unit or to each box, bundle, bale or container containing one or more plants. Labels shall give the necessary detailed information as to horticultural name, size, age, caliper or other date required to identify as conforming to specifications. When the label is attached to a bundle, box, container, etc., containing more than one plant, information on the label shall show the quantity together with the other required information. Exception: All trees, whether furnished singly or bundled, shall be individually tagged with names, size, or caliper, etc., needed as shown above. Contractor may refer to State of Washington Department of Agriculture, Orders 1229 and 1230, Nursery Stock Standards, regarding labeling of plant material.

NEW SECTION

Section 48-2.05 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
Section 48-2.06 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 unobtainable since 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
Section 48-2.07 TEMPORARY STORAGE

Plant material delivered and accepted shall be planted immediately. Plants that cannot be planted within one (1) day after arrival shall be "healed-in" 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 bare root material supplied in bundles shall have the bundle broken and placed in the trenches separately.

(b) Balled and burlapped plants shall have the root ball protected by moist earth, sawdust, or other accepted 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
Section 48-2.08 TOP SOIL

Top soil material shall conform to the requirements of Section 55, including any soil conditioners specified in the special provisions.

NEW SECTION
Section 48-2.09 PLANTING SOIL

Planting soil shall be a mix of sandy loam, peat, cow manure, or other ingredients in the combination and proportions 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 date and location he is going to mix planting soil. Any planting soil mixed without approval of the Engineer shall be rejected.

The ingredients to be used in mixing planting soil shall meet the following requirements:

(a) Sandy loam shall consist largely of sand, but with enough silt and clay present to give it a small amount of stability. Individual sand grains can be seen and felt readily. On squeezing in the hand when dry, it will fall apart when the pressure is released; on squeezing when moist, it will form a cast that will not only hold its shape when the pressure is released, but will withstand careful handling without breaking.

(b) Peat shall consist of fibrous peat, woody or reed type peat, containing less than twenty per cent (20%) of ash by dry weight.

(c) Manure shall be composed of well rotted cow manure free of weeds and weed seed, with a minimum of litter (straw, shavings and sawdust) content.

At the time of mixing, planting soil shall have added to it commercial fertilizer of the type and at the rate specified in the special provisions.

NEW SECTION
Section 48-3 CONSTRUCTION DETAILS

NEW SECTION
Section 48-3.01 LAYOUT OF PLANTING

Plant locations and outline of planting areas shall be staked by the Contractor and approved by the Engineer before the planting of any trees, shrubs or ground covers.

NEW SECTION
Section 48-3.02 ORDER OF PLANTING

In mixing planting areas, trees shall be planted first, followed by the larger shrubs, low shrubs and the final planting of ground covers.

NEW SECTION
Section 48-3.03 PLANTING

Plants shall not be planted in any areas that are below the finished grade as shown on plans. Planting areas which, in the opinion of the Engineer, require cultivating shall be cultivated to a depth of six (6) inches and all rocks, sticks, roots and other debris shall be removed before any plants are planted. In addition thereto all planting shall be performed in accordance with the following requirements:

(a) Planting shall not be done during freezing weather or when conditions are unfavorable to the work.

(b) Plant locations shall be established, approved and holes dug before moving the plants out to the planting area.

(c) Plants shall be protected at all times to prevent roots from drying out during the planting operation.

(d) Unless otherwise specified, holes shall be dug for trees, twelve (12) inches greater in diameter than the diameter of the root ball or natural spread of the roots. Depth of hole shall provide a minimum backfill under roots or root ball of six (6) inches. Shrub holes shall be twelve (12) inches greater in diameter than the root ball or natural spread of the roots. Depth of shrub holes shall allow for a
minimum backfill under roots or bales of six (6) inches. Ground covers shall have a minimum backfill on all sides of the root system of two (2) inches and a depth of three (3) feet. When trees are to be planted in cement concrete sidewalk areas, pits shall be dug at the locations shown on the plans. The pits shall be a minimum of three (3) feet by three (3) feet and have a depth of three (3) feet.

(f) Planting shall be done by experienced workers in accordance with recognized horticultural practice. All plants shall be set plumb and at such an elevation that after 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. Firming or tamping of backfill material around roots shall be done in such a manner so as not to damage the roots. Balled and burlapped material shall have all strings or cords cut, and the burlap shall be laid back from the top half of the ball. 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 as to prevent disturbances 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 rain basin consisting of a ridge of earth one (1) to three (3) inches high and equal in diameter to the planting hole, shall be left around each plant. Immediately after a plant is planted and basin constructed, the basin 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

Section 48-3.04 PRUNING, STAKING AND CUTFING

Before planting, all bare root stock shall have damaged or torn roots removed with clean cut. After planting, all plant material shall be pruned in conformance with the best horticultural practice, appropriate to the type of plant. Top pruning shall remove all damaged twigs and branches, and compensate for loss of roots during planting operation. Top growth removal to compensate for root loss shall not exceed one-third (1/3) of the top growth unless otherwise specified or directed by the Engineer. Removal of top growth shall be in such a manner so as to retain the natural growth characteristics of the plant. Cuts greater than three-fourths (3/4) inch in diameter shall be treated with an approved tree wound dressing. Pruning shall produce a clean cut without bruising or tearing the bark and shall be in living wood where the wound can heal over properly.

Staking of trees shall follow either Alternate A or Alternate B as follows:

Alternate A:

All deciduous and evergreen trees, over five feet in height, shall be staked at the time of planting. Deciduous trees up to sixteen (16) feet in height and evergreen shrubs or trees up to twelve (12) feet in height shall be staked with a single 5/8-inch diameter deformed steel reinforcing bar ten feet long. The bar shall be driven into the ground at a distance of from one to three inches from the tree trunk. The bar shall penetrate at least one foot of undisturbed soil in a tree pit three feet deep, more if tree pit is more shallow. The bar and the tree shall be joined by three tree ties formed of twelve-gauge wire in one loop which crosses itself between the tree and the bar. Before placing, a 4 to 8 inch length of good-quality rubber garden hose shall be slipped over the wire to serve as a tree trunk protector. The wire shall be tied tightly to the deformed bar so as to prevent vertical movement but shall be loosely applied around the trunk. A one-quarter-inch space should be allowed between the hose tie face and the tree trunk. The top most tie should be at a minimum height of 3 feet 10 inches with 1 foot 3 inches vertical spacing between the three ties (plus or minus one inch).

Other methods of staking will be considered as alternates but can be used only with the approval of the project engineer.

Alternate B:

All deciduous trees shall be staked at the time of planting unless otherwise specified. Trees up to twelve (12) feet in height shall be staked with one two-inch by two inch by eight foot or ten foot maximum stake (2" x 2" x 8' or 2" x 2" x 10'), stained dark brown. The stake shall be placed in the tree pit and driven a minimum of one (1) foot into firm ground at the time of planting, before backfilling around roots. The stake shall be fastened to the stake with two (2) hose and No. 12 galvanized wire ties each. Ties shall be spaced two feet six inches (2' 6") apart and shall be centered on a point approximately three-fifths (3/5) the height of the tree. Ties shall be No. 12 galvanized wire securely anchored to the posts. Loops shall be formed around the trunk of the tree with each tie leaving at least four (4) inch diameter open space after the hose protection has been applied. Good quality rubber hose, brown in color, shall be used to protect the bark of the tree. If the coat of stain is broken during placing, the unprotected areas of the stake shall be re-coated after installation is complete. All stakes shall be placed to the windward side of the tree. The Contractor shall stake one (1) tree as a sample and get the approval of the Engineer before making further installations.

Deciduous trees over sixteen (16) feet in height and all evergreen shrubs or trees over twelve (12) feet in height shall be guyed with three (3) guy wires or cables. Guy wires shall be a strand of twelve (12) gauge wire passed through a loop of garden hose around the tree trunk at a point at least one-half (1/2) the height of the tree and fastened securely to a six foot 2 x 4 stake placed approximately three-fourths (3/4) the fastening height from the trunk or main stem. Guy stakes shall be placed equal distances apart.

NEW SECTION

Section 48-3.05 CULTIVATION AND CLEANUP

Upon completion of planting all excess material shall be removed and disposed of off the project site. Planting areas shall be brought to a uniform grade flush with walks, curbs, pavements and driveways. The soil surrounding each individual plant shall be cultivated and loosened to a depth of three (3) inches and all rocks, grass, weeds, hard clods, and other debris shall be removed. An area three (3) feet in diameter around each individually planted tree or shrub shall be cultivated as specified and an area not less than one (1) foot around small shrubs
and ground covers. Where trees and shrubs are planted in groups or mass plantings the total area shall be treated as a unit and cultivated as specified. Planted areas shall be neatly edged with a sharp edging tool.

NEW SECTION

Section 48-3.06 FERTILIZERS AND SOIL CONDITIONERS

Fertilizers and soil conditioners when called for in the special provisions shall be thoroughly and uniformly incorporated into the top soil at the rates specified.

NEW SECTION

Section 48-3.07 PLANTING MULCH

Mulch shall be applied where shown on plans or where directed by the Engineer. Planting areas of trees, shrubs, and ground covers shall be mulched to the depth shown. Mulch shall be free of chips, chunks and large splinters and shall not contain resin, tannin or other compounds in quantities that would be detrimental to plant life.

NEW SECTION

Section 48-3.08 CARE DURING CONSTRUCTION

The Contractor shall insure adequate and proper care of all plant material and work done on this project until the contract is completed and accepted by the Owner. 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 uniform condition.

NEW SECTION

Section 48-3.09 PROTECTION OF EXISTING FACILITIES

See Sections 5.09 and 5.10.

NEW SECTION

Section 48-3.10 REPLACEMENT

All plants not 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 48-4 LANDSCAPE ESTABLISHMENT:

Scope of Work: The contractor shall maintain all landscaping within the limits of this project. Maintenance shall include the care and maintenance of all tree plantings and ground covers, removing weeds from ground cover area, and the general cleanliness of the area within the boundaries of the project.

It shall be the contractor's responsibility to maintain all the landscaped area of this contract from the time of installation until the project is accepted by the owner as complete. No separate payment will be made for maintenance performed from the time of installation to the date of acceptance by owner. The 365 calendar day maintenance period will begin on the day of completion of the landscaping by letter to the Board of Public Works.

General Provisions: The contractor shall furnish all materials and tools needed to do the work called for under this contract. This will include sprays, insecticides, weed killers, fertilizers, shears, rakes, brooms, and all other materials and tools needed to keep the area presentable and the trees healthy.

The contractor will be held responsible for all damage or loss of trees and ground covers caused by his inattention or carelessness. The contractor shall repair minor damage to trees caused by traffic, wind or other causes.

Engineering: The Engineer shall perform all engineering functions in connection with the work including inspection.

Failure to Perform: If the contractor fails to perform any of the work required under this contract, the owner may:

1. Cause the work to be done by others and the cost thereof to be deducted from the contractor's monthly payment or payments. Should the money due the contractor be insufficient to cover said cost, the owner shall have the right to recover the balance from the contractor.

2. Withhold a portion of the contractor's monthly payment or payments until the necessary work is accomplished. The amount to be withheld shall be determined by the Engineer.

3. Terminate the contract.

Trees and Ground Covers: Weeds shall be removed from the ground cover area as often as is necessary to maintain a presentable appearance.

Dead trees shall be removed as directed by the Engineer who shall record plants removed.

Pruning shall be done as directed by the Engineer so as to maintain a neat, healthy appearance, in accordance with good horticultural practice for that particular type of tree.

All weeds and branches removed during normal maintenance shall be disposed of by the contractor. Weed control may be accomplished by using a pre-emergent chemical herbicide such as atrazine or casoron.

WATERING: The quantity of water to be applied by each watering shall be approximately five gallons per tree.

All trees and ground covers shall be thoroughly watered as often as needed to keep the plants healthy.

The contractor shall furnish in writing, a watering schedule to the Engineer. Any change in the watering schedule shall require 24-hour advance notice. The
Engineer shall be notified immediately of any sprinkler system malfunction, major sprinkler repair and winterizing of the system shall be the responsibility of the contractor.

The area around trees is to be kept weed-free. All undesirable growth is to be removed and disposed of by the contractor. Weed control in shrub beds and around the individual trees may be accomplished by using an approved pre-emergent chemical herbicide such as Simazine or Casoron or approved equal.

Pavement: Concrete pavement shall be hosed off with water regularly and otherwise kept clean and free from dirt and litter.

Water: In the event that water restrictions are established during the summer months, watering shall be scheduled as directed by the Engineer.

Mulch: Mulching material is to be applied and replaced as directed by the Engineer. The final mulch application is to be made one (1) week prior to final inspection. Weeds shall be removed from the planting beds as often as is necessary to maintain a presentable appearance.

Cleanup: A general cleanup shall be made immediately after and as a part of all work done in the area. The cleanup shall include the entire area under this contract. Adjacent areas shall be cleaned to the extent that the work under contract may scatter litter. In addition, the contract area shall be cleaned of litter and debris at least every week or as directed by the Engineer. Such cleanup shall include the pickup and removal from the contract area of all clippings, trimmings, leaves, and all other litter and debris originating from any source whatsoever, and emptying the waste receptacles.

Inspection of Work: Work performed on the contract shall be regularly inspected by the Engineer. He may at any time request correction of or improvement of landscaping practices if they fall below contract standards. The contractor will be expected to make the necessary corrections within 72 hours of receipt of such request, which may be made either in writing, by telephone, or communicated in person to the contractor or his representative.

Payment: Payment will be made at the rate of 8 percent per month of the lump sum price bid for Plant Establishment for the first eleven months, and the remainder paid at the end of the establishment period. The contractor shall contact the Engineer on or before the 20th of each month, at which time he shall have completed the monthly establishment period. Work will be inspected about the 25th of each month, and if satisfactory, the monthly payment will be paid. The lump sum price bid will be full compensation for all labor, tools, materials, equipment and any other incidental items required to perform the work as specified. In the event that no work is done, or the work is not corrected to the satisfaction of the Engineer, the monthly payment, or a portion thereof, will be forfeited.

NEW SECTION

Section 48-5 MEASUREMENT AND PAYMENT

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

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

NEW SECTION

Section 49 - SPRINKLER IRRIGATION SYSTEM

NEW SECTION

Section 49-1 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 49-2 MATERIALS

All materials and equipment incorporated in the sprinkler system shall be new, undamaged, of standard quality and shall be subject to testing as specified herein. Materials shall meet the following requirements:

NEW SECTION

Section 49-2.01 PIPE AND FITTINGS

Pipe shall be galvanized iron, polyvinyl chloride, or polyethylene, as specified on the plans or in the special provisions.

NEW SECTION

Section 49-2.01A GALVANIZED PIPE AND FITTINGS

Pipe shall be standard weight, hot dipped galvanized iron or steel pipe, threaded and coupled. Pipe shall meet the current requirements of ASTM Designation A 120.

All pipe fittings shall be standard threaded galvanized malleable iron fittings.
NEW SECTION
Section 49-2.018 PLASTIC PIPE AND FITTINGS
Plastic pipes, unless indicated on the plans, shall be Polyvinyl Chloride (P.V.C.). PVC piping shall be 1100 Schedule 40. The PVC pipe shall conform to National Bureau of Standards PS 21-70 and ASTM D 1785, and shall be National Sanitation Foundation (NSF) approved.

The Engineer may require impact and quick burst tests of samples of the pipe after its arrival at the job site and acceptance of the pipe shall be subject to passing of the designated test.

Each length of PVC pipe is to be marked with an identifying extrusion “run” number and the manufacturer’s name or trade name plus the pipe size and schedule.

Pipe shall be free from manufacturing defects in material and workmanship. The pipe is to be guaranteed to operate within the limits of pressures and temperatures as required in the above specification.

Fittings shall be manufactured from PVC 1120 conforming to ASTM D 2466. The wall thickness of the fitting shall be equal to or exceed that of Schedule 40 pipe of similar size.

NEW SECTION
Section 49-2.01C POLYETHYLENE PIPE
Polyethylene pipe shall be Class 80, SDR 15, medium density polyethylene pipe, meet the requirements of ASTM D 2239, conform to U.S. Commercial Standard CS-255, and be National Sanitation Foundation (NSF) approved.

NEW SECTION
Section 49-2.02 CONTROL TUBING
Control tubing shall be copper refrigerator tubing meeting the current requirements of ASTM Designation B 280 in the size specified on the plans. Tubing and fittings shall be capable of withstanding a WSS p.s.i. operating pressure, and shall be of the size indicated on the plans.

NEW SECTION
Section 49-2.03 AUTOMATIC CONTROLLERS
When called for on plans, the Contractor shall furnish and install on a concrete base, automatic controllers as herein specified. They shall be an electrically timed device for automatically opening and closing control valves for predetermined periods of time and mounted so that all normal adjustments will be conveniently located for use by the operator. Controllers shall be enclosed in a weather-proof metal housing with hinged lock or locking device. All locks or locking devices shall be master keyed 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 skipped. When adjustments are made they shall continue automatically within a fourteen (14) day cycle until the operator desires to make new adjustments.

(d) Controls shall allow any position to be operated manually both on or off whenever desired.

(e) Controls shall provide for resetting the start of the irrigation cycle at any time and advancing from one position to another.

(f) Controllers shall contain an “on-off” switch and fuse assembly.

(g) Controller shall have a power failure cutout.

NEW SECTION
Section 49-2.04 SPRINKLER HEADS
Sprinkler heads shall be of the style, pattern and coverage shown on the plans, unless specifically designated otherwise by the Engineer. All heads shall be constructed on heavy duty bronze, brass or stainless steel. Sprinklers shall be designed so that spray adjustments can be made by either an adjustment screw or interchangeable nozzles. Waterting cores 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 turf flanges having two gripping holes to facilitate removal of the head.

NEW SECTION
Section 49-2.05 VALVE BOXES AND PROTECTIVE SLEEVES
All automatic control valves, flow control valves, pressure reducing valves and twin check valve units shall be provided with valve boxes. Valve boxes shall conform to the plans and shall be extendable to obtain the depth required. All manual drain valves and manual control valves shall be equipped with a protective sleeve and cap as shown on the plans.

NEW SECTION
Section 49-2.06 GATE VALVES
Gate valves when called for on the plans shall be 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-shock cold water) shall be 300 p.s.i. Valves shall be of the double disk, taper seat type, with rising stem, union bonnet and handwheel. Manufacturer’s name, type of valve and size shall be cast on the valve.

NEW SECTION
Section 49-2.07 CONTROL VALVES

NEW SECTION
Section 49-2.07A MANUAL CONTROL VALVES
Manual valves shall be of bronze or brass, angle type with hex brass union. Service rating shall be not less than 150 p.s.i. non-shock cold water. Valves shall be
designed for underground installation with suitable cross wheel for operation with a standard key. The Contractor shall furnish three suitable operating keys per packing gland and shall house long acme threaded stem to assure full opening and closing. Valve discs shall be full floating with replaceable seat washers.

NEW SECTION

Section 49-2.07B AUTOMATIC CONTROL VALVES

Automatic remote control valves shall be globe pattern with flanged or screwed connections as required. Screwed valves shall be provided with union connections.

Valves shall be of a "normally closed" design and shall be electric solenoid operated, having maximum rating of 6.5 watts utilizing 24 volt AC power. Solenoids and parts completely internal. Valves shall be of 150 lb. brass or bronze, or shall be a minimum of 3 seconds for closing with a constant rate of closing and a minimum of 3 seconds for opening with a constant rate of opening and closing, without the requirement of electric current. A manual shut-off stem with cross to wide open. Once the manual adjustment is set, the valve shall operate automatically in the adjusted position. Water flow shall be completely stopped when the control valve is closed either manually or automatically. Automatic control valves and automatic controllers need not be of the same manufacturer.

NEW SECTION

Section 49-2.07C AUTOMATIC CONTROL VALVES WITH PRESSURE REGULATOR

The automatic control valve with pressure regulator shall be similar to the automatic control valve and shall also reduce the inlet pressure to a constant, lower pressure regardless of supply fluctuations. The regulator must be fully adjustable.

NEW SECTION

Section 49-2.08 QUICK COUPLER VALVES

Quick coupler valves shall have a service rating not less than 150 p.s.i. for non-shock cold water. Body of the valve shall be of single piece construction of cast leaded semi-red brass alloy F5-A conforming to ASTM Designation B 145. Base of the valve shall have star laced female pipe threads. Design of the valve shall be such that it will open only upon inserting a coupler device, and when coupler and valve body when in operation will not be accepted. The valve body action in opening and losing of the valve with a minimum of effort. Slots shall be notched at the base to hold the coupler firmly in the open position. Couplers shall be of the same material as the valve body with stainless steel double guide steel reinforced side handle attached. All couplers shall have standard male pipe threads at the top. Couplers shall be furnished with all quick coupler valves unless otherwise specified.

NEW SECTION

Section 49-2.09 DRAIN VALVES

Drain valves shall be of the size, type, and construction indicated on the plans.

NEW SECTION

Section 49-2.10 HOSE BINS

Hose bin shall be constructed of bronze or brass, angle type threaded to accommodate a 3/4-inch hose connection and shall be key operated. Design shall be such as to prevent operation by wrench or pliers.

NEW SECTION

Section 49-2.11 VACUUM BREAKERS

When called for in the plans and special provisions or as required by local ordinances, vacuum breakers meeting the following requirements shall be furnished and installed. All vacuum breaker installations are subject to inspection by authorized county or municipal authorities.

NEW SECTION

Section 49-2.11A ATMOSPHERIC VACUUM BREAKERS

Atmospheric vacuum breakers shall have all bronze bodies and be of the same dimension as the pipe on which it is attached. Design shall permit free flow of water under pressure. When vacuum conditions exist it shall automatically close the check valve stopping all flow of water and admit air into the main line. Upon restoration of water pressure the air intake shall be shut off and the check valve re-opened without spillage. Unless otherwise specified, the vacuum breaker shall be installed on the discharge side of the control valve six inches above the highest sprinkler head on the line. Atmospheric vacuum breakers shall have a service rating of 150 p.s.i. for non-shock cold water and shall be designed for operation up to temperatures of 160° F.

NEW SECTION

Section 49-2.11B PRESSURE VACUUM BREAKERS

Pressure type vacuum breakers shall be installed on the discharge side of the meter or service connection as shown on the plans. Vacuum breakers shall be of heavy duty construction with all bronze bodies, check valves and test cocks. Pressure type vacuum breakers shall be designed to operate under continuous pressure permitting the free flow of water at all times. Air intake shall be spring loaded to insure positive opening upon release of pressure or vacuum created in the supply lines. Vacuum breakers shall be furnished with approved check valves, inlet and discharge shut-off valves and field testing cocks. Assembly for various pipe sizes shall be according to local requirements or as
specified on plans and in the special provisions. Unless otherwise specified pressure type vacuum breakers shall have a service rating of 300 p.s.i. for non-shock cold water.

NEW SECTION

Section 49-2.12 CHECK VALVES

NEW SECTION

Section 49-2.12A CHECK VALVE

Check valves shall be heavy duty bronze or steel. The valves shall function by means of a hinged disc suspended from the body and able to close of its own weight. Valves shall be of the size as the pipes on which they are placed, unless otherwise specified, and shall have union or flanged connections. Service rating (for non-shock cold water) shall be 300 p.s.i. Manufacturer’s name, type of valve and size shall be cast on the valve.

NEW SECTION

Section 49-2.12B DOUBLE CHECK VALVE UNIT

The unit shall be of a type approved by the Washington State Department of Social and Health Services. The double check valve shall be tested by backflow prevention device testers certified by the Washington State Department of Social and Health Services. Test records shall document that double check valves are in good operating condition prior to flushing and testing of sprinkler system mainline pipes. During the life of the contract, double check valve units will be tested annually, or more often if successive inspections indicate repeated failure. Double check valve units shall be repaired or replaced whenever they are found defective.

NEW SECTION

Section 49-2.13 PRESSURE REDUCING VALVES

Pressure reducing valves shall have a minimum of 150 p.s.i. working pressure with an adjustable outlet range of 20 to 70 p.s.i. The valves shall be factory set as shown on the plans. Pressure reducing valves shall be tested for safe operation at 175 p.s.i. non-shock cold water.

NEW SECTION

Section 49-2.14 FLOW CONTROL VALVES

Valve body materials shall be plastic or metal. Internal parts shall be stainless steel. Valves shall be factory set to plan flows. Valve shall have no external adjustment and be tamper proof where installed. 1/4 inch and smaller flow control valves shall have a minimum pressure absorption range of 2–32 p.s.i. 1–1/2 inch and larger flow control valves shall have a minimum pressure absorption range of 3–50 p.s.i.

Flow shall be controlled to ± 5% of plan volumes.

-51-

NEW SECTION

Section 49-2.15 AIR RELIEF VALVE

The air relief valve shall automatically relieve air and break a vacuum in the serviced pipe. Body materials shall be installed exactly at all high points.

NEW SECTION

Section 49-2.16 ELECTRICAL WIRE

All electrical control and ground wire shall be #14 irrigation control cable. All wiring to be used for connecting the auto-irrigation control cable and all wiring to be used for connecting the automatic remote control valve to the automatic controllers shall be Type "UF", 600 volt, solid copper, single conductor wire with PVC insulation and bear UL approval for direct underground burial feeder cable.

Insulation shall be 4/64-inch thick minimum covering of IEC-100 compound for positive waterproofing protection. The wire shall be single conductor solid copper wire. All control or "hot" wires shall be of one color (orange) and all common or "ground" wires shall be of another color (white).

Verification of wire types and installation procedures shall be checked to conform to local codes.

NEW SECTION

Section 49-2.17 METAL CONDUIT

Cast iron conduits shall be placed under all pavement in the locations shown on the plans. Sizes and installation shall be according to plans and details.

NEW SECTION

Section 49-2.18 WATER LOOPS

Water loops for the temporary irrigation systems shall be plastic and shall be constructed that watering is accomplished by flowing through the seams of the loop which shall be sewn with nylon thread. The loops shall be 16 inches in diameter unless otherwise specified. They shall have 60-inch leader tubes for connection with the water supply line. The leader tubes shall be seamless plastic and have an inside diameter of 3/64-inch, plus or minus 3/64-inch.

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 finish grades. Finish grades changed in the course of the work shall be restored to the original grades and contours.

The Owner will furnish meters at the locations as noted on the plans.

-52-
NEW SECTION
Section 49-3.01 EXCAVATION

Pipe trenches shall be no wider at any point than is necessary to lay the pipe or install equipment. The top six (6) inches of top soil, when such exists, shall be kept separate from subsoil and shall be replaced as the top layer when backfill is made. Trenches shall be excavated with vertical sides and provided with bracing and shoring to be placed as directed by the Engineer. Trench bottoms shall be of sand or other suitable material free from rocks, stones, or any material which might damage the pipe. Trenches in rock or other material unsuitable for trench bottoms shall be excavated six (6) inches below the required depth and shall be backfilled to required depth with sand or other suitable material free from rocks or stones.

Care shall be exercised by the Contractor when excavating trenches near existing trees. Where roots are 2 inches and greater in diameter, except in the direct path of the pipe, the pipe trench shall be hand excavated and tunnelled. When large roots are exposed they shall be wrapped with heavy burlap for protection and to prevent excessive drying. Trenches dug by machines adjacent to trees, having roots 2 inches and less in diameter, shall have the sides hand trimmed making a clean cut of the roots. All roots 1/2-inch or greater in diameter that are cut and trimmed shall be treated with an approved tree wound dressing. Trenches having exposed tree roots shall be backfilled within 24 hours unless adequately protected by moist burlap or canvas as directed by the Engineer.

NEW SECTION
Section 49-3.02 PIPING

All live main lines shall be a minimum of 24 inches below finished grade measured from the bottom of the pipe. Lateral or section lines shall be a minimum of 18 inches below finished grade or at a shallower depth as directed by the Engineer, measured at the bottom of the pipe. Pipes shall be sloped uniformly to drain. All live mains to be constructed under existing pavement shall be placed in conduits jacketed under pavement unless otherwise noted on the plans or directed by the Engineer. Conduits shall be no larger than necessary to conveniently accommodate the pipe and fittings. All jacking operations shall be performed as directed by the Engineer and conduit run at a depth below the pavement as may be so ordered. Where possible, mains and laterals or section piping shall be placed in the same trench.

Unless otherwise specified, it shall be the Contractor’s responsibility to establish the locations of the drain valves during installation to insure complete drainage of the lateral and section lines.

NEW SECTION
Section 49-3.03 JOINTING

All galvanized steel pipe shall have sound, clean cut standard pipe threads well fitted. All pipe shall be reamed to the full diameter and burrs removed before assembly. Threaded joints shall be made up with the best quality pure 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. Caulking or thread cement to make joints tight will not be permitted.

P.V.C. plastic pipe couplings and fittings shall be handled and installed in accordance with the manufacturer’s recommendation. The outside of the P.V.C pipe shall be chamfered to a minimum of 1/16 inch at approximately 22 degrees. Pipe and fittings shall be joined by solvent welding.

Chemicals used must penetrate the surface of both pipe and fitting which will result in complete fusion at the joint. Use solvent and cement only as recommended by the pipe manufacturer.

On plastic to metal connections, work the metal connection first. Use a non-hardening compound on threaded connections. Light wrench pressure is all that should be used. Connections between metal and plastic are to be threaded utilizing female threaded adaptors only, not male adaptors.

Polyethylene pipe and fittings shall be installed in accordance with the manufacturer’s recommendations. The ends of the polyethylene pipe shall be cut square and inserted to the full depth of the fitting. Clamps for insert fittings shall be stainless steel.

NEW SECTION
Section 49-3.04 SPRINKLER INSTALLATION

Sprinkler heads located within lawn areas shall be installed on temporary high risers approximately 12 inches above finished grade. Once turf has been established the Contractor shall, upon written notice from the Engineer, lower the heads to final position as a part of the contract. Lowering of sprinkler heads shall be completed within 30 days after receipt of written notice. Final position of turf heads shall be between 1/2 and 1 inch above finished grade measured from the top of the sprinkler. All sprinklers adjacent to walks, curbs and pavement shall be placed at the same elevation and 6 inches from such structure.

Shrub heads, unless otherwise specified, shall be placed on high risers elevating them approximately 12 inches above finished grade. Lowering of shrub heads will not be required.

Final position of valve boxes, capped sleeves and quick coupler valves shall be between 1/2 and 1 inch above finished grade.

NEW SECTION
Section 49-3.05 WATER LOOPS

The water loops shall be placed so they encircle the base of the planted trees which should be centered within the loops.

NEW SECTION
Section 49-3.06 ELECTRICAL WIRE INSTALLATION

Wiring between the automatic controller and automatic valves can share a common neutral. Separate control conductors shall be run from the automatic controller.
to each valve. A white colored wire shall be used for the neutral as specified in the National Electrical Code. Wire shall be installed adjacent to and attached to the irrigation mains by plastic tape or nylon ty-wraps.

All splice insulation shall consist of electrical conductors twisted and bonded by approved pressure connectors and contained in a rigid clear plastic epoxy filled mold. Splices will be permitted only at junction boxes, valve boxes, pole bases or at control equipment. A minimum of 3 feet excess of conductors shall be left at junction boxes and automatic control valves to facilitate splicing and inspection.

NEW SECTION
Section 49-3.07 FLUSHING AND TESTING
All main supply lines shall be flushed completely of foreign particles before placing section control valves, quick-coupler valves and hose bibs. After flushing and when valves are in place, all main supply lines shall be hydrostatically tested at one hundred and fifty (150) p.s.i. static pressure with valves closed. When test pressure is applied for a period of not less than 30 minutes with a pressure loss of not more than 5 p.s.i., the section tested may be considered acceptable.

After installation of section lines, the piping shall be completely flushed of foreign particles before attaching sprinkler heads and drain valves. After flushing, section lines shall be tested at maximum design operating pressure with risers capped and drain valves closed. Any pipe, fitting or joints showing leaks shall be separated, cleaned and reamed. When test pressure is applied for a period of not less than 30 minutes with a pressure loss of not more than 5 p.s.i., the section tested may be considered acceptable.

All polyethylene piping shall be completely flushed, capped and tested before placing valves, heads, drain valves or leader tubes. Lines shall be tested for minimum periods of one hour at operating line pressures with drain valves closed. At the end of the test periods, the installations shall be inspected for leaks and any such found shall be corrected by the Contractor and the lines retested. When conditions exist which interfere with visual inspections of lateral installations the Engineer may require that testing be done with pressure gauges installed on the lines. In this event the laterals shall be tested for minimum periods of one hour at static line pressure with risers capped and valves closed. Lines will show 5 p.s.i. or greater loss of pressure at the end of specified periods shall be rejected. The Contractor shall check the installation for leaks and retest the line as specified until leaks are stopped.

Water loop leader tubes shall be tested after installation at operating pressure of 1/2 hour.

These same testing procedures shall be used, at the discretion of the Engineer, to test all mainlines and laterals following the repair of any break or disruption of service of the system throughout the life of the contract.

All gauges used in the testing of water pressures shall be certified correct by an independent testing laboratory immediately prior to use on the project. Gauges shall be retested when directed by the Engineer.

Automatic controllers shall be tested by actual operation for a period of two weeks under normal operating conditions. Should adjustments be required, the contractor shall do so according to manufacturer's direction and test until operation is satisfactory.

NEW SECTION
Section 49-3.08 ADJUSTING SYSTEM
Before final inspection the Contractor shall adjust and balance all sprinklers to provide adequate and uniform coverage. Spray patterns shall be balanced by adjusting individual sprinkler heads with the adjustment screws or replacing nozzles to produce a uniform pattern. Unless otherwise specified, sprinkler spray patterns will not be permitted on pavement, walks or structures.

NEW SECTION
Section 49-3.09 BACKFILL
Backfill shall not be started until all piping has been inspected, tested and approved by the Engineer, after which backfilling shall be completed as soon as possible. Upon completion of all piping in the same trench, backfill shall be completed as specified. Trenches containing P.V.C. Plastic Pipe shall have a sand cushion from 1 inch depth below the pipe to 2 inches above the pipe. Backfill from the bottom of the trench to approximately 6 inches above the pipe shall be by continuous compacting in such a manner that will not damage pipe or wiring and shall proceed evenly on both sides of the pipe. The remainder of the backfill shall be thoroughly compacted, except that heavy equipment shall not be used within 18 inches of any pipe. All backfill material shall be free of rocks, roots or other objectionable material. The top 6 inches of the backfill shall be top soil material or the first 6 inches of material removed in the excavation.

NEW SECTION
Section 49-5 MEASUREMENT AND PAYMENT
Payment will be made for each of the following bid items as are included and shown in any particular contract:


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

All additional material and labor, not shown on the plans or called for herein and which are required to complete the sprinkler system, shall be considered as incidental to the construction and be included in the lump sum contract prices. No additional compensation will be allowed.
Section 50-3.01 REFERENCE POINTS
Delete the words "monuments and" in the second line of the second paragraph.

Section 50-3.02 PRECAST CONCRETE MONUMENTS
This section shall be deleted in its entirety.

Section 50-3.03 PORED MONUMENT
This section shall be deleted in its entirety.

Section 50-4 MEASUREMENT AND PAYMENT
Delete bid items 1, 2 and 4.
In the 2nd paragraph, fourth line, delete the words "monuments and."

Section 52 - REMOVAL OF EXISTING STREET IMPROVEMENTS
Amend title to read as follows:
Section 52 - REMOVE, RELOCATE OR ABANDON EXISTING STREET IMPROVEMENTS
Section 52-2.01 GENERAL
Delete the 2nd paragraph.

Section 52-2.02 REMOVAL OF PAVEMENT
This section shall be amended as follows:
Existing pavement such as concrete, brick, cobblestone, or combinations of the various materials including asphalt 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 pavement 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 cleavage planes in order that the paved surface will be as durable as before it was disturbed.

If contractor elects to saw-cut the concrete pavement, the depth of saw-cut shall be one-half the depth of the pavement.

If contractor elects to line drill the concrete pavement, the spacing shall be on 6-inch maximum centers and the drill holes shall be perpendicular to the surface.

No separate payment will be made for sawing or line drilling and the cost thereof shall be included in the prices bid for the various items comprising this improvement.

Pavement breakers such as a "headache ball" shall not be used and paving breakers shall be of such types as will not damage any of the utility installations, and shall be approved by the Engineer before use.

Removal of existing non-rigid pavement, such as bituminous mixes or a surfacing upon earth or granular subgrades shall be removed as common excavation, except as may otherwise be provided in special provisions.

Section 52-2.02A PAVEMENT REMOVAL, CLASS A
This section shall be deleted in its entirety.

SECTION 52-2.02B PAVEMENT REMOVAL, CLASS AA
This section shall be deleted in its entirety.

Section 52-2.02C PAVEMENT REMOVAL, CLASS B
This section shall be deleted in its entirety.

Section 52-2.02D PAVEMENT REMOVAL, CLASS C
This section shall be deleted in its entirety.

Section 52-2.03 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 therefor.

The third paragraph of this section shall be amended as follows:
Side street approaches to the project and street approaches at each end of the project paved with asphalt concrete on an earth or granular base and which are to be removed, will be paid for as common excavation.

Section 52-2.07 REMOVAL OF CATCH BASINS, MANHOLES, CURB INLETS, SUMP, ETC.
Title to be amended as follows:
Section 52-2.07 ABANDON, REMOVE OR RELOCATE EXISTING MANHOLES, CATCH BASINS, INLETS AND SANDBOXES
The first two paragraphs of this section shall be amended as follows:
Where existing manholes, catch basin, inlets or sandboxes are noted on the plans or directed by the Engineer to be removed, relocated or abandoned, the contractor shall carry out the task in the manner outlined in Section 52-2.07A, B and C. Payment for removing, relocating or abandoning existing manholes, catch basins, inlets or sandboxes shall be made in accordance with the bid items in the proposal.
Where existing manholes, catch basins, inlets or sandboxes are located within the near line of a trench excavation and are noted for removal or abandonment on the plan or when directed by the Engineer, the contractor shall remove such structure at no cost to the City. The removal of any such structure within the near line of a trench excavation including time and material required to properly plug all pipe openings with Class 5 (3/4) concrete, shall be considered as incidental to the cost of constructing the new facility.

Delete the third paragraph.

NEW SECTION

Section 52-2.07A ABANDON EXISTING IMPROVEMENT

Section 52-2.07A1 ABANDON EXISTING MANHOLE

Where noted on the plans as "Abandon Existing Manhole," the contractor shall break down the top two feet below grade of the existing manhole, remove casting and plug the existing sewer pipe openings longitudinally in the pipe 12 inches with Class 3 concrete as elsewhere herein specified. The remainder of the manhole shall then be filled with Type 9 or Type 17 aggregate compacted to the satisfaction of the Engineer. Pavement patching shall be in accordance with Section 54.

NEW SECTION

Section 52-2.07A2 ABANDON EXISTING CATCH BASIN

The work required at all catch basins indicated for removal shall include the dewatering and removal of debris from the catch basin structure; breaking down the structure to a depth of two (2) feet below the surface and disposing of all debris and salvagable material.

The existing outlet pipe shall be plugged by filling with Class 5 (3/4) concrete for a minimum longitudinal length of twelve inches. The remaining structure and void shall be filled with Type 9 or Type 17 mineral aggregate thoroughly compacted to preclude settlement.

Pavement patching shall be in accordance with Section 54.

NEW SECTION

Section 52-2.07A3 ABANDON EXISTING INLET

The work required at all inlets indicated to be abandoned shall include the removal of the existing grating, plugging of the outlet pipe by filling with Class 5 (3/4) concrete for a minimum length of 12 inches. The inlet shall be filled with Class 6.2 (1-1/2) H.E.S. concrete. The surface of the concrete shall match the grade of the existing paving and shall be brush-finished.

NEW SECTION

Section 52-2.07B REMOVE EXISTING IMPROVEMENTS

Section 52-2.07B1 REMOVE EXISTING MANHOLE

The work required at all manholes indicated for removal shall include the removal of the existing frame and cover and disposal of the manhole structure. All connecting pipes shall be plugged by filling with Class 5 (3/4) concrete for a minimum longitudinal length of 12 inches. The remaining void shall be filled with suitable material as directed by the Engineer and thoroughly compacted to preclude settlement.

Pavement patching shall be in accordance with Section 54.

NEW SECTION

Section 52-2.07B2 REMOVE EXISTING CATCH BASIN

The work required at all catch basins indicated for removal shall include the removal of the existing frame and cover, existing outlet trap and disposal of the catch basin structure. All connecting pipes shall be plugged by filling with Class 5 (3/4) concrete for a minimum length of 12 inches. The remaining void shall be filled with suitable material as directed by the Engineer and thoroughly compacted to preclude settlement.

Pavement patching shall be in accordance with Section 54.

NEW SECTION

Section 52-2.07B3 REMOVE EXISTING INLET

The work required at all inlets to be removed to accommodate the installation of new catch basins and inlets shall include the removal of the existing grating and casting and removal of the concrete encasement. The casting and encasement may be removed in one unit and disposed of as excess material. If the inlet casting is separated from the encasement, the castings shall be salvaged as specified in Section 52-2.08.

The existing outlet pipe shall be removed as required for installation of the new catch basin or inlet and new connecting pipe.

NEW SECTION

Section 52-2.07C RELOCATE EXISTING IMPROVEMENTS

Section 52-2.07C1 RELOCATE EXISTING MANHOLE, CATCH BASIN OR INLET

Work required for relocation of existing manholes, catch basins or inlets shall be as specified in Sections 52-2.07B1, 52-2.07B2 and 52-2.07B3, for removal. Installation of these existing facilities at the new location, shall be done in accordance with the appropriate specifications outlined in Sections 63 and 64.

Section 52-2.08 SALVAGE

Add the following paragraph:

In all streets where stone blocks are encountered beneath asphalt surfacing, the contractor will take necessary steps to remove stone blocks and asphalt before cutting or drilling through concrete base. Contractor shall carefully remove with proper scooping equipment, the stone blocks and asphalt and haul them to the City's South Transfer Station. Prior to delivery, the Engineer shall be
notified in advance and arrangements will be made to have a representative of
the Engineering Department at the station. The contractor will be responsible
to see that all stone blocks encountered are delivered as specified above.

Section 52-3 MEASUREMENT AND PAYMENT

Delete bid items 1, 2, 3, 4, 5, 9, 10, 11, 12, 13, 14 and 15.

Add the following bid items:

1. "Remove Existing Pavement," per square yard.
2. "Remove Existing (Manhole, Catch Basin or Inlet)," per each.
3. "Relocate Existing (Manhole, Catch Basin or Inlet)," per each.
4. "Abandon Existing (Manhole, Catch Basin or Inlet)," per each.

Amend the 2nd paragraph as follows:

The unit contract prices for each of the items as are included in the proposal
shall be full compensation for all labor, tools, materials, excavation, back-
fill and compaction required to perform the work as specified.

Delete the 3rd paragraph and add the following:

"Where structures are removed, the voids shall be backfilled with such material
as the Engineer may direct and be compacted to the degree required by the Engineer,
and such work shall be considered as incidental to the removal without compen-
sation."

Section 53-2.03 CONTRACTOR TO SCHEDULE WORK

Delete the 2nd sentence.

Section 53-3.01A GENERAL

This section shall be amended to read as follows:

"Adjustment of cover casting for the subject structures to final grade when
for new work constructed in conjunction with the project shall be incidental
to their construction and no separate payment therefore will be made. Provided
however, that when the new construction has been completed by the Contractor
to a final grade as set by the Engineer and such final grade is subsequently
revised by the Engineer, then the change necessary shall be made as an adjustment
and paid for in accordance with the following specifications for the adjusting
of existing utility structures which payment would be in addition to the original
new construction payment.

Adjustment payment shall be at the bid price whenever the required adjustment
consists of raising or lowering the top of the existing structure to place the
cover casting to a new grade, provided the vertical adjustment does not exceed
twenty (20) inches and the sizes of the structure opening remains the same.
When the vertical adjustment exceeds twenty (20) inches or results in a change in
the size of the structure opening, payment will be in accordance with the
following provisions.

(a) Downward Adjustment: When the required adjustment is downward in
    excess of twenty (20) inches and cannot be made to conform to the

requirements for new construction, and is not otherwise provided
for on the proposal plans or special provisions, the lowering work
shall be performed by the Contractor as directed by the Engineer
and paid for on the basis of extra work as provided in Section 9.03.

Where adjustment is downward more than twenty (20) inches and can be
made in conformance with the requirements for new work and involves
removing the structure precast cone, or flat side reducing section
and reinstalling to conform to the new final grade, the adjustment
shall be completed by the Contractor; and additional payment in
addition to payment for adjusting will be made on the basis of linear feet
for all original vertical height of the structure removed in
excess of eight (8) inches to make the adjustment in accordance with
new work requirements as "shifting" of the maximum diameter removed.

(b) Upward Adjustment: Where adjustment is upward in excess of twenty
    (20) inches and the existing precast cone or flat slab reducing
    section is removed and reinstalled at the new grade in conformance
    with requirements for new construction, additional payment, in
    addition to payment for adjusting, on the basis of linear feet will
    be made for all height in excess of twenty (20) inches as "shifting"
    of the maximum diameter installed.

The above conditions, as described for a structure constructed with
precast sections, shall likewise apply for such structures constructed
with masonry blocks or bricks in mortar and cast-in-place concrete
structures."

Section 53-3.01C CEMENT CONCRETE PAVING PROJECTS

Reference to Section number in the third line shall be amended to read "Section
53-3.01A."

Section 53-3.01E ASPHALT RESURFACING PROJECTS

In the 2nd sentence, 4th line of the paragraph, change the word "and" to "or."

Section 53-3.05 FURNISHING CASTINGS

Add the following sentence:

"Ring extensions shall be in accordance with the Standard Drawing."

Section 53-4 MEASUREMENT AND PAYMENT

Amend bid item No. 1 as follows:

"Adjust Existing Manhole, Catch Basin or Valve Chamber to Grade," per each.

Delete bid items 4, 5, 6, 7, 8, 9, 10, 11 and 12.

Add the following bid items:

"Adjust Existing Manhole, Catch Basin or Valve Chamber With ( ) Ring Extension
to Grade", per each.
"Adjust Existing Inlet With ( ) Ring Extension to Grade," per each.
"Adjust Existing Monument Frame and Cover with ( ) Ring Extension to Grade," per each.
"Furnish Valve Chamber Frame and Cover," per each.
"Shafting (diameter)," per linear foot.
"Furnish Manhole Ring and Cover Casting Type ( )," per each.
"Furnish Inlet Frame and Cover Castings Type ( )," per each.
"Furnish Precast Concrete Manhole Reducing Slab (D to ‘d’)," per each.

Section 53-4.01 ADJUST EXISTING MANHOLE OR CATCH BASIN TO GRADE

Title shall be amended as follows:
Section 53-4.01 "ADJUST EXISTING MANHOLE, CATCH BASIN AND VALVE CHAMBER TO GRADE"

This section shall be amended to read as follows:
The unit contract price for "Adjust Existing Manhole, Catch Basin and Valve Chamber to Grade," shall be full compensation for removing the cast iron frame and cover, removing necessary pavement, cutting the existing structure down where necessary, furnishing and placing temporary wood cover, rebuilding the structure, resetting the existing cast iron frame and cover to proper grade, backfilling the void around the structure, and plastering the structure throat and extension. Where manholes are to be adjusted upward or downward and it is necessary to remove the entire cone section, the entire adjustment will be paid for as specified in Section 53-3.01A.

Section 53-4.06 ADDITIONAL DEPTH SHAFTING FOR EXISTING MANHOLE

Amend title to read as follows:
Section 53-4.06 SHAFTING

This section shall be amended to read as follows:
The unit contract price for "Shafting" per linear foot of the diameter involved, as described in Section 53-3.01A for completing adjustment construction for manholes, catch basins and valve chambers, shall be full compensation for completing the upward or downward change in the existing structure shafting as required, which payment will be in addition to payment for adjusting the existing cover casting to final grade.

Section 54-3.02 CEMENT CONCRETE PAVEMENTS

Add the following paragraph:
The contractor shall furnish, place and maintain until final settlement, to the satisfaction of the Engineer, a 2-inch thick crushed surfacing base course and a 2-inch thick cold asphalt plant mix patching over trench areas when and where directed by the Engineer. Also, such temporary crushed base and asphalt concrete pavement may be required by the Engineer at any time the roadway is needed for vehicular traffic and permanent pavement cannot be placed. Stockpile of the crushed base and plant mix shall be provided on the site by the contractor. The contractor shall remove the temporary base and asphalt, clean the exposed face of the existing concrete, and restore the concrete pavement herein specified at the time directed by the Engineer.

Section 54-3.03 RIGID TYPE PAVEMENTS RESURFACED WITH ASPHALT CONCRETE

Add the following paragraph:
The material for tacking the bottom and sides of patches for asphaltic concrete shall be an emulsion called CHS-2. For sealing the edges after placing the asphaltic concrete patch, use a light cutback called RC 70, then sand the surface to prevent tracking.

NEW SECTION

Section 54-3.07 RESPONSIBILITY FOR PAVEMENT PATCHING

On all public works contracts, the Contractor shall perform all work for backfilling of excavations made under existing pavements, and the restoration of pavement cuts and patching, in accordance with these specifications unless otherwise provided in the special provisions.

Section 54-4 MEASUREMENT AND PAYMENT

Add the following bid item:

Add the following paragraph:
Payment will be made at the price bid per ton for "Cold Plant Mix for Temporary Pavement Patch," which shall be full compensation for furnishing, stockpiling, placing, removing and disposal of the temporary pavement.

Section 56-2 CONSTRUCTION DETAILS

The first paragraph shall be amended as follows:
The sod shall be removed to a uniform depth of approximately two (2) inches with an approved type of sod cutter. This operation shall be performed in such manner as to insure uniform thickness of sod throughout the operation. If the stored sod is not replaced within ten days, all other work shall cease until this is accomplished.

The first sentence in the third paragraph shall be amended as follows:
Prior to replacing the strips of sod, the scalped area shall be carefully shaped to proper grade, rototilled to a depth of six (6) inches and lightly compacted.
The first sentence in the fourth paragraph shall be amended as follows:

After rototilling, shaping and lightly compacting the finished grade, the top soil shall be thoroughly dampened and fertilized prior to and immediately before replacing the sod.

NEW SECTION

Section 56-2.01 REPLACEMENT WITH NEW SOD

Sod: All sod shall comply with the State and Federal laws, including quarantines, with respect to inspection, plant diseases and insect infestation. Sod shipments shall have a certificate of origin and/or certification of approved treatment when shipment originates in known infected areas. All sod shipments shall contain a "State of Washington Nursery Inspection" sticker issued by the Washington State Department of Agriculture, Division of Plant Industries.

All sod shall be guaranteed to survive in a healthy condition through an establishment period of ninety (90) days. The establishment period shall commence on the date of acceptance of placed sod by the Engineer. All and which, in the opinion of the Engineer, is not in a healthy growing condition at the end of the establishment period, shall be removed and replaced by the contractor at his own expense. Sod that is replaced shall be of the same mixture and grade as the surviving sod.

Sod shall be mature, densely-rooted grass and shall be free of weeds and reasonably free of objectionable grasses. Sod shall be cut to a uniform depth of 1-1/2 inches with an approved sod cutter.

Grading: Areas to receive sod shall be cleared, grubbed and leveled to a depth of five (5) inches below grade. Three (3) inches of top soil shall be evenly spread over and cultivated into the top six (6) inches of existing soil and compacted to a depth of two (2) inches below grade. Top soil shall be placed according to Section 47-1.01 through 3.03 and Section 55 of the APA Standard Specifications.

Placement: The sod shall be placed in accordance with standard horticultural practices. Immediately prior to placement of the sod, a 10-20-20 fertilizer shall be rototilled into the top six (6) inches of the soil at the rate of one pound (4 lbs.) of available nitrogen per 1,000 square feet. Dry soil shall be moistened by sprinkling. All butt joints shall be staggered. On sloped areas, the sod shall be laid with the long dimension parallel to the top or the toe of slope. After placing, the sod shall be rolled and heavily watered by sprinkling.

Establishment: The contractor shall be responsible for watering and fertilizing the sod during the establishment period. Watering shall be scheduled to prevent drying of joints between sod strips. 6-2-4 fertilizer shall be applied at six (6) week intervals at the rate of 1 to 1-1/2 pounds of available nitrogen per 1,000 square feet per application.

Measurement and Payment: The unit contract price bid for "Sodding," per square foot, shall be full compensation for labor, materials, tools and equipment and for all incidental work necessary to complete the required sodding. The unit contract price shall include but not be limited to: All costs of preparing earth surfaces, placing sod, and fertilization and maintenance. Measurement for payment shall be made by the square yard of sod actually installed.

NEW SECTION

Section 56-5 LAWN AND REPLACEMENT BY SEEDING

In lieu of removing and replacing sod as provided in Section 56 of the Standard Plans and Specifications, the Contractor may furnish and place six (6) inches of top soil and organic fertilizer and reseed the disturbed areas.

Top soil shall be as specified in Section 55-2.01 of the Standard Plans and Specifications.

Organic fertilizer shall consist of not less than six percent (6%) nitrogen, ten percent (10%) superphosphate and four percent (4%) potash and shall be applied at the rate of one (1) pound per fifteen (15) square feet.

Seed mix and rate of application shall be as specified in the special provisions. Seed shall be properly raked in and protected with Horticulture Peat Moss one-fourth (1/4) inch thick.

During the lawn establishment period the Contractor shall accomplish the following minimum requirements:

1. Mowing shall be done as often as conditions dictate. Maximum height of lawn shall not exceed 3 inches. The cutting height shall be 1-1/2 inches with all cuttings removed.

2. Water application shall be accomplished each week from March through September. The rate and frequency of water application shall be directed by the Engineer, depending on weather and soil conditions.

All work performed under lawn establishment shall be performed by qualified turf management personnel and shall comply with good turf management practices.

Acceptance of lawn planting as herein specified shall be based on a uniform stand of grass and a uniform grade at the time of final inspection. Areas of four square feet or more that are bare or have a poor stand of grass and areas not having a uniform grade through any cause before final inspection, shall be regraded, reseeded or resodded and refertilized as herein specified at the Contractor’s expense.

Section 57-2 CONSTRUCTION DETAILS

The following shall be added after the fifth paragraph:

The Owner will not clean existing catch basins involved on any improvement, after award of contract by the Board of Public Works.

The Contractor shall accept the condition of all existing catch basins involved on the improvement and shall maintain then for the duration of the contract in a manner satisfactory to the Engineer.
The Engineer shall note defective parts found on the existing catch basins prior to construction operations by the Contractor on any area of the improvement. Where directed by the Engineer, the Contractor shall make the required repairs to the existing catch basins and full compensation therefore will be provided in Section 9.04.

Delete the last two sentences in paragraph nine and substitute the following:

Water for flushing will be furnished at no cost to the Contractor in accordance with the applicable provisions of Section 5-1.13.

Sidewalks shall be cleaned by hand brooming in conjunction with water if necessary.

NEW SECTION
Section 58 - CHAIN LINK FENCE
NEW SECTION
Section 58-1 DESCRIPTION

Chain link fence and wire fence of the types specified shall be constructed at the locations shown on the plans or where directed by the Engineer, and shall conform to these specifications and the Standard Plans. (File No. 857-78)

Chain link fence shall be of diamond woven wire mesh mounted on steel posts.

Metal gates shall consist of a metal frame or frames covered with wire mesh.

NEW SECTION
Section 58-2 MATERIALS
NEW SECTION
Section 58-2.01 CHAIN LINK FENCE AND GATES
NEW SECTION
Section 58-2.01A GENERAL

All material used in the construction of the fence shall be new. Iron or steel material shall be galvanized. Imperfectly galvanized material, or material upon which serious abrasions of galvanizing occur, will not be acceptable.

Posts, braces, top rails and gate frames shall be galvanized in accordance with the requirements of ASTM Designation A 120 or A 123 except that the requirements for adherence of zinc coating in paragraph 9 (b) of said designation A 123 shall not apply. Fittings, attachments and hardware shall be galvanized in accordance with the requirements of ASTM Designation A 153. Other materials shall be galvanized as specified hereinafter.

The base material for the manufacture of steel pipes used for posts, braces, top rails and gate frames shall conform to the requirements of ASTM Designation A 53. The base material for the manufacture of steel columns shall be good commercial quality weldable steel meeting the requirements of ASTM Designation A 7, except that the allowable maximum carbon content shall be 0.50 percent (.50%).

NEW SECTION
Section 58-2.01B POSTS

Line posts shall be as shown on City of Seattle Standard Plan Pila No. 857-78.

A tolerance of minus four percent (4%) on the weight per linear foot of individual posts will be permitted provided that any three (3) posts selected at random from the stock proposed for use on the project have an average weight meeting the minimum specified above.

Gate posts shall be three and one-half (3-1/2) inches nominal diameter hot-dip galvanized pipe with nominal weight of nine and one-tenth (9.1) pounds per linear foot.

End, corner and pull posts (braced line posts) shall be two and one-half (2-1/2) inches nominal diameter hot-dip galvanized pipe with nominal weight of 5.79 pounds per linear foot.

All posts shall be fitted with an approved top so designed as to fit securely over the post and carry the top rail or cable. The base of the top fitting shall carry an apron around the outside of the post.

NEW SECTION
Section 58-2.01C TOP RAILS

Top rails shall be hot-dip galvanized pipe one and one-fourth (1-1/4) inch nominal diameter, nominal weight 2.27 pounds per linear foot, or one and one-half (1-1/2) inch by one and five-sixth (1-5/6) inch H column, minimum weight two (2.0) pounds per linear foot. Couplings shall be outside sleeve type and at least seven (7) inches long.

NEW SECTION
Section 58-2.01D CABLE

Top tension cable shall be three-eights (3/8) inch diameter hot-dip galvanized seven (7) strand steel cable conforming to the requirements of ASTM Designation A 122, Common Grade. Galvanizing shall be Class A.

NEW SECTION
Section 58-2.01E CABLE ATTACHMENTS

All cable attachments shall be hot-dip galvanized steel unless otherwise specified. Shoulder eye bolts shall be five-eights (5/8) inch diameter and of sufficient length to fasten to the type of posts used. Turnbuckles shall be of
the shackle end type, one-half (1/2) inch diameter, with standard makeup to six (6) inches and provided with three-eights (3/8) inch diameter pins. Thimbles shall be light weight wire rope thimbles for use with three-eights (3/8) inch diameter cable. Wire rope clips shall have a U-bolt diameter of seven-sixteenths (7/16) inch for use with three-eights (3/8) inch diameter cable. Anchor shackles shall be three-eights (3/8) inch diameter with a minimum distance between eyes of eleven-sixteenths (11/16) inch and a pin diameter of seven-sixteenths (7/16) inch. Setting shall be sixteen (16) gage galvanized annealed iron wire.

NEW SECTION

Section 58-2.0.1F BRACES AND TRUSS RODS

Compression braces shall be hot-dip galvanized material of the same type and size as the top rail. Tension truss rods shall be three-eights (3/8) inch round galvanized rods with drop forged turnbuckles, or other approved type of adjustment.

NEW SECTION

Section 58-2.0.1G FITTINGS

Fittings shall be hot-dip galvanized malleable cast iron or pressed steel. Fittings for any particular fence shall be those furnished by the manufacturer of the fence.

NEW SECTION

Section 58-2.0.1H CHAIN LINK FENCE FABRIC

Chain link fence fabric shall consist of eleven (11) gage wire (0.120 inch in diameter) for fences under sixty (60) inches in height (Type No. 2), or nine (9) gage wire (0.148 inch in diameter) for fences sixty (60) inches or over in height (Type No. 1).

The wire may be of aluminum alloy complying with the Aluminum Association requirements for alloy 6061-T6S or it may be iron or steel wire which shall meet all of the requirements of ASTM Designation A 392. Galvanizing shall be Class 1 and shall be done after weaving.

The wire shall be woven into approximately two (2) inch diamond mesh.

The width of the fabric shall be shown on the plans.

Chain link fence fabric shall be finished at top and bottom as shown on the plans, either with a "twisted and barbed" selvage or "knuckled selvage." Barbing shall be done by cutting the wire on the bias.

NEW SECTION

Section 58-2.0.1J TIE WIRE

Tie wire shall be nine (9) gage aluminum wire or nine (9) gage galvanized wire meeting the requirements of ASTM Designation A 116. Galvanizing shall be Class 1.
shall have a minimum width one (1) inch greater than the largest dimension of the post section to be set. The posts shall be cut before installation to lengths which will give the required length of post above ground, or if the Contractor so selects he may use an even length of post set at greater depth into the solid rock.

After the post is set and plumbed the hole will be filled with grout consisting of one (1) part portland cement and three (3) parts clean, well graded sand. The grout shall be thoroughly worked into the hole so as to leave no voids. The grout shall be crowned to carry water from the post. Where posts are set in the above manner, concrete footings will not be required.

Where solid rock is covered by an overburden of soil or loose rock, the posts shall be set to the full depth shown on the plan unless the penetration into solid rock reaches the minimum depth specified above, in which case the depth of penetration may be terminated. Concrete footings shall be constructed from the solid rock to the top of the ground on Type No. 1 fence and on end, pull and anchor line posts on Type No. 2 fence. Grouting will be required on the portion of the post in solid rock.

"Pull posts" as used in these specifications shall be heavy weight line posts braced to adjacent line posts in the manner shown on the Standard Plan, and spaced at one-thousand (1,000) foot maximum intervals for Type No. 1 fence and at five hundred (500) foot maximum intervals for Type No. 2 fence.

End, gate, and end pull posts shall be braced to the adjacent line post, and corner and pull posts to the two adjacent line posts in the manner shown on the Standard Plan. Changes in line of thirty (30) degrees or more shall be considered as corners.

NEW SECTION

Section 58-3.01B TOP RAIL

Top rails shall pass through the ornamental tops of the line posts, forming a continuous brace from end to end of each stretch of fence. Lengths of top rail shall be joined by sleeve type couplings. Top rails shall be securely fastened to terminal posts by pressed steel fittings.

NEW SECTION

Section 58-3.01C TOP TENSION CABLE

Top tension cable shall pass through the ornamental top of the line posts. One continuous length of cable shall be used between pull posts. The cable shall be used between pull posts. The cable shall pass through the pull post top and down to the base of the next line 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 posts after the chain link mesh has been attached to the cable. The Contractor shall provide temporary bracing on pull posts when applying tension to one length of cable at a time, to prevent undue 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 as close to the posts as possible to minimize the deflection of the post if one of the cables should be parted.

The cable shall be fastened to the top of the end pull post with an eye bolt through the post and a turnbuckle connecting the eye bolt to the cable. The end pull post shall be braced to the bottom of the end post with a short length of cable attached as shown on the Standard Plan. A length of cable shall connect the end pull post and the end post at the top and 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 pipe and lock washer and the nut tightened 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 eye bolts to the base of the H column post in order to take the strain of the cable tension off the web of the H column.

All holes drilled in the post sections shall be cleaned and painted as hereinafter specified for welded areas on gates before the eye bolts are installed.

The ends of all cables shall be seized with annealed wire passed around the end of cable and the line cable as shown on the Standard Plan. The seizing 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 face of the post away from the highway, and on Type No. 2 fence on the face of the posts designated by the Engineer, except that on curves the 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 approximately one (1) inch above the ground and on a straight grade between posts by excavating high points of ground. Filling of depressions will be permitted only upon approval of the Engineer. The fabric on Type No. 2 fence shall be placed a maximum of twelve (12) inches above the ground.

The fabric shall be stretched taut and securely fastened to the posts. Fastening to end, gate, corner, and pull posts shall be with stretchers bars and fabric bands spaced at one (1) foot intervals. The fabric shall be cut and each span attached independently at all pull and corner posts. Fastening to line posts shall be with tie wire, metal bands or other approved method, attached at fourteen (14) inch intervals. The top edge of the fabric shall be fastened to the top rail with tie wires spaced at eighteen (18) inch intervals, or to the top tension cable with tie wires placed at two foot six-inch (2'-6") intervals.
Rolls of wire fabric shall be joined by weaving 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 stretcher bars and fabric bands, and to the top and bottom bars of the gate frames by tie wires in the same manner as specified hereinbefore for the chain link fence fabric, or by other standard methods if 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 loose or cracked spelter removed. The clean areas shall then be painted with two (2) coats of zinc oxide-zinc dust paint compounded in a suitable vehicle 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, crowned 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 MOVING STRIP

The bottom of the fence shall be provided with a cement concrete moving strip in accordance with the cross section detail as shown on the plan. The cement concrete moving strip shall be centered on the fence. Concrete shall be "Class 5 (3/4)" and shall be placed on a subgrade which has been thoroughly compacted. Prior to placing the concrete, the subgrade and forms shall be thoroughly wetted.

The concrete moving strip may be poured after the completion of concrete bases forming a neat continuous slab surface. A one-quarter (1/4) inch through expansion joint 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 edged to a radius of one-quarter (1/4) inch. Concrete shall be cured in accordance with Section 59-3.20.

NEW SECTION

Section 58-4 MEASUREMENT

Chain link fence will be measured by linear foot of completed fence, exclusive of openings.

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

-73-

NEW SECTION

Section 58-5 PAYMENT

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

1. "Chain Link Fence Type No. 1," per linear foot.
2. "Chain Link Fence Type No. 2," per linear foot.
3. "Double 14' Chain Link Gate," per each.
4. "Double 20' Chain Link Gate," per each.
5. "Cement Concrete Moving Strip," per linear foot.

Payment for the various items specified above shall be full compensation for furnishing all labor, materials, tools and equipment necessary or incidental to the construction of the complete fence, gates, including excavation, backfilling, tamping, concrete footings, miscellaneous hardware, smoothing the irregularities of the ground at the fence site, clearing the line for the fence, and disposing of all debris to the satisfaction of the Engineer.

NEW SECTION

Section 59 BEAM GUARD RAIL

NEW SECTION

Section 59-1 DESCRIPTION

Beam guard rail 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.

Beam guard rail shall consist of a steel plate mounted on one or both sides of reinforced concrete or wood posts. Terminal sections of rail, as detailed on the plans, shall be installed at both ends of a complete guard rail section unless their omission is authorized by the Engineer.

NEW SECTION

Section 59-2 MATERIALS

NEW SECTION

Section 59-2.01 RAIL ELEMENT

The rail element and terminal sections shall consist of twelve-gauge (12-gauge) 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
hearth or electric furnace steel. The physical property of the steel 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 p.s.i.</td>
</tr>
<tr>
<td>Yield point strength</td>
<td>50,000 p.s.i.</td>
</tr>
<tr>
<td>Elongation in two inches</td>
<td>25,000 p.s.i.</td>
</tr>
</tbody>
</table>

The rail splices shall have a minimum total ultimate strength of 80,000 pounds at each joint.

The holes in the plate shall be slotted to facilitate erection and to permit expansion and contraction. The edges of the rail shall be rolled or rounded so they will present no sharp edges. Where the rail is on a curve, the plates at the splice shall make contact throughout the area of the splice. When the radius of curvature is less than one hundred fifty (150) feet, the rail shall be shaped in the shop.

NEW SECTION
Section 59-2.01A INSPECTION

The Contractor shall give ample notice to the Engineer before the rail elements are fabricated in order that inspection may be provided. The Contractor shall arrange for all facilities necessary for the inspection of material and workmanship at the point of fabrication of the rail element, and inspectors shall be allowed free access to the necessary parts of the premises.

The inspector shall have the authority to reject materials or workmanship which do not fulfill the requirements of the specifications. In cases of dispute the Contractor may appeal to the Engineer, whose decision shall be final.

The inspector may accept a mill test report certifying that the steel used in fabricating the rail elements meets the requirements of the specifications. The Owner reserves the right, however, to require the Contractor to furnish samples of the steel proposed for use and to determine to the Owner’s satisfaction that the steel meets the specifications requirements.

It is the intent of these specifications that the inspection will be performed at the point of fabrication. Plant inspection is intended as a means of facilitating the work and avoiding error. It is expressly understood that inspection at the fabricating plant will not relieve the Contractor from responsibility for material and workmanship meeting the specifications, nor from his obligation to replace material found to be defective in any particular after delivery to the site of the work.

NEW SECTION
Section 59-2.02 POSTS

Posts for beam guard rail, unless concrete posts are specified in the special provisions, may be creosote treated or pentachlorophenol treated wood posts or reinforced concrete posts, whichever kind the Contractor may elect to use;

provided, however, that only one type of post shall be used on any one project. Posts shall be of the dimensions shown on the plans and shall meet the requirements of these specifications.

NEW SECTION
Section 59-2.02A TREATED TIMBER POSTS

Timber posts shall be square, eight (8) inches by eight (8) inches 545 and shall conform to the grade specified in Division V. The posts shall be shaped as shown on the plans before being treated.

Timber posts shall be pressure treated by the empty cell process to provide a minimum retention of eight (8) pounds of creosote oil or four-tenth (0.4) pounds of pentachlorophenol per cubic foot of timber in accordance with Division V.

NEW SECTION
Section 59-2.02B PRECAST REINFORCED CONCRETE POSTS

Precast concrete posts shall be round, reinforced concrete posts eight-inch (8") minimum to nine-inch (9") maximum diameter. The post may be tapered from nine-inch (9") diameter at the bottom to eight-inch (8") diameter at the top to allow for vertical stripping of the form. If a tapered post is furnished, the larger end will be at the bottom of the post.

Portland cement and water shall comply with the requirements of the standard specifications for the materials. Aggregates shall meet all requirements of specifications except for grading. The maximum size of aggregate shall be appropriate for the dimension of the post and the combined aggregate shall be well graded from coarse to fine.

The materials used in the concrete shall develop on test not less than thirty-five hundred (3,500) pounds per square inch compressive 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 82, Cold Drawn Steel Wire for Concrete Reinforcement.
(b) Intermediate grade steel bars, deformed type, meeting the requirements of ASTM Designation A 15, Billet-Steel Bars for Concrete Reinforcement, and ASTM Designation A 305, Minimum Requirements for the Deformed Steel Bars for Concrete Reinforcement.

The metal reinforcement in Type A posts shall be spaced and arranged to provide not less than sixty per cent (60%) nor more than seventy per cent (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 bottom of the post, metal reinforcing shall be placed no closer than one (1) inch from the outer surface of the post. When deformed bars are used for reinforcement, there 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 heavier reinforced (roadway) face of the post. Centered and tapered bolt holes will be acceptable identification. Tapered holes shall taper from seven-eighths (7/8) inch to one and one-eighth (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 spaced 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.

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

NEW SECTION
Section 59-2.0281 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.) provided the finished post is true in form and shape, is free of fractures, cracks, honeycomb and other serious defects, and meets the requirements for strength. The presence of web after stripping the fresh concrete, or of surface holes up to one-half (1/2) inch in diameter and three-sixteenths (3/16) inch in depth, will not be considered defects sufficient for rejection. It is the intent of these specifications to provide a post manufactured in a careful and workmanlike manner with a surface that is reasonably dense and uniform in color, but without the more refined surface finish usually required when the product is to be painted.

NEW SECTION
Section 59-2.0282 STRENGTH REQUIREMENTS

When subjected to testing as a simple beam of twenty-four (24) inch span and center loading applied to either roadway face of the post, the reinforced post, when twenty-eight (28) days old, shall withstand a total load of not less than thirty thousand (30,000) pounds at failure.

NEW SECTION
Section 59-2.0283 TESTING

The Contractor shall be obligated to furnish the Engineer without charge for testing purposes, upon request, a minimum of two (2) representative reinforced concrete posts for any one (1) contract or a maximum of one per cent (1%) of the number of posts specified for any one (1) contract, whichever option the Engineer may determine to be necessary.

NEW SECTION
Section 59-2.03 GALVANIZING

All rail elements shall be galvanized in accordance with ASTM Designation A 93, Coating Class 2.5. Bolts, nuts and washers shall be galvanized in accordance with the requirements of ASTM Designation A 153, Zinc Coating on Hardware, Iron and Steel.
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 59-4 MEASUREMENT

Measurement of beam guard rail shall be by the linear foot measured along the
line of the completed guard rail from end to end of terminal sections, or from
end to end rail sections if terminal sections are not installed.

NEW SECTION

Section 59-5 PAYMENT

The unit contract prices per linear foot for "Single 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.
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 59-4 MEASUREMENT
Measurement of bean guard rail shall be by the linear foot measured along the line of the completed guard rail from end to end of terminal sections, or from end to end rail sections if terminal sections are not installed.

NEW SECTION
Section 59-5 PAYMENT
The unit contract prices per linear foot for "Single 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.

TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>Pipe Materials and Testing for Sewers, Drains and Culverts</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>Trench Excavation, Backfill, Foundation and Bedding for Sewers, Drains and Culverts</td>
<td>1</td>
</tr>
<tr>
<td>62</td>
<td>Pipe Laying, Jointing and Testing</td>
<td>4</td>
</tr>
<tr>
<td>63</td>
<td>Manholes for Storm and Sanitary Sewers</td>
<td>4</td>
</tr>
<tr>
<td>64</td>
<td>Catch Basins and Inlets</td>
<td>5</td>
</tr>
<tr>
<td>66</td>
<td>Side Sewers</td>
<td>6</td>
</tr>
<tr>
<td>67</td>
<td>Pipe Covering and Embankment for Sewer Construction</td>
<td>6</td>
</tr>
</tbody>
</table>
DIVISION III - SANITARY SEWERS AND STORM DRAINS

Section 60-3.018 CONCRETE PIPE, REINFORCED

Add the following at the end of the 3rd paragraph:

"The pipe shall be tested by the three-edge bearing method in accordance with ASTM C497."

Section 61-2 CLASSIFICATION

This section shall be deleted.

Section 61-2.01 TRENCH EXCAVATION AND BACKFILL, CLASS A

This section shall be deleted.

Section 61-2.02 TRENCH EXCAVATION AND BACKFILL, CLASS B

This section shall be deleted.

Section 61-2.03 TRENCH EXCAVATION AND BACKFILL, CLASS C

Title shall read:

Section 61-2.03 "TRENCH EXCAVATION AND BACKFILL IN SOLID ROCK"

In the first line of paragraph one, change the words "Class C" to "Solid Rock Excavation."

Section 61-3.01 EXCAVATION

In the 2nd paragraph after the word follows:, add the following:

(See standard drawing on Typical Trench Section)

Section 61-3.01A FOUNDATION PREPARATION

Method 2 Ballasting:

The last paragraph shall be amended as follows:

Where foundation material is required and is so indicated on the plans, all costs for its procurement and placement, including removal and disposal of the unsuitable material, shall be included in the unit contract price for "Foundation Material." Where foundation material is not shown on the plans and no bid item is included in the proposal, and it is determined by the Engineer that foundation material is required, payment for furnishing and placing the material, including removal and disposal of the unsuitable material, will be made in accordance with Section 9-1.03.
Section 61-3.03C BEDDING FOR RIGID CONDUITS
Delete the last sentence in the 3rd paragraph.

Section 61-3.03 C2 CLASS B BEDDING
In the 3rd line of the 2nd paragraph, change 27" to 30."
In the 8th line of the 2nd paragraph, change "springline" to "a point 6" above the top of the pipe."

Section 61-3.03 C3 CLASS C BEDDING
In the last line of the paragraph, change "lower quadrant" to "springline."

Section 61-3.03 C5 MATERIALS
Delete the entire section and add the following:
Materials shall be as indicated on the standard plans.

Section 61-3.05 BACKFILLING FOR SEWERS AND DRAINS
Delete the last paragraph.

Section 61-3.06A WATER SETTLING
This section shall be amended as follows:
Water settling will not be permitted, unless authorized in writing by the Engineer.

Section 61-3.06B MECHANICAL COMPACTION
The last paragraph shall be amended as follows:
When mechanical compaction is specified, backfill shall be placed in lifts of 12-inches or less and each lift shall be compacted to at least 95% of the maximum density as determined by the Compaction Control Test specified in Section 13-3.10E. Water settling will not be permitted.

Section 61-3.07 BANK RUN GRAVEL FOR TRENCH BACKFILL
In the 6th and 7th lines of the paragraph, delete the wording "Bank Run Gravel, Class A or Class B as specified in Section 26-2" and substitute the wording "Type No. 17 Mineral Aggregates as specified in Section 20."

Section 61-3.11 TOP SOIL REMOVAL AND REPLACEMENT
Amend the entire paragraph as follows:
Removal of top soil and replacement of it shall be performed in accordance with the provisions of Section 25. Where no bid item is taken, the cost shall be considered as incidental to the contract.

Section 61-3.12 LAWNH MOWING AND REPLACEMENT
Amend the entire paragraph as follows:
Removal of lawn and the replacement of it shall be performed in accordance with the provisions of Section 26. Where no bid item is taken, the cost shall be considered as incidental to the contract.

Section 61-4.01B MEASUREMENT BY THE CUBIC YARD
In the last paragraph under "Width," delete both sentences and make reference to Section 61-3.01. Under "Depth," revise as follows: "The vertical measurement shall be for the actual compacted depth of imported backfill material placed."
Delete the last paragraph pertaining to measurement.

Section 61-4.01C UNEXPECTED OBJECTS
This section shall be amended as follows:
Where unexpected objects such as stumps, railroad ties, buried pavement, etc. are encountered in the trench excavation and such unexpected objects cause the contractor delays and requires extra work or equipment for its removal and disposal, Section 4-1.05 shall apply.

Section 61-4.04 FOUNDATION MATERIAL
Amend this section as follows:
Foundation material will be measured by the cubic yard as determined by cross section based on the trench width as specified in Section 61-4.01B.

Section 61-4.07 COMPACTING EQUIPMENT
This section shall be deleted.

Section 61-5 PAYMENT
This section shall be amended as follows:
Bid Items Nos. 1 through 8 shall be deleted.
Bid Item Nos. 9 and 10 shall be replaced by the following:
"Bank Run Gravel for Trench Backfill, Type No. ( )," per cubic yard.
Bid Item Nos. 11, 12 and 13 shall be replaced by the following:
"Pipe Bedding (Class) (Size) Pipe," per linear foot.
Bid Item Nos. 15, 16, 17, 18, 19 and 20 shall be deleted.
Section 62-3.10 TESTING FOR ACCEPTANCE

Title of this section was inadvertently omitted. Place title immediately following the one sentence in Section 62-3.09B.

Section 62-3.10D AIR PRESSURE TEST FOR SEwers AND STorm DRAINS CONSTRUCTED OF AIR-PENETRABLE MATERIALS

Delete the 2nd sentence under Item No. 2.

Section 62-4 MEASUREMENT

In the 4th line of the 1st paragraph after "center of" add the words "new or re-channeled."

In the 5th line of the 1st paragraph after the word "structures" add the words "or to manholes not channeled."

Add the following sentence:

Measurement for sewer payment is shown in diagram on Standard Plan No. 179.

Section 63-2.09B PRECAST MANHOLE SECTIONS

The 1st paragraph shall be amended as follows:

Standard precast sections shall consist of circular sections, in standard nominal inside diameters, 36", 48", and 72". Heights of sections shall be multiples of 12" at option of the manufacturer, excepting however, that each manufacturer shall produce at least three standard heights in each standard diameter. The nominal thickness of the 36" and 48" sections shall be 4", and the nominal thickness of the 72" sections shall be 6".

The following shall be added after the amended last paragraph:

Reinforcement for standard sections shall consist of a single cage of steel, placed at the approximate center of the wall of the section. The 36" and 48" standard sections shall have not less than 0.12 square inches, and the 72" standard sections not less than 0.17 square inches of circumferential steel per linear foot. The cage shall be circumferential steel per linear foot. The cage shall be welded at every circumferential wire, or laid 40 diameters and tied. The welded splice shall develop a tensile strength of 50,000 psi of wire diameter.

Joints between sections shall be tongue and groove, and shall provide 1/2" nominal annular space and a minimum of 1-1/4" lap.

No more than two lift holes shall be cast into each section. Holes shall be so located as to not damage reinforcing or expose it to corrosion. At the manufacturer's option, steel loops may be provided for handling, in lieu of lift holes.

Section 63-2.09C PRE-CAST CONES

In the second line, change "86" to "36".

Section 63-3.02 BEDDING

This section shall be amended as follows:

Manholes constructed with precast base sections, unless otherwise provided in the special provisions or directed by the Engineer, shall be placed to grade upon a four inch (4") thickness of Type No. 9 mineral aggregate of Section 20, mixed with four (4) sacks of portland cement per cubic yard of mineral aggregate, with sufficient water added to form a stabilized layer. The mix material shall be placed across the entire width of the manhole base excavation and leveled so as to provide bearing contact with the entire bottom area of the precast base section.

Section 63-3.07 MONOLITHIC CONCRETE MANHOLES

Delete reference to "Type IV" in the last line of the paragraph.

Section 63-3.11 CHANNELS

Add the following paragraph:

Where necessary or noted on the plans, the contractor shall rebuild the channel of the existing manhole in such a manner as will provide for flow of sewage through the manhole bottom to the new pipe sewer. All costs incurred in re-channelling of existing manholes shall be considered as incidental to the contract, unless a bid is taken for this work.

Section 63-3.12 PIPE CONNECTIONS

In the 2nd line of the paragraph, delete the figure "1" after the word "within."

In the 3rd line, add the words "outside face" just ahead of "manhole structure."

After the first sentence, add the following:

No flexible joint will be placed closer than twelve (12) inches from the outside face of the manhole.

Delete the last sentence.

Section 64-1.02 TRAPS

Amend as follows:

Traps shall be constructed in accordance with the Standard Drawing.
Section 66-5 PAYMENT
Delete bid item No. 3.
Add the following bid item:
"Test Tees, (size)," per each.

Section 67-2.01 PIPE BED
Amend the 1st paragraph as follows:
The area upon which the embankment for the pipe bed is to be placed shall be stripped to the extent as directed by the Engineer and the cost thereof will be included in the cost of the pipe.
Section 66-5 PAYMENT
Delete bid item No. 3.
Add the following bid item:
"Test Tees, (size)," per each.
Section 67-2.01 PIPE BED
Amend the last paragraph as follows:
The area upon which the embankment for the pipe bed is to be placed shall be stripped to the extent as directed by the Engineer and the cost thereof will be included in the cost of the pipe.

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>72</td>
<td>Pipe for Watermains</td>
<td>1</td>
</tr>
<tr>
<td>73</td>
<td>Trench Excavation and Backfill for Water Mains</td>
<td>1</td>
</tr>
<tr>
<td>74</td>
<td>Pipe Installation for Watermains</td>
<td>3</td>
</tr>
<tr>
<td>75</td>
<td>Valves for Watermains</td>
<td>4</td>
</tr>
<tr>
<td>76</td>
<td>Valve Chambers and Boxes for Watermains</td>
<td>5</td>
</tr>
<tr>
<td>77</td>
<td>Fire Hydrants</td>
<td>5</td>
</tr>
<tr>
<td>78</td>
<td>Restoration and Cleanup of Watermain Construction</td>
<td>7</td>
</tr>
<tr>
<td>79</td>
<td>Water Distribution Pay Items</td>
<td>8</td>
</tr>
</tbody>
</table>
DIVISION IV WATER DISTRIBUTION

Section 72-2.08 PIPE FITTINGS
Section 72-2.08A CAST IRON

This section shall be amended as follows:
After the first four words in the paragraph, "All cast iron fittings," add the words "except sleeves."
After the first sentence, add the following:
"Sleeves shall be of the long body type (10" minimum length) and shall conform to the above mentioned specifications."

Section 73-1.03 REMOVAL OF PAVEMENT FROM DRIVEWAYS AND SIDEWALKS

This entire section shall be amended to read as follows:
Removal of existing street improvements shall be performed as specified in Section 51.

Section 73-1.04 GRADE AND ALIGNMENT

First paragraph, 2nd sentence. At the end of the sentence, delete the words "special provisions" and substitute the words "standard plan."

Section 73-1.05 LOCATING AND MARKING UNDERGROUND UTILITIES

Change reference to Section 73a. to read "See Sections 5-1.09 and 5-1.10."

Section 73-2 TRENCH EXCAVATION

The 1st sentence in the 3rd paragraph shall be amended to read as follows:
"Work shall comply with the requirements of the Washington Industrial Safety and Health Act of 1973 (WISHA)."

Section 73-2.02 SOLID ROCK EXCAVATION

Delete the 1st paragraph and refer to Section 61-2.03.

At the end of the 3rd paragraph, change reference to Section 73-3.03 to read "Section 5-1.04."
Section 73-2.04 UNFORESEEN BURIED OBJECTS ENCOUNTERED IN TRENCH EXCAVATION ON GRADED STREETS
Delete this entire section and refer to Section 61-4.01C.
Section 73-2.07 COMPACTING OF BACKFILL
In the last line of the last paragraph, delete the words “water settling or.”
Section 73-2.07A WATER SETTLING OF TRENCHES
This section shall be deleted.
Section 73-2.07B EQUIPMENT FOR WATER SETTLING TRENCHES
This section shall be deleted.
Section 73-2.07C SOURCE OF WATER FOR WATER SETTLING
This section shall be deleted.
Section 73-2.07D COMPACTING OF BACKFILL UNDER SPECIAL CONDITIONS
This section shall be amended to read as follows:
At locations where paved streets, driveways or sidewalks will be constructed or reconstructed over the trench, or where provided for in the special provisions or directed by the Engineer, the backfill shall be spread in layers and compacted as specified in Section 61.3-06.
Section 73-3.08 BANK RUN GRAVEL FOR TRENCH BACKFILL
In the first paragraph, delete the words “Class A or Class B” and change reference to Section 36 to Section 20.
Section 73-3.02 TRENCH EXCAVATION AND BACKFILL
Amend entire section as follows:
Full compensation for “Trench Excavation and Backfill” shall be regarded as included in the unit prices bid per linear foot for “Watermain” of the various sizes and classes as listed in the proposal, except where bank run gravel is ordered by the Engineer.
Section 73-3.03 SOLID ROCK EXCAVATION
Amend entire section as follows:
Payment for “Solid Rock Excavation” will be made in accordance with Section 9.1.04.
Section 73-3.04 REMOVAL AND REPLACEMENT OF UNSUITABLE MATERIAL
Delete the 1st paragraph.
In the 2nd paragraph, 1st line, after the word “available” add the words “as outlined in Section 73-2.05.”
Amend the 3rd paragraph as follows:
The cost of compaction of suitable replacement material shall be included in the various items comprising the improvement.
Section 73-3.05 MECHANICAL TAMPERING
This section shall be deleted.
Section 73-3.06 BANK RUN GRAVEL FOR TRENCH BACKFILL
In the 2nd paragraph, delete the last sentence and add the following:
“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.”
Section 74-2.10 CONNECTIONS TO EXISTING MAINS
Add the following at the end of the last paragraph:
The contractor shall furnish the necessary excavation and material handling equipment and shall be available to assist in making the connection.
Section 74-2.12 FIELD TESTS
Delete the 2nd sentence in the 4th paragraph.
In the 5th paragraph, delete the word “gate” found in the 2nd, 3rd and 5th lines.
Section 74-2.12A TESTING SECTION WITH HYDRANTS INSTALLED
Amend Test No. 3 as follows:
Each hydrant shall be tested in accordance with requirements outlined in Section 74-2.12.
Section 74-2.12B TESTING EXTENSIONS FROM EXISTING MAINS
Delete the word “gate” in lines 2, 3, 5, 8 and 11 in paragraph one, lines 2, 6, 8 in paragraph two, and lines 4 and 6 in paragraph three.
Section 74-2.13A FLUSHING

Amend the last sentence in the 2nd paragraph as follows:

Taps required for chlorination or flushing purposes will be furnished and installed by the Utility.

Section 74-3.02 PAYMENT FOR WATER MAINS AND WATER SERVICE CONNECTIONS

Amend the 2nd paragraph as follows:

Special Fittings used but not called for on the plans, will be paid for at the supplier's invoice cost plus 15% for overhead and profit. Special fittings called for on the plans but not used will be deducted from the Contractor's final estimate based on the current cost of the supplier of fittings used on the improvement.

Amend the 3rd paragraph as follows:

Pipe line accessories such as hydrants, hydrant connections, gate valves, etc., will be paid for separately as provided in Sections 77 and 72. Excavation and backfilling of trenches shall be incidental to the construction and shall be included in the various unit prices bid for pipe line accessories.

Section 74-3.05 TRENCH EXCAVATION AND BACKFILL FOR WATER SERVICE CONNECTIONS

This section shall be deleted.

Section 74-4 UNIT PRICE METHOD OF PAYMENT FOR WATER DISTRIBUTION MAIN CONSTRUCTION

This section shall be deleted.

Section 74-4.01 MEASUREMENT OF WATER MAINS FOR UNIT PRICE PAYMENT

This section shall be deleted.

Section 74-4.02 PAYMENT FOR WATER MAINS CONSTRUCTION UNDER UNIT PRICE METHOD

This section shall be deleted.

Section 75-1 DESCRIPTION

The last sentence in the 2nd paragraph shall be amended as follows:

All valves shall be counter-clockwise.

3rd paragraph: Amend ANIA C504-70 to read ANIA C504-74.

The following paragraph shall be added:

The Owner will accept only gate valves of the following manufacturers as approved by the Board of Standardization conformance to these specifications:

Brensealair, Stockham, Ludlow, Iowa, M & H, Darling, Crane, Pacific States, RP & C, Mueller and Kennedy in sizes twelve (12) inch or less, and any other approved by the Board of Standardization prior to the date of contract.

-4-

Section 76-1 DESCRIPTION

2nd line, 1st paragraph, delete the words "cast iron."

3rd line, 2nd paragraph, delete the words "gate."

NEW SECTION

Section 76-2.01A PLASTIC VALVE BOXES

Plastic valve boxes shall be two place, adjustable telescoping type with metal lid and flange or ring portion. They shall be suitable for use with 2" through 12" ANFA double disc, non-rising stem valves. Boxes shall be adjustable in length from a minimum of 28" to a maximum of 60". Minimum diameter of interior of either section shall be 6". Extension sections shall be available. Acceptable valve boxes shall be those manufactured by Handley Industries, Inc., Plymouth, or equal, and shall meet requirements as detailed on the standard drawing.

Section 76-3.06 CAST IRON VALVE BOXES

Amend title to read: Section 76-3.06 VALVE BOXES

1st sentence, 1st paragraph, delete the words "cast iron."

2nd and 3rd sentences, 1st paragraph, delete the word "gate."

1st sentence, 2nd paragraph, delete the words "cast iron."

3rd and 7th sentences, 2nd paragraph, delete the word "gate."

Section 76-4.01 PAYMENT FOR VALVE CHAMBERS

4th sentence, 2nd paragraph, delete the words "cast iron."

Section 76-4.02 PAYMENT FOR CAST IRON VALVE BOXES

Amend title to read: Section 76-4.02 PAYMENT FOR VALVE BOXES

1st and 4th sentences of the paragraph, delete the words "cast iron."

Section 77-2.05 HYDRANT DIMENSIONS

The 1st line of the section shall be amended to read as follows:

The dimensions and details shall be as shown on the standard drawings.

Section 77-2.07 SHACKLING LUGS

This section shall be amended as follows:

Lugs for harnessing the hydrant to the main in the street shall be provided as shown on the standard drawings.

-5-
Section 77-2.10 PAINTING

2nd paragraph shall be amended to read as follows:

"The outside of the hydrant above the finished ground line after backfilling is completed, shall be thoroughly cleaned and then painted with one (1) coat of Hydrant Green paint, Farrow Paint Co., X-158, or equal."

Section 77-3.01 SETTING HYDRANTS

Add the following paragraph:

Hydrant shackle rods, if used, shall be thoroughly cleaned and painted, after installation, with 2 coats of asphalt varnish, as specified in Section 77-2.10, or with such other bituminous paint as may be authorized by the Engineer.

Section 77-3.02 HYDRANT CONNECTIONS

This section shall be deleted.

Section 77-3.02A SHACKLE RODS

This section shall be deleted.

Section 77-3.02B AUXILIARY VALVES

All auxiliary valves shall conform to Section 75 in all respects and shall be installed in accordance with the standard drawing.

Section 77-3.04 MOVING EXISTING HYDRANTS

In the next to the last sentence, delete the following words:

"for hydrant setting Type A and Type B."

NEW SECTION

Section 77-3.07 RETAINING WALLS FOR HYDRANTS

Where directed by the Engineer, the contractor shall furnish and place broken concrete sidewalk slabs or rockery rock for bulkheads around hydrants in accordance with the standard drawing.

The broken concrete slabs shall be a minimum of 2-1/2 inches in thickness and not less than 3 feet x 3.5 feet in size. The slabs shall be set in level layers of the same thickness and the exposed face shall be as smooth as the shape and size of the slabs will permit.

The rockery rock shall be sound quarried rock, durable, free of cracks and the source of rock shall be approved by the Engineer before placement.

The backfill behind the slab or rockery shall be compacted earth from the job site as approved by the Engineer.

Measurement and Payment: Payment will be made at the unit price bid per square foot for "Retaining Wall for Hydrant," which shall be full compensation for all labor, material and equipment to place the rockery rock or slab concrete in place.

Measurement shall be on the front face area in place.

Section 77-4.01 PAYMENT FOR FIRE HYDRANTS

This section shall be amended to read as follows:

Payment will be made at the unit contract price per each for "Hydrant, Six (6) Inch Connection" which shall be full compensation for the hydrant in place. As incidental thereto, the contractor shall include in his unit contract prices of hydrants all costs of every kind for six (6) inch auxiliary valves, valve boxes, castings, shacles, tie rods, pet blocks, coarse gravel, painting, and other items required for the complete installation of the hydrant as specified, excepting however, that the six (6) inch pipe connecting the hub and flange casting to the main will be paid for at the unit contract price per linear foot for "Hydrant Connection."

Section 78-1 GENERAL

The 1st paragraph shall be amended to read as follows:

Surface improvements such as pavement curb, curb and gutter and other like surface facilities that have been removed during the construction of water mains, shall be restored by the contractor as outlined in Sections 52 and 54.

The 2nd paragraph shall be deleted.

Section 78-2.01 REMOVAL OF EXISTING STREET IMPROVEMENTS

This section shall be amended as follows:

Removal and disposal of existing street improvements shall be done in accordance with Section 52.

Section 78-2.02 RESTORATION OF EXISTING STREET IMPROVEMENTS

Amend the 1st paragraph as follows:

Restoring of existing street improvements shall be as specified in Sections 52 and 54.

The 2nd and 3rd paragraphs shall be deleted.

Section 78-3.01 EXISTING STREET IMPROVEMENTS

The end of the first sentence shall be amended to read as follows:

"payment will be limited as specified in Section 73-2."

-7-
The 2nd sentence shall be amended as follows:

"Any surfaces requiring restoration outside of this limit which is removed or damaged by the contractor, shall be restored by him at his own expense."

Section 78-3.02 CEMENT CONCRETE CURB, CURB AND GUTTER
The 2nd sentence in the 1st paragraph shall be amended as follows:

"Measurement for payment will be restricted as outlined in Section 73-2."

The remainder of the section shall be deleted.

NEW SECTION
Section 79 WATER DISTRIBUTION PAY ITEMS
Payment will be made at the unit contract price for each of the following bids as are included in the proposal:

1. Clearing and Grubbing, per Lump Sum
2. Mobilization, per Lump Sum
3. (Gate or Butterfly) Valve, (size), per Each
4. Valve Chamber, Standard, per Each
5. Valve Chamber, Large, per Each
6. Valve Chamber Throat Extension, per Linear Foot
7. Valve Box, per Each
8. (size type) (class) Watermain including Fittings, per Linear Foot
9. Hydrant, (size) Connection, per Each
10. (size type) (class) Hydrant Connection Pipe, per Linear Foot
11. Hydrant Extension Vertical, per Pound
12. Hydrant Extension Horizontal, per Pound
13. Replacing Existing Hydrants, per each
14. Moving Existing Hydrants, per each
15. Reconnecting Existing Hydrants, per each
16. 1-1/2-inch Blow-off Assembly, per Each
17. 1-1/2-inch Copper Pipe, per Linear Foot
18. Concrete Blocking, in place, per Cubic Yard
19. Retaining Wall for Hydrant, per Square Foot

Trench excavation and backfill and removal and replacement of existing improvements shall be accomplished in accordance with the provisions of Division III, except that pipe bedding will not be used.

The cost of items not listed in the proposal shall be considered as incidental to the contract and no separate payment shall be made therefor.
**Note:** Standard Dwg. Nos. 122, 136, 137, 156, 158, 168, 169, 170, 178, 193 and 207 listed below can be found in the 1975 APWA book under APWA Dwg. number indicated.

**DIVISION VII STANDARD PLANS**

<table>
<thead>
<tr>
<th>Plan No.</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Types of Joints for Concrete Pavement</td>
</tr>
<tr>
<td>102</td>
<td>Arterial Pavement Sections</td>
</tr>
<tr>
<td>103</td>
<td>Residential Pavement Sections</td>
</tr>
<tr>
<td>104</td>
<td>Cement Concrete Alley Pavements</td>
</tr>
<tr>
<td>104.1</td>
<td>Cement Concrete Alley Pavement with Support Wall</td>
</tr>
<tr>
<td>104.1A</td>
<td>Cement Concrete Alley Pavement with Support Wall</td>
</tr>
<tr>
<td>106</td>
<td>Type 106 Driveway</td>
</tr>
<tr>
<td>107</td>
<td>Concrete Driveway Placed with Sidewalk Construction</td>
</tr>
<tr>
<td>108</td>
<td>Type 108 Curbs</td>
</tr>
<tr>
<td>110</td>
<td>Type 110 Curbs</td>
</tr>
<tr>
<td>112</td>
<td>Joints and Curb Dowels</td>
</tr>
<tr>
<td>113</td>
<td>Wheel Chair Ramp</td>
</tr>
<tr>
<td>114</td>
<td>Sidewalk Details</td>
</tr>
<tr>
<td>114.1</td>
<td>Monolithic Curb and Sidewalk</td>
</tr>
<tr>
<td>115</td>
<td>Cement Concrete Stairway Construction Details</td>
</tr>
<tr>
<td>116</td>
<td>Steel Pipe Handrail Construction Details</td>
</tr>
<tr>
<td>117</td>
<td>Sidewalk Drain</td>
</tr>
<tr>
<td>118</td>
<td>Monument Cone</td>
</tr>
<tr>
<td>121</td>
<td>Pavement Patching</td>
</tr>
<tr>
<td>121.1</td>
<td>Typical Trench Sections</td>
</tr>
<tr>
<td>122</td>
<td>(APWA Dwg. 224) Extruded Asphalt Concrete Sections</td>
</tr>
<tr>
<td>123</td>
<td>Type 123 Traffic Curbs Precast Cement Concrete</td>
</tr>
<tr>
<td>124</td>
<td>Type 124 Traffic Curbs Block-Precast Cement Concrete</td>
</tr>
<tr>
<td>125</td>
<td>Type 125 Traffic Buttons</td>
</tr>
<tr>
<td>126</td>
<td>Type 126 Terminal Housing Illuminated</td>
</tr>
<tr>
<td>127</td>
<td>Type 127 Terminal Housing Illuminated</td>
</tr>
<tr>
<td>130</td>
<td>Type 130 Manhole</td>
</tr>
<tr>
<td>131</td>
<td>Concrete Block, Brick or Monolithic Concrete Manholes</td>
</tr>
<tr>
<td>132</td>
<td>Type 132 Manhole</td>
</tr>
<tr>
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<tr>
<td>135</td>
<td>Type 135 Manhole</td>
</tr>
<tr>
<td>136</td>
<td>(APWA Dwg. 299) Type 136 Manhole</td>
</tr>
<tr>
<td>137</td>
<td>(APWA Dwg. 233) Drop Connection</td>
</tr>
<tr>
<td>138</td>
<td>Ladder and Manhole Step</td>
</tr>
<tr>
<td>141</td>
<td>Type 141-24 Inch Diameter Manhole Ring and Cover or Valve Chamber Ring and Cover</td>
</tr>
<tr>
<td>145</td>
<td>Manhole Ring Extensions</td>
</tr>
<tr>
<td>149</td>
<td>Location of Catch Basin with Inlets</td>
</tr>
<tr>
<td>150</td>
<td>Type 150 Catch Basin</td>
</tr>
<tr>
<td>151</td>
<td>Type 151 Catch Basin</td>
</tr>
<tr>
<td>152</td>
<td>Type 152 Catch Basin</td>
</tr>
<tr>
<td>153</td>
<td>Type 153 Catch Basin</td>
</tr>
<tr>
<td>153.1</td>
<td>Type 153 Catch Basin Installation</td>
</tr>
</tbody>
</table>
102 A - Cement Concrete Pavement

102 B - Asphalt Concrete on Cement Concrete Base

102 C - Asphalt Concrete on Crushed Rock Base

103 A - Cement Concrete Pavement with Integral Curb

103 B - Cement Concrete Pavement, Curb and Gutter Existing

103 C - Asphalt Concrete on Cement Concrete Base

103 D - Asphalt Concrete on Crushed Rock Base

For spacing of Construction or Contraction Joints See Std. Spec. Sec. 39-318.

* When Construction Joint thickened edge required.
104 A - Cement Concrete Alley Pavement

104 B - Cement Concrete Alley Pavement For Shallow Embankment Area

Note:
When alley pavement is 18' or wider place contraction joint along centerline of alley.
Notes:

1. Provide Cutoff Wall:
   a. When Wall Height Exceeds 2'-0".
   b. When Alley Pav. Width is Less Than 10'-0".
   c. When Type 104.1 Support Wall is Required on the Opposite Side of the Alley.

2. Provide Wall Expansion Joints at 24` o.c. Max.


4. Construction Joint:
   When Construction of Wall is not Integral With the Alley Pav., a Construction Joint Shall be Provided at the Top and/or Bottom of the Alley Pav. Slab With the Shear Key Indentations Spaced 18` o.c. See Detail of Shear Key Form at Right.

---

**City of Seattle**

**Department of Engineering**

Cement Concrete Alley Paving with Retaining Wall

**Approved by**

[Signature]

**Type 106 Driveway**

[Signature]

[Stamp]
For Type 108A Curb, placed along edge of existing pavement. Expansion joints shall be placed for full depth of curb to match location of joints in existing pavement.

*Gutter shall be skpped the same as adjacent pav. For spacing of Construction Joints see Std. Specs. Sec. 40-3.07F

For Curb Dowels see Std. Specs. Sec. 39-3.15
Standard Plan No.110

110A Curb
(For Horizontal Curb and Sidewalk See Std. Plan No.114.1)

110B Curb and Gutter

110C Curb

For Type 110A Curb placed along edge of existing pavement, expansion Joints shall be placed for full depth of curb to match location of joints in existing pavement.

*Gutter shall be shipped the same as adjacent curb.

For spacing of Contraction Joints see Std. Specs. Sec 40-3.01F

DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 110 Curbs

Joint Holder

APPROVED BY THE BOARD OF PUBLIC WORKS

For Curb Dowels see Std. Specs. Sec 35-3.15

DO NOT SCALE

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DEPARTMENT OF ENGINEERING

Joints and Curb Dowels
Vertical Backface of Curb shall be formed against native earth where practical, otherwise by Backform left in place.
Surface marking of C.W. begins from longitudinal Curb marking 0" from Face of Curb.
124 C-Block
124 C-Reflector Block
124 A-Block
124 A-Reflector Block

Type 125A
11" Plastic Button
Type 125B
8" Plastic Button
Type 125C
4" Lane Marker

DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING
Type 124 Traffic Curbs
Black Precast Cement Concrete

APPROVED BY THE BOARD OF PUBLIC WORKS
MAYOR & CITY
CHIEF OF ENGINEERING

Type 125
Traffic Buttons

APPROVED BY THE BOARD OF PUBLIC WORKS
MAYOR & CITY
CHIEF OF ENGINEERING
138B - Manhole Step

138A - Prefabricated Ladder

*Length Dimension when Ladder is used with Precast Reducing Slabs.

Rungs and Irons to be deformed or non-skid.

Materials for Aluminum Ladder-Irons and Prefabricated Ladders, or Galvanized Deformed Bar Ladder-Irons and Prefabricated Ladders, shall conform to the specifications therein in Section 63-206A and Section 63-206B, respectively.

Designate Nodular Iron as Type 141N
(Modular Iron to be used for Cover Only)

Designate Locking Cover as Type 141L

Designate Shallow Ring as Type 141S
(For Shallow Ring, "5" Dimension to be 4.5)

Combinations of Type Designations May Be Used
(Example: Type 141-LNB - Type 141 Locking Cover, Nodular Iron, Shallow Ring)
Manhole ring extension shall be tested for accuracy of fit. See Std. Spec. Sec. 113.

All Castings to have a bituminous coating according to Std. Spec. Sec. 46 206.

Distance "W" for Catch Basin location varies according to "IT" as located by the City Engineer for making satisfactory pipe connections and to clear other underground utilities.

**CITY OF SEATTLE**
**DEPARTMENT OF ENGINEERING**

Manhole Ring Extensions

Approved by the Board of Public Works

[Signature]
[Signature]
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 150 Catch Basin

Notes:
1. Invert of inlet pipes must be above invert of outlet pipe.
2. Values of "t":
   - Concrete: 1-1/2" to 2-1/2" thick
   - Brick: 1-1/2" to 2-1/2" thick
3. See Std. Spec. Sec. 64 for further requirements.

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 151 Catch Basin

Notes:
1. Invert of inlet pipes must be above invert of outlet pipe.
2. Values of "t":
   - Concrete: 1-1/2" to 2-1/2" thick
   - Brick: 1-1/2" to 2-1/2" thick
3. See Std. Spec. Sec. 64 for further requirements.
Pipe Connection to approved outlet

Pipe Connection from Inlet

Ring & Cover or
Frame & Grate - See
Standard Plan No. 141 or APWA No. 49

Leveling Brick
See Std. Spec. Sec. 64-301

Type 155 Cover and
Extension Units as Specified
See Std. Plan No. 155

Pipe from Inlet
Invert of inlet pipe must be
above invert of outlet pipe

Outlet Trap
See Std. Plan
No. 162 or 183

Pipe connection to approved outlet

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 152 Catch Basin

All lift holes and joints to be filled with mortar.
For installation see Std. Plan No. 1531

Compacted backfill shall be placed around
Catch Basin before pipe connection is made.
Type 163A is to be used only where the catch basin outlet pipe makes an angle of more than 10° with the horizontal. Type 163B or Type 163C is to be used only where the catch basin outlet pipe makes an angle of less than 10° with the horizontal.

The Aluminum Self-Locking Trap may be used at the option of the contractor as an alternate to Type 162A and Type 162B traps as shown on Standard Plan No. 162.
Standard Plan No1641

Bank of Curb
Plain of Curb
Curb Line

Plan

Section X-X

Stage of Graded Roadway or Pavement
Curtain Subgrade

Pipe Connection

Concrete Class C15 Street

Type 154 Inlet
See Std Plan No154

Section Y-Y

DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 154 Inlet Installation

Approved by the Board of Public Works

For Inlet Installation See Std Plan No 1551

Standard Plan No155

Outlet Pipe
Outlet
Compacted Backfill

Section B-B

Alternate Outlet Pipe Locations

Type 156 Ductile and Type 157 Grate
See Std Plan No 155A 4B

Leveling Brick
See Std Specs Sec 64-306

Compacted Backfill

Pipe Connection to Catch Basin or other approved outlet

Concrete C15 or Concrete Block with interior Coating of 1/2" Mortar.

Curtain Outlet Pipe of Inlet included in payment for Inlet.
Pipe Connector payment separate from payment for Inlet.
See Std Specs Sec 69-304

Cost

DEPARTMENT OF ENGINEERING
Type 155 Inlet Installation

DEPARTMENT OF ENGINEERING

CITY OF SEATTLE

Cast Outlet Pipe of Inlet included in payment for Inlet
Pipe Connection payment separate from payment for Inlet
See Std. Spec. Sec. 69-304
For installation see Std. Plan No. 155.1
All construction to be in accordance with current Side Sewer Ordinance.

Complete legal description of property and dimensions A, B, C, and D that show the size and location of the house are mandatory for issuance of permit.

1. All house plumbing outlets must be connected to the sewer.
2. No downspouts or storm drainage may be connected, except to separate storm drain.
3. 30" min. distance from house.
4. 18" min. coverage of pipe.
5. 30" min. coverage at property line.
6. 5" min. coverage at curb line.
7. Lay pipe in straight line between bends. Make all changes in grade or line with 1/2 bend or wye. 90° change with wye and 1/2 bend.
8. Standard 4" to 6" increaser.
9. 4" sewer pipe—min. size in street, and elsewhere as directed.
10. Use "T" with plug.
11. Cast or VT plug.
12. Construction in street must be done by a licensed sewer contractor.

Method of obtaining 2% min. grade.

Attach 1/2" knob or piece of scrap material to level. Lay level on belts of pipe with knob pointing in direction of flow. Level bubble must read level. Attach straight board to short levels to reach both belts.

**CITY OF SEATTLE**

Department of Engineering

Sanitary Side Sewer Installation

Pipe Bedding

Concrete Class 41/2

Select Native Material

-4" When D is less than 30"
-6" When D is 30' or more

Reinforcement shall be specified on the Construction Drawing for Class X Bedding.

Concrete shall have a maximum water-cement ratio of 0.5 and a minimum cement factor of 4.
Payment Shall Be Made For:

1. Pipe diameters "A" or "B" or "C" - Per Linear Foot.
2. Tees or Wyes of proper size, type and with plug - Unit price each in addition to unit price per foot for "A", "B" or "C".

All Pipe shall be measured on the slope along the ξ of Pipe.

All fire hydrant threads nipples such as the 2 1/2 in discharge ports and the 4 in pumper nozzle shall be equipped with the blunt start or Higbee Cut.

The 2 1/2 in nipples shall be in accordance with the National Fire Protection Association Bulletin No. 194, dated 1963.

Hydrant tees shall be set horizontally - connection shall be level.
All fire hydrant threaded nipples such as the 2-1/2 in. discharge ports and the 4 in. pumper nozzle shall be equipped with the blunt start or Higbee Cut.

The 2-1/2 in. nipples shall be in accordance with the National Fire Protection Association Bulletin No. 194, dated 1963.

Hydrant tees shall be set horizontally—connection shall be level.

**CITY OF SEATTLE**
**DEPARTMENT OF ENGINEERING**

**Type 1801 Hydrant Setting—Residential**

**Type 181 Hydrant Setting—Business Dist.**

Approved by the Board of Public Works

[Signature]

AUGUST 19, 1963

[Stamp: City of Seattle]
1½ BLOW-OFF DETAIL FOR C-PIPE - 6 INCH AND LARGER

FOR 6 INCH, use 1½ x 1½ Mueller Thread Corp. #110003 & 1½ x 1½ Copper Adapter #12450.

DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING
1½ inch Blow-off Assembly

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 5, 1983
ATTACHMENTS: Standard Plan No. 182

Standard Plan No. 183

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING
Type 183 Valve Chamber-Masonry Construction

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 5, 1983
ATTACHMENTS: Standard Plan No. 183
Concrete - Compressive strength 3000 psi at 28 days.

When C-Pipe Dia is 4" to 6" or 8":
- 10'-0" Min.
- 10'-0" Max.

When C-Pipe Dia is 12":
- 15'-8" Min.
- 15'-8" Max.

Reinforcing Plan

All bars shall be #4 spaced 3" OC. Except where noted

Detail A

Butterfly Valves:
- When W' Pipe Dia is 4", 6", or 8":
  - 4'-10" I.D.
  - 4'-10" O.D.
- When W' Pipe Dia is 12":
  - 6'-10" I.D.
  - 6'-10" O.D.

Gate Valves:
- When A Pipe Dia is 4", 6", or 8":
  - 4'-10" I.D.
  - 4'-10" O.D.
- When W' Pipe Dia is 12":
  - 6'-10" I.D.
  - 6'-10" O.D.

NOTE: Butterfly valve installation shown if gate valve is used or if dimension 'E' is greater than shown. Additional ladder irons and/or alternate location of ladder irons shall be as specified by the Engineer.
Concrete for top cap shall be class B 16 - 3000 psi. steel reinforcing bars shall conform to ASTM A615 grade 40. Max. aggregate size shall be 3/4.

**DO NOT SCALE**

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

**Type 185 Valve Chamber**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>30</td>
<td>40</td>
</tr>
</tbody>
</table>

Approved by the Board of Public Works

<table>
<thead>
<tr>
<th>Signature</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Superintendent</td>
</tr>
</tbody>
</table>

**Ring and Cover shall be tested for accuracy of fit and shall be marked in sets for delivery.**

All Castings to have a bituminous coating according to Std. Specs Sec 03-2-08.

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

**Type 187 - 25 1/2’’ Valve Chamber Ring and Cover**

Approved by the Board of Public Works

<table>
<thead>
<tr>
<th>Signature</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
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</table>

**WATER**

1” Dia. Lift Hole (Typ.)
3 Pieces

Section A-A

Bottom View
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

6 Inch Hub and Flange Mechanical Joint

DO NOT SCALE

Extension Piece

DO NOT SCALE

City of Seattle Valve Box

Approved by the Board of Public Works
JANUARY 1, 1946

Extension Piece

Section A-A

Flange and Cover shall be tested for accuracy of fit and shall be marked in sets for delivery.

All Castings to have a bituminous coating according to Std. Spec. Sec. 6.3.208.
Standard Plan No. 194

Standard Plan No. 195

Watermains Constructed in Fill

DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Watermain Construction Detail

APPROVED BY THE BOARD OF PUBLIC WORKS

[Signatures]
The Contractor shall erect restricted overhead clearance signs for the benefit of railway traffic when they are called for in the special provisions. These signs shall be fully reflectorized. In general, the signs shall be erected as a protection when the vertical clearance will be restricted to less than 22'-6" measured from the top of the highest rail. The signs shall be mounted on the outside face of the fallwork at the center of the span over the tracks and above the restricted overhead clearance line. All cost for the furnishing, erection and dismounting of the signs shall be considered as incidental to the improvement and no separate payment will be made.
<table>
<thead>
<tr>
<th>ITEM</th>
<th>EXISTING</th>
<th>PEN</th>
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* OR EQUAL
### Standard Plan No 216.3

**Item**
- Hydrant
- Gate Valve
- Gate Valve w/Chamber
- Gate Valve w/185 Chamber
- Reducer
- Air Valve
- Blow Off
- Water Meter
- Transmission Pole
- Metal Pole w/MVU
- Metal Pole w/VP3
- Strain Pole
- Combined Lighting Pole
- Combined Lighting and Strain Pole (MVU)
- Combined Lighting and Strain Pole (VP3)
- Traffic Signal Mast (MVU)
- Traffic Signal Mast (VP3)
- Sign Pole
- Increased Height Sign Pole
- Increased Height Sign Pole w/Arm
- Street Lighting Standard
- Street Lighting Standard w/Arm
- City Wood Pole w/Anchor
- City Wood Pole w/Anchor (HPS)
- Utility Wood Pole w/Anchor (HPS)
- Utility Pole w/Anchor (HPS)
- Utility Wood Pole w/Anchor (MVU)
- Utility Pole w/Anchor (MVU)
- Street Lighting Standard (MVU)
- Street Lighting Standard (VP3)
- Street Lighting Standard w/Arm (MVU)
- Street Lighting Standard w/Arm (VP3)
- Street Lighting Standard w/Arm (HPS)
- Electrical Cable (Direct Burial)
- Electrical Conduit
- Electrical Duct
- Telephone Duct
- Electrical Duct w/Arm
- Telephone Duct w/Arm
- Electrical Duct w/Arm (MVU)
- Telephone Duct w/Arm (MVU)
- Electrical Duct w/Arm (VP3)
- Telephone Duct w/Arm (VP3)
- Electrical Duct w/Arm (HPS)
- Telephone Duct w/Arm (HPS)
- Electrical Duct w/Arm (HPS)
- Telephone Duct w/Arm (HPS)
- Electrical Duct w/Arm (HPS)
- Telephone Duct w/Arm (HPS)

**City of Seattle**

**Department of Engineering**

**Standard Symbols**