City of Ferndale

Whatcom County, Washington

Contract Documents
for the Construction of

THIRD AVENUE STORMWATER IMPROVEMENTS

City of Ferndale – Project # ST2014-02

CITY OF FERNDALE
Public Works Department
PO Box 936
2095 Main Street
Ferndale, WA 98248
Tel. (360) 384-4006
www.cityofferndale.org

WILSON ENGINEERING, L.L.C.
805 Dupont Street, Suite 7
Bellingham, Washington 98225
Tel. (360) 733-6100
April 14, 2017
www.wilsonengineering.com

Funded in Part
by the Washington
State Department of Ecology

CERTIFICATION

I hereby certify that these contract documents were prepared by me or under my direct supervision and that I am a licensed Professional Engineer under the laws of the State of Washington.

5-5-2017

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PART I - BID PROCEDURES AND CONDITIONS

ADVERTISEMENT FOR BIDS

INVITATION TO BID
FOR
THIRD AVENUE STORMWATER IMPROVEMENTS PROJECT
 # ST2014-02

NOTICE IS HEREBY GIVEN by CITY OF FERNDALE that sealed bid proposals will be received by the City of Ferndale at Ferndale City Hall, 2095 Main Street, Ferndale, Washington, 98248, (360) 384-4006, until May 23, 2017 at 3:00 PM, and will then and there be opened and publicly read for the **Third Avenue Stormwater Improvements Project.**

PROJECT DESCRIPTION: Work will include traffic control; roadway reconstruction; stormwater L.I.D. improvements; upgrades to the existing water and sewer lines; and other work in accordance with the Contract Plans, Special Provisions, the Standard Specifications, including the amendments thereto, and Standard Plans.

Bid Guaranty
All bid proposals shall be accompanied by a bid proposal deposit in cash, certified check, cashier's check, or surety bond in an amount equal to five percent (5%) of the amount of such bid proposal. Should the successful bidder fail to enter into such contract and furnish satisfactory performance bond and payment bond both in an amount of 100 percent (100%) of the contract price within the time stated in the specifications, the bid proposal deposit shall be forfeited to the City of Ferndale. All bidders and subcontractors shall have a contractor's license to work in the State of Washington and a City of Ferndale Business License before starting work. All work performed on this project will be subject to prevailing state wage rates.

Project Documents:
Maps, plans, and specifications may be obtained from the Ferndale City Hall upon payment in the amount of $50 for specifications and plan sets. Informational copies of maps, plans and specifications are on file for inspection in the Ferndale City Hall, 2095 Main Street, Ferndale, Washington 98248. An electronic version of the project plans and specifications are available for download on the City of Ferndale website at www.cityofferndale.org/thirdaveproject if you download the bid documents you are required to contact the City to be added to the planholders' list.

Pre-Bid Conference
Bidders, prior to submittal of a bid, may attend a pre-bid conference with the Project Engineer. The meeting will start on May 18, 2017 at 10:00 AM at the Ferndale City Hall, 2095 Main Street, Ferndale, Washington 98248. A jobsite visit may follow upon request.

The City of Ferndale in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Transportation, Subtitle A, Office of the Secretary, Part 21, Nondiscrimination in Federally-Assisted Programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively ensure that in any contract entered into pursuant to this advertisement, disadvantaged business enterprises as defined at 49 CFR Part 26 will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, national origin, or sex in consideration for an award.

The City of Ferndale is an Equal Opportunity and Affirmative Action Employer. Minority and Women-Owned firms are encouraged to submit bids.

INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

1. Bidder Qualifications

A. Prospective Bidders shall be registered by the Washington State Department of Labor and Industries in accordance with state law.
B. Corporations shall be registered with the State of Washington, Office of the Secretary of State.
C. Bidders shall be regularly employed in the type of work contemplated herein.

2. Bidder's Representations

Submittal of a bid shall be deemed conclusive evidence that the bidder has:
A. Carefully examined the proposed work site, become familiar with conditions impacting the work, and incorporated such observations into the bid.
B. Read and understands the bidding and contract documents.
C. The bid is without exception based on the materials, equipment and systems required by the bidding documents.
D. The bid was made based on a complete set of Bidding Documents. The Owner (City of Ferndale) is not responsible for any bidding errors resulting from the use of incomplete documents.

3. Document Interpretation

A. The bidder shall carefully study and review the Bid Documents and promptly report any errors or omissions to the Engineer.
B. Bidders or sub-bidders shall make any requests for clarification to the Engineer. If so directed, the Engineer may require the Bidder submit request in writing
C. Interpretations, corrections and changes to the Bidding Documents shall be made by Addendum. Interpretations, corrections and changes to the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely on them.
D. Substitutions shall not be considered prior to the receipt of bids. The Owner is not responsible for any bidding errors resulting from the use of substitutions.

4. Addenda

A. Addenda will be emailed, mailed, delivered or faxed to all who are shown on the planholders' list for this project, as available on the City's website (www.cityofferndale.org).
B. The Bidder shall acknowledge receipt of addenda in their bid.

5. Bidding Procedures

A. To be considered responsive, bids shall be submitted on the enclosed form and shall be filled in by typewriter or manually in ink.
B. The Bid form shall include the Bidder's legal name exactly as it appears on his/her registration. Form shall be signed by the individual authorized to represent the Bidder.
C. A list of subcontractors individually accounting for more than 10-percent of the Contract Sum and the work said subcontractor will perform shall be submitted with the bid or

within one hour of the published bid time.

6. Pre-Bid Meeting

A. There will be a pre-bid meeting at date and time shown on the Advertisement for Bids.
B. Prior to attending the pre-bid conference bidders shall have carefully studied and compared all drawings, specifications and other instructions to identify any inconsistency or omission. Also any discrepancies between the contract documents and the physical condition of the locality shall be identified. The intent is to identify any questions or concerns regarding the proposed improvements that the bidders may have.

7. Bid Security

A. Each Bid shall be accompanied by a Bid Security in the form of a cashier's check, certified check or surety bond equal to 5-percent of the total Bid amount. Security shall pledge that the Bidder shall enter into a contract with the Owner in accordance with the terms of the Bid Documents including furnishing payment and performance bonds.
B. In the event a Bidder refuses to enter into such contract or fail to furnish such bonds as required, the bid security shall be forfeited to the Owner as liquidated damages.
C. The Owner may retain bid securities submitted with the bid until such time as; (1) the contract has been executed and bonds received, (2) 30-days have elapsed, (3) all Bids have been rejected.

8. Submission of Bids

A. Bids shall be submitted in a sealed envelope. Envelopes shall clearly show (1) the project's name and owner as it appears on the Bid Solicitation, (2) the Contractor's name and registration number, and (3) the time and date of the bid opening.
B. Bids received after the published bid time and date will be returned unopened. The Bidder shall assume full responsibility for timely delivery of bid documents and the Owner is not responsible for bids received late.
C. Bids submitted by mail shall conform with the above requirements and be sent to City of Ferndale – Public Works Department, P.O. Box 936, 2095 Main Street, Ferndale, WA 98248, Attention: Third Ave Stormwater Improvements Bid.
D. Oral, facsimile or telegraphic bids, modifications, or adjustments are not valid and will not receive consideration.

9. Modification or Withdrawal of Bid

A. After the bid opening, bids shall not be withdrawn, modified or canceled by the Bidder during the stipulated time period.
B. Bids submitted by mail prior to the bid opening may be modified or withdrawn by notice to the Owner. Such notice shall be in writing and signed by the same authorized individual signing the bid form. If such modifications or withdrawals are transmitted electronically, the original document shall be mailed and postmarked on or before the date and time of the bid opening.
C. Withdrawn bids may be resubmitted up until the date and time of the bid opening and in accordance with these Instructions to Bidders.
D. Bid security shall be in an amount sufficient for the bid as modified or resubmitted.

10. Opening of Bids

A. Bids received on time will be opened and read aloud at the time and place stipulated in the Bid Solicitation. An abstract or tabulation will be made available to Bidders.

B. Should a Bidder discover an error in his/her bid after submittal, the Bidder may request withdrawal of the bid with the following conditions:

1. The Bidder must document the error(s) for the Owner. The Owner will review documentation and determine if the bid withdrawal will be allowed.
2. The Owner must receive the Bidder's intent to withdraw his/her bid submittal in writing no more than 30-hours after the bid opening (faxed notice is acceptable).
3. The Owner alone will approve or disapprove the request for withdrawal. If approved, the Bidder will no longer be considered for Contract award.
4. If the Bidder fails to notify the Owner in accordance of an error as set forth above, and the Owner awards the Bidder the Contract, the Bidder shall execute the Contract for the bid amount.

11. Rejection of Bids

A. The Owner reserves the right to reject any or all bids, reject a bid not accompanied by a proper bid security or other material required by the Bidding Documents, or reject a bid which is in anyway irregular or incomplete.

12. Acceptance of Bids

A. The Owner intends to award the Contract to the lowest responsible responsive bidder whose bid submittal does not exceed available funds and conforms with the requirements described herein. The Owner shall have the right to waive informalities or irregularities in a bid submittal and to accept the bid that, in the opinion of the Owner, is in the Owner's best interest.

B. Where called for, the Owner reserves the right to select or reject any combination of the alternate bid items listed on the Proposal, and determine the low bidder on the basis of the base bid and the alternates accepted.

13. Contract Bond

A. Successful Bidders shall provide a contract bond as attached. Contract bond shall be signed by an approved surety or sureties, be in the full contract amount, and cover the faithful performance of the work described in the Contract Documents. The Contract Bond shall be in full effect until one year after Substantial Completion.

14. Contract Agreement and Award

A. Owner's execution of the contract is contingent on the timely receipt of the Contract Bond and other submittals required by the Contract Documents.

B. The award of the Contract, if it be awarded, shall be made within 45-days of the bid opening to the Bidder deemed by the Owner to be the lowest responsible responsive bidder.

C. The 45-day period may be extended by mutual consent of the bidder and the Owner. If, after the 45-day period and no agreement to time extension has been made, the Contractor may withdraw his bid.

15. Execution of Contract

A. The Bidder to whom the contract has been awarded shall sign the contract and return

it and other submittals within 10 calendar days of the award.

B. The Owner shall have the right to reject a contract submitted by a bidder if it is qualified by reservations or conditions stipulated by the bidder or its surety.
C. No bid is binding on the Owner until executed by the City of Ferndale. No work shall be performed within the project site prior to the execution of the contract. Material or equipment orders or work undertaken away from the project site prior to contract execution shall be at the sole risk of the bidder.

16. Failure to Execute Contract

A. If the bidder to whom award has been made fails to sign the contract and furnish satisfactory bonds within 10 calendar days of the award, or declares in writing its intent not to execute the contract, the second lowest responsible bidder will be notified of its receipt of award.
B. If the second lowest responsible responsive bidder fails to execute the contract and furnish bonds within 20 calendar days after such notification, the third lowest responsible responsive bidder will be notified of its receipt of award, and in like manner until either (1) the contract and bond are executed by a responsible responsive bidder, (2) or further bid submittals are rejected, or (3) the number of bids submitted is exhausted.
C. If the contract is not executed by the Contractor and Owner within the stipulated time, and it is evident that circumstances warrant an extension of time, the Owner may extend the time for executing the contract and/or bond for a period not to exceed 10 additional calendar days.

17. Return of Bid Security

A. When bid submittals have been examined, bid securities and deposits accompanying submittals ineligible from further consideration will be returned.
B. All other bid securities and deposits will be held until the contract has been properly executed, after which bid securities and deposits except those subject to forfeiture will be returned.

Other Note:

It is anticipated that this project will be funded in part by the Washington State Department of Ecology. Neither the State of Washington nor any of its departments or employees are, or shall be, a party to this contract or any subcontract.

SCOPE OF WORK AND DESCRIPTION OF BID ITEMS

SCOPE OF WORK AND DESCRIPTION OF BID ITEMS

Payment for the various items of the Proposal, as further specified herein, shall include all compensation to be received by the CONTRACTOR for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor, operations, and incidentals appurtenant to the items of WORK being described, as necessary to complete the various items of the WORK all in accordance with the requirements of the Contract Documents, including all appurtenances thereto, and including all costs of permits and cost of compliance with the regulations of public agencies having jurisdiction, including Safety and Health Requirements of the Occupational Safety and Health Administration of the U.S. Department of Labor (OSHA).

Where referenced, "Standard Specification(s)" shall mean the Washington State Department of Transportation 2016 Standard Specifications for Road, Bridge, and Municipal Construction, M 41-10.

No separate payment will be made for any item that is not specifically set forth in the Proposal, and all costs therefor shall be included in the prices named in the Proposal for the various appurtenant items of WORK.

SCHEDULE A – ROADWAY
BID ITEM DESCRIPTIONS

A1. MOBILIZATION

This item shall consist of preparation work and operations performed by the Contractor in accordance with the provisions of Section 1-09.7 of the Standard Specifications. Included in mobilization shall be all costs associated with insurance, bonding, securing and developing construction staging areas, and bringing equipment and miscellaneous facilities to staging areas. Mobilization shall also include Demobilization.

Measurement shall be per lump sum. Payment shall be in accordance with Section 1-09.7 of the Standard Specifications.

A2. TRENCH SAFETY

For all trenches exceeding a depth of four feet, all costs for adequate trench safety systems shall be identified as a separate bid item in compliance with Chapter 39.04 RCW. The purpose of this provision is to ensure that the bidder agrees to comply with all relevant trench safety requirements of Chapter 49.17 RCW. This bid amount shall be considered part of the total base bid. Include a bid amount (even if the value is $0.00) to be considered responsive to the bid solicitation.

Measurement shall be lump sum. Payments shall be based on approximate percentage of completion of project.

A3A. TEMPORARY EROSION CONTROL

This item consists of all labor, materials, and equipment to provide all erosion control associated with determining, developing and implementing effective erosion and sediment control measures throughout the duration of the project in accordance with the TESC Plan, including but not limited to: Construction Road/Parking Area Stabilization, Construction of Stabilized Construction Entrance/Exit, Early application of gravel base on areas to be paved, Storm Drain Inlet Protection, Silt Fence, Straw Wattles, Temporary and Permanent Seeding Mulching, Nets and Blankets, Plastic Covering, Sodding, Polyacrylamide for Soil Erosion Protection, Dust Control, Outlet Protection, slope stabilization measures; and project sequencing.

Contractor shall be fully responsible for providing proper temporary bypass systems to route stormwater around construction areas or in tight-lines through construction areas if required during the duration of construction. Outlets to any swales, ditches or slopes that receive stormwater flow shall be fully stabilized or lined temporarily with erosion preventing material.

Measurement shall be per lump sum, in accordance with Section 1-10.5 of the Standard Specifications, which payment shall be full compensation for all tools, equipment, and labor required to complete this work as specified herein. Payments shall be based on approximate percentage of completion of project.

A3B. TEMPORARY EROSION CONTROL PER FORCE ACCOUNT

This item shall consist of additional temporary erosion control measures, not specified in the bid documents, as directed by the City. Requires written authorization from the City prior to work. Payment shall be on a force account basis in accordance with Section 1-09 of the Standard Specifications. For the purpose of providing a common proposal for all bidders, and for that purpose only, the City has established the amount of force account for this item and has entered the amount in the bid proposal to become a part of the total bid by the Contractor.

A4. PROJECT TEMPORARY TRAFFIC CONTROL

This item shall provide for the work required to provide project temporary traffic control as defined in Section 1-10.3 of the Standard Specifications and as shown on the Plans. This work includes furnishing, installing, and removing all temporary traffic control devices and flagging necessary for the project. All signage shall comply with MUTCD and WSDOT Standard Plans. Signage shall be furnished and installed at the beginning of the project and shall be removed upon final acceptance.

This item includes all flagging labor and traffic control devices shown on the plans and it also includes additional temporary traffic control labor and devices needed to obtain City approval of the temporary traffic control systems.

In addition, this item shall include temporary measures to ensure pedestrian protection along Main St and Alder St adjacent to the work site. When work areas encroach upon a sidewalk or crosswalk area, and minimum clear width of 48-inches cannot be maintained for pedestrian use, an alternative accessible pedestrian route shall be provided by the Contractor. Separation of pedestrians from the work area and vehicular traffic is required.

This item shall also include all labor, material, and equipment necessary to comply with all time of day and traffic access restrictions and requirements for the entire project, as noted on the plans, including all work within Third Ave, Main St, and Alder St.

This item also includes removal of temporary pavement markings, either mylar, plastic, or paint necessary for traffic control operations.

Furnishing a Traffic Control Supervisor (TCS) is considered incidental to this bid item. The Traffic Control Supervisor shall be on-site during all phases of the work. The name of the Traffic Control Supervisor shall be provided to the City.

This item also includes the provision of a Detailed Traffic Control Plan to the City for review, as required by the project plans.

Measurement shall be in accordance with Section 1-10.4(1) of the Standard Specifications and no other payment shall be allowed.

Payment for Project Temporary Traffic Control shall be per lump sum, in accordance with Section 1-10.5 of the Standard Specifications, which payment shall be full compensation for all tools, equipment, labor, including that provided by the TCS, materials, and incidentals required to complete this work as specified herein.

A5. DEMOLITION

This item shall consist of all labor, materials, and equipment required to perform all project demolition, whether explicitly shown on the plans or not, as shown on or as intended by the Plans. Demolition work includes, but is not limited to the following: clearing and grubbing per Section 2.01 of the Standard Specifications, saw cutting and removing all asphalt and/or cement concrete paved sections, sidewalk, curb and gutter, underground piping and structures, removing signage and salvaging to Owner, removing traffic control signal loops and conduit, removing channelization striping, removing bike racks, and removing all other items as shown on the Plans. Contractor is responsible not only for removal but also for the legal disposal of all demolition items, unless specifically noted on the Plans or in the Specifications to be salvaged to the Owner.

This work shall also include removal and decommissioning of existing site monitoring wells. Monitoring well piping and casing shall be cut at the bottom of the required limits of excavation and backfilled completely with sand. This work shall also include necessary reporting to the Department of Ecology for decommissioned monitoring wells.

AC water main removal is covered under a separate bid item.

Measurement shall be lump sum. Payment shall be for percentage of completion.

A6A. ROADWAY EXCAVATION AND EMBANKMENT INCLUDING HAUL

This item consists of excavating, hauling off site, and/or constructing embankments with material excavated, and grading the roadway, side streets, driveways, sidewalks and back slopes, to the subgrade or neat lines as shown on the plans or as directed by the Engineer. Surplus concrete and asphalt removal is covered under other specific bid items. Excavation for utilities, drainage, sewer, or other pipework is not included a part of this work. Excess material shall be disposed offsite in a suitable location provided by the contractor.

Measurement shall be lump sum based on the excavation shown in the Plans. Payment shall be for percentage of completion.

A6B. UNSUITABLE EXCAVATION & EXPORT

This work includes all labor, materials, and equipment necessary to excavate and dispose of offsite in a suitable location provided by the contractor, unsuitable material excavated from under roadway, structures, in trenches, and as directed by the Engineer. Written authorization is required.

For the purpose of providing a common proposal or all bidders, the quantity of over-excavation is 150 CY. The actual amount of required over-excavation will be measured and paid for as it is encountered and approved.

Measurement shall be per cubic yard of in-place material, measured in its original position by cross sections to the neat lines of the subgrade as staked and per plan. Payment shall be by the contract unit price.

A7. HOT MIX ASPHALT

This item consists of supplying and placing asphalt concrete pavement for the roadway section as shown on the Plans. This work includes procurement of HMA ½-inch Class with Performance Graded Binder PG-64-22, haul, delivery, placement, compaction, and sealing. HMA ½-inch Class shall be installed in accordance with Section 5-04 of the Standards Specifications. Crushed surfacing, gravel base, excavation, sawcutting, grinding/planing, and demolition are not considered a part of this work and will be addressed by other bid items in this Contract. This item includes HMA for restoring the surface of utility work.

The Contractor shall apply one application of an approved soil residual herbicide on all previously unpaved areas in order to prevent vegetation damage to the asphalt pavement. The soil residual herbicide to be used shall not have a detrimental chemical reaction to the asphalt pavement or damage the pavement. Application of the herbicide shall be a uniform spray in accordance with the manufacturer's recommendation and in accordance with the Standard Specifications.

Temporary pavement markings shall be placed until permanent markings are completed as outlined herein.

Measurement shall be tons delivered to the site, and shall be full compensation for furnishing all labor, equipment, and material to complete work as specified, including lane marker removal, tack coat, paving asphalt, and temporary pavement markings in accordance with Section 8-23 of the Standard Specifications. Weight tickets shall be collected onsite at the time of delivery by the Engineer or his designated assistant to qualify for payment.

Payment shall be by the contract unit price. The City will not pay for loads for which load slips are not received at time of delivery.

A8. PERVIOUS CONCRETE

This item consists of the placement of Pervious Portland Cement Concrete Pavement per the Plans and Specifications and in conformity with the lines and grades shown on the Plans or as directed by Engineer, including all labor, materials, tools, equipment and performing all other work and incidentals necessary to provide the finish products in accordance with the Plans and these Specifications.

Measurement shall be cubic yards installed. Payment shall be by the contract unit price.

A9. CONCRETE SIDEWALK

This item consists of the placement of cement concrete sidewalk per the Plans and in conformity with the lines and grades shown on the Plans or as directed by Engineer including all labor, materials, tools, equipment and performing all other work and incidentals necessary to provide the finish products in accordance with the Plans and Section 8-14 of the Standard Specifications. This item also includes aggregate base for installation of sidewalk per Plans. Work for cement concrete driveway entrances are paid for under other items.

Measurement shall be square yards installed. Payment shall be by the contract unit price.

A10. CEMENT CONCRETE DRIVEWAY ENTRANCE

This item consists of all labor, materials, and equipment necessary to install Portland cement concrete paving, as shown on the Plans. All materials shall conform to Sections 5-05, 9-01 and 9-03.1 of the Standard Specifications. This item also includes aggregate base for installation of driveway entrances per Plans.

Measurement shall be square yards installed. Payment shall be by the contract unit price.

A11. ADA RAMPS

This item consists of the placement of cement concrete sidewalk ramp in conformity with the lines and grades shown on the Plans or as directed by Engineer including all labor, materials, tools, equipment and performing all other work and incidentals necessary to provide the finish products in accordance with the Plans and these Specifications. This item also includes aggregate base for installation of ramps per Plans.

Measurement shall be per each installed. Payment shall be by the contract unit price.

A12. CRUSHED SURFACING TOP COURSE

This item shall consist of furnishing, placing, grading and compacting crushed surfacing top course in accordance with the typical sections and plans and specifications. Crushed surfacing top course shall be placed in conformance with the requirements of Section 4-04 of the Standard Specifications. Crushed surfacing top course shall meet the requirements of Top Course in Section 9.03.9(3) of the Standard Specifications.

The Contractor is advised that the crushed surfacing top course supplied must compact readily. Any top course that ruts after the initial compaction effort is not acceptable. Any water necessary to meet compaction requirements shall be incidental to this bid item.

Measurement shall be per ton measured in the truck at the point of loading and shall include all labor, materials and equipment to place, grade and compact the material as specified. The City will not pay for loads for which load slips are not received at the time of delivery. Payment shall be by the contract unit price.

A13. CRUSHED SURFACING BASE COURSE

This item shall consist of furnishing, placing, grading and compacting crushed surfacing base course in accordance with the typical sections and plans and specifications. Crushed surfacing base course shall be placed in conformance with the requirements of Section 4-04. Crushed surfacing base course shall meet the requirements of Base Course in Section 9.03.9(3) of the Standard Specifications.

The Contractor is advised that the crushed surfacing base course supplied must compact readily. Any top course that ruts after the initial compaction effort is not acceptable. Any water necessary to meet compaction requirements shall be incidental to this bid item.

Measurement shall be per ton measured in the truck at the point of loading and shall include all labor, materials and equipment to place, grade and compact the material as specified. The City will not pay for loads for which load slips are not received at the time of delivery. Payment shall be by the contract unit price.

A14. GRAVEL BALLAST

This item shall consist of furnishing, placing, grading and compacting gravel ballast on the roadway in accordance with the typical sections. This item also includes any embankment required below the road sub-grade to bring the roadway to grade per the Plans. Gravel ballast shall be placed in conformance with the requirements of Section 2-03.3(14)C, Method B, and Section 4-04 of the Standard Specifications. Gravel ballast shall meet the requirements of Section 9-03.9(1) of the Standard Specifications.

The Contractor is advised that the gravel ballast supplied must compact readily. Any gravel ballast that ruts after the initial compaction effort is not acceptable. Any water necessary to meet compaction requirements shall be incidental to this bid item.

When gravel ballast is used on the road edge in the construction of roadway fore-slope, the width of the base of the road prism shall be overbuilt and cut back with an excavator to the desired slope ration to provide for optimum compaction.

The Contractor is advised that maintenance of the roadway surface shall be the Contractor's responsibility up to the time that asphalt concrete pavement is applied.

Measurement shall be per ton measured in the truck at the point of loading and shall include all labor, materials and equipment to place, grade and compact the material as specified. The City will not pay for loads for which load slips are not received at the time of delivery. Payment shall be by the contract unit price.

A15. GRAVEL BASE

This item shall consist of furnishing, placing, grading and compacting gravel base for backfill of any areas below the standard road sub grade due to over-excavation and unsuitable excavation. Backfill of over-excavation and unsuitable excavation under the stormwater treatment cells is covered under item "Permeable Ballast". Gravel Base shall be placed in conformance with the requirements of Section 4-02, Section 2-03.3(14)C, Method B, and Section 4-04 of the Standard Specifications. Gravel base shall meet the requirements of Section 9-03.10 of the Standard Specifications.

The Contractor is advised that the gravel base supplied must compact readily. Any gravel base that ruts after the initial compaction effort is not acceptable. Any water necessary to meet compaction requirements shall be incidental to this bid item.

Measurement shall be per ton measured in the truck at the point of loading and shall include all labor, materials and equipment to place, grade and compact the material as specified. The City will not pay for loads for which load slips are not received at the time of delivery. Payment shall be by the contract unit price.

A16. CHOKER COURSE

This item consists of all labor, materials, and equipment required to place and compact choker course for treatment cells as shown on the Plans and per the Special Provisions. Course aggregate for the choker course shall comply with WSDOT 9-03.1(4)C, AASHTO Grading No. 57.

Measurement shall be per ton measured in the truck at the point of loading and shall include all labor, materials and equipment to place, grade and compact the material as specified. The City will not pay for loads for which load slips are not received at the time of delivery. Payment shall be by the contract unit price.

A17. SAND FILTER

This item consists of all labor, materials, and equipment required to place and compact sand filter for treatment cells as shown on the Plans and per the Special Provisions. Sand for the filter layer shall consist of a medium sand meeting the following size gradation (by weight):

U.S. Sieve Number	Percent Passing
4	95-100
8	70-100
16	40-90
30	25-75
50	2-25
100	<4
200	<2

Be advised that Section 9-03.13 Backfill for Sand Drains of the Standard Specifications does NOT meet this specification and will NOT be approved for use. The Contractor must obtain and submit a grain size analysis from the supplier to certify that the sand meets the No. 100 and No. 200 sieve requirements.

Measurement shall be per ton measured in the truck at the point of loading and shall include all labor, materials and equipment to place, grade and compact the material as specified. The City will not pay for loads for which load slips are not received at the time of delivery. Payment shall be by the contract unit price.

A18. PERMEABLE BALLAST

This item shall consist of furnishing, placing, grading and compacting permeable ballast as part of the roadway and treatment cells in accordance with the typical sections. This item also includes any embankment required below the treatment cells to bring the treatment cells to grade per the Plans. Permeable ballast shall also be used to fill any areas below treatment cell sub grade due to over-excavation and unsuitable excavation. Permeable ballast shall be placed in conformance with the requirements of Section 2-03.3(14)C, Method B, and Section 4-04 of the Standard Specifications. Permeable ballast shall meet the requirements of Section 9-03.9(2) of the Standard Specifications.

Measurement shall be per ton measured in the truck at the point of loading and shall include all labor, materials and equipment to place, grade and compact the material as specified. The City will not pay for loads for which load slips are not received at the time of delivery. Payment shall be by the contract unit price.

A19. GEOTEXTILE
This item consists of all labor, materials, and equipment required to place geotextile at sand filter as shown on the Plans and per the Special Provisions. Geotextile shall be Non-woven Geotextile, Moderate Survivability, Class B per Tables 1 and 2 of the Standard Specifications Section 9.33.2(1).

Measurement shall be per square yard installed. Payment shall be by the contract unit price.

A20. IMPERMEABLE CELL BARRIERS
This item consists of the installation of impermeable cell barriers for treatment cells as shown on the Plans or as directed by Engineer including all labor, materials, tools, equipment and performing all other work and incidentals necessary to provide the finish products in accordance with the Plans and these Specifications.

Measurement shall be per each installed. Payment shall be by the contract unit price.

A21. INVERTED CONCRETE CURB & GUTTER
This item consist of the placement of inverted cement concrete curb and gutter in conformity with the lines and grades shown on the Plans or as directed by Engineer including all labor, materials, tools, equipment and performing all other work and incidentals necessary to provide the finished products in accordance with the Plans and these Specifications. Inverted concrete curb and gutter shall be in accordance with Section 8-04 of the Standard Specifications and the Details in the Plans. Sawing of joints shall be completed within 72 hours of concrete finishing. This item also includes aggregate base for installation of sidewalk per Plans.

Measurement shall be linear feet installed. Payment shall be by the contract unit price.

A22. 6" PERFORATED PVC
This item consists of all labor, materials, and equipment required to install 6-inch underdrain pipe for treatment cells as shown on the Plans and per Sections 7-01, 7-05, and 7-08 of the Standard Specifications. Underdrain pipe shall meet the requirements of Section 9-05.1 of the Standard Specifications.

Measurement shall be linear feet measured from center of structure to center of structure or from end of pipe at invert. No payment will be made for excavation, bedding, backfill, or other items incidental to the installation. Payment for unsuitable foundation excavation is paid separately. Payment shall be by the contract unit price.

A23. 6" CLEANOUTS
This item consists of all labor, materials, and equipment required to install cleanout as shown on the Plans and per the Standard Specifications.

Measurement shall be per each. Payment shall be by the contract unit price.

A24. STORM DRAIN CATCH BASIN, TYPE 2
This item consist of all labor, materials, and equipment required to install replacement storm drain catch basin, type 2, 48" per City of Ferndale standard drawing ST-2, as shown on the Plans and per Section 7-05 of the Standard Specifications. No payment will be made for storm sewer testing, excavation, bedding, backfill, risers, frame, grate, grouting of inlet and outlet, by-passing, dewatering, or other items incidental to the installation. Contractor shall be responsible

for keeping new structures protected and clean from sediment or other construction debris until acceptance of project. Payment for unsuitable foundation excavation is paid separately.

Measurement shall be per each installed. Payment shall be by the contract unit price.

A25. SIGNAGE, STRIPING AND MARKING

This item consists of the placement of all pavement markings and street signage as shown on the Signage and Striping Plan including all labor, materials, tools, equipment and performing all other work and incidentals necessary to provide the finished products in accordance with the Plans and these Specifications.

Measurement shall be lump sum. payment is for percentage of completion.

A26. ADJUST MH LIDS AND OTHER UTILITY LIDS

This item consists of all labor, materials, and equipment required to adjust sanitary sewer manhole lids, water valve lids, or other utility vault lids as required and as shown on the Plans and per Section 7-05 of the Standard Specifications, including installation of new risers and other adjustment materials as required.

Measurement shall be lump sum. Payment shall be for percentage of completion.

A27. REPLACE TRAFFIC CONTROL SIGNAL LOOP

This item consist of all labor, materials, and equipment required to install traffic control signal loop wiring, conduit, and appurtenances as shown on the Plans and per Section 8-20 of the Standard Specifications. Coordinate installation with Owner.

Measurement shall be lump sum. Payment shall be for percentage of completion.

A28. SITE RESTORATION

This item consist of all labor, materials, and equipment required to seed, mulch, and fertilize all areas as required in accordance with Section 8-02 of the Standard Specifications. This work also includes all labor, materials, and equipment required to supply and place Topsoil Type C on all areas as required to restore adjacent landscaping in kind.

Measurement shall be lump sum. Payment shall be for percentage of completion.

A29. PUBLIC WORKS IMPROVEMENTS AND UNANTICIPATED SITE ITEMS PER FORCE ACCOUNT

This item shall consist of additional public works improvements, not otherwise specified in the bid documents, as directed by the City. Requires written authorization from the City prior to work. Payment shall be on a force account basis as per Section 1-09 of the WSDOT Standard Specifications. For the purpose of providing a common proposal for all bidders, and for that purpose only, the City has established the amount of force account for this item and has entered the amount in the bid proposal to become a part of the total bid by the Contractor.

A30. SPECIFIC POTHOLING LOCATIONS

This item shall consist of all labor, materials, and equipment to perform potholing of specific locations, beyond those necessary to complete the work as indicated in the Construction Documents, as directed by the Engineer.

Measurement shall be per each. Payment shall be by the contract unit price.

SCHEDULE B – WATER
BID ITEM DESCRIPTIONS

B1. MOBILIZATION
This item shall consist of preparation work and operations performed by the Contractor in accordance with the provisions of Section 1-09.7 of the Standard Specifications. Included in mobilization shall be all costs associated with insurance, bonding, securing and developing construction staging areas, and bringing equipment and miscellaneous facilities to staging areas. Mobilization shall also include Demobilization.

Measurement shall be per lump sum. Payment shall be in accordance with Section 1-09.7 of the Standard Specifications.

B2. TRENCH SAFETY
For all trenches exceeding a depth of four feet, all costs for adequate trench safety systems shall be identified as a separate bid item in compliance with Chapter 39.04 RCW. The purpose of this provision is to ensure that the bidder agrees to comply with all relevant trench safety requirements of Chapter 49.17 RCW. This bid amount shall be considered part of the total base bid. Include a bid amount (even if the value is $0.00) to be considered responsive to the bid solicitation.

Measurement shall be lump sum. Payment shall be for percentage of completion.

B3. 12” DIP WATER
This item consists of all labor, material, and equipment associated with the installation of 12-inch diameter ductile iron pipe water main and all appurtenances as shown on the Plans and per Sections 7-08, 7-09, and 7-12 of the Standard Specifications. DIP shall be in accordance with Section 9-30.1(1) of the Standard Specifications. Fittings shall be concrete lined. Work shall include, but not be limited to, all piping, fittings, joints, thrust blocking, adapters, excavation, bedding, compacted backfill, testing and complete restoration. Work also includes connecting to existing water main. Gate valves shall be paid under separate item.

The unit price for this item shall include all costs associated with submittals, required utility locates, initial potholing of location, excavation, dewatering, determining and providing suitable access for work, and protection of existing utilities, and surface restoration not included in other bid items. No payment will be made for testing, disinfection, excavation, bedding, backfill, or other items incidental to the installation.

Measurement shall be per linear feet. Payment shall be by the contract unit price.

B4. 12 INCH GATE VALVE
This item consists of all labor, material, and equipment associated with the purchase and installation of 12-inch ductile iron resilient-seat gate valves and valve boxes as shown on the Plans and in accordance with the Plans and Specifications, and City of Ferndale standards. Work shall include, but not be limited to, all fittings, thrust blocking, adapters, excavation, bedding, compacted backfill, disinfection, and testing. Approximate gate valve locations are shown on the Plans, coordinate final locations with the City.

Measurement shall be per each. Payment shall be by the contract unit price.

B5. REPLACE 1 INCH WATER SERVICES

This item consists of all costs associated with labor, materials, and equipment required to replace and reconnect 1 inch water services including excavation, piping, meter boxes, taps, new corporation stops and curb stops, sleeves, fittings and adapters as indicated on the Plans and in accordance with Section 7-15 of the Standard Specifications. Fittings used for service connections shall be made of brass alloy and be of flare type. Work shall include: submittals, required utility locates, initial potholing of location, clearing and grubbing, excavation, dewatering, determining and providing suitable access for work, protection of existing utilities, relocation of meter where shown on the Plans, disinfection, testing, and surface restoration not included in other bid items. No additional payment will be made for other items incidental to the installation.

Measurement shall be per each. Payment shall be by the contract unit price.

B6. REPLACE 2 INCH WATER SERVICES

This item consists of all costs associated with labor, materials, and equipment required to replace and reconnect 2 inch water services including excavation, piping, meter boxes, taps, new corporation stops and curb stops, sleeves, fittings and adapters as indicated on the Plans and in accordance with Section 7-15 of the Standard Specifications. Fittings used for service connections shall be made of brass alloy and be of flare type. Work shall include: submittals, required utility locates, initial potholing of location, clearing and grubbing, excavation, dewatering, determining and providing suitable access for work, protection of existing utilities, relocation of meter where shown on the Plans, disinfection, testing, and surface restoration not included in other bid items. No additional payment will be made for other items incidental to the installation.

Measurement shall be per each. Payment shall be by the contract unit price.

B7. REMOVE AND DISPOSE OF AC WATER MAIN PIPE

This item consists of all labor, materials, and equipment required to remove and properly dispose of approximately 260 LF of asbestos cement water main pipe as shown on the Plans and per the General Special Provisions supplement to Section 2-02.3 as described in these contract documents. The work also includes any administrative requirements such as training, certifications, submittals, permitting, providing notices to agencies, etc.

Measurement shall be lump sum for removal and disposal as shown on the Plans. Payment is for percentage of completion.

B8. HYDRANT ASSEMBLY

This item consists of all labor, materials, and equipment required to install a new fire hydrant assembly in accordance with the plans and per per Section 7-14 of the Standard Specifications. Work shall include, but not be limited to, all pipe, valves, fittings, thrust blocking, adapters, excavation, bedding, compacted backfill, disinfection, and testing. Approximate locations are shown on the Plans, coordinate final locations with the City.

Measurement shall be per each installed. Payment shall be by the contract unit price.

SCHEDULE C – SEWER
BID ITEM DESCRIPTIONS

C1. MOBILIZATION
This item shall consist of preparation work and operations performed by the Contractor in accordance with the provisions of Section 1-09.7 of the Standard Specifications. Included in mobilization shall be all costs associated with insurance, bonding, securing and developing construction staging areas, and bringing equipment and miscellaneous facilities to staging areas. Mobilization shall also include Demobilization.

Measurement shall be per lump sum. Payment shall be in accordance with Section 1-09.7 of the Standard Specifications.

C2. TRENCH SAFETY
For all trenches exceeding a depth of four feet, all costs for adequate trench safety systems shall be identified as a separate bid item in compliance with Chapter 39.04 RCW. The purpose of this provision is to ensure that the bidder agrees to comply with all relevant trench safety requirements of Chapter 49.17 RCW. This bid amount shall be considered part of the total base bid. Include a bid amount (even if the value is $0.00) to be considered responsive to the bid solicitation.

Measurement shall be lump sum. Payment shall be for percentage of completion.

C3. 8” PVC SEWER MAIN
This item consists of all labor, materials, and equipment required to install 8-inch diameter PVC sanitary sewer pipe as shown on the Plans and per Sections 7-05, 7-08 and 7-17 of the Standard Specifications. No payment will be made for sanitary sewer testing, excavation, bedding, backfill, detectable marking tape, or other items incidental to the installation. Unsuitable foundation excavation is paid separately.

Measurement shall be linear feet measured from center of structure to center of structure. Payment shall be by the contract unit price.

C4. TEMPORARY SEWER EFFLUENT MANAGEMENT
This item consists of all costs associated with planning, labor, materials, equipment, transport, and disposal fees as necessary to ensure uninterrupted sewer service during sewer main, manhole, and service replacement as required. Work includes the preparation and submittal of a detailed temporary sewer effluent management plan to the City for review and approval a minimum of 48 hours prior to commencing work.

Measurement shall be lump sum. Payment is for percentage of completion.

C5. REPLACE SEWER SERVICES
This item consists of all labor, materials, and equipment required to replace and reconnect 6 inch – 8 inch SDR 35 PVC sewer services including excavation, piping, fittings and adapters, grouting, cleanout, bedding, backfill, detectable marking tape, and compaction as indicated on the Plans and in accordance with Section 7-18 and 7-19 of the Standard Specifications. Work

shall include: submittals, required utility locates, initial potholing of location, clearing and grubbing, excavation, dewatering, determining and providing suitable access for work, protection of existing utilities, testing, and surface restoration not included in other bid items. No payment will be made for other items incidental to the installation.

Measurement shall be per each. Payment shall be by the contract unit price.

C6. REPLACE SANITARY SEWER MANHOLE, 6 ft to 8 ft deep

This item consists of all labor, materials, and equipment required to replace 48 inch diameter sanitary sewer manhole, 6 to 8 ft deep, in accordance with the plans and details and per Section 7-05 of the Standard Specifications including testing, excavation, de-watering, bedding, backfill, risers, manhole ring and cover, shaping channel and shelf, and re-connections to sewer mains. No payment will be made for other items incidental to the installation. Sewer flow bypass / management and unsuitable foundation excavation are paid separately.

Measurement shall be per each installed. Payment shall be by the contract unit price.

C7. REPLACE SANITARY SEWER MANHOLE, 11 ft to 13 ft deep

This item consists of all labor, materials, and equipment required to replace 48 inch diameter sanitary sewer manhole, 11 to 13 ft deep, in accordance with the plans and details and per Section 7-05 of the Standard Specifications including testing, excavation, de-watering, bedding, backfill, risers, manhole ring and cover, shaping channel and shelf, and re-connections to sewer mains. No payment will be made for other items incidental to the installation. Sewer flow bypass / management and unsuitable foundation excavation are paid separately.

Measurement shall be per each installed. Payment shall be by the contract unit price.

BID PACKAGE

PROPOSAL

Name of Bidder: _____

Submittal of this Bid proposal warrants that the undersigned has:

1. Examined the site, plans and specifications, and laws and ordinances governing the work;
2. Agreed to perform the work complete and provide a facility in full operation, including all labor, materials and equipment in accordance with the terms and provisions of the Contract Documents and for the prices tendered;
3. Agreed to perform the work in accordance with the time of completion as set forth in Supplemental Conditions, after which specified liquidated damages will be assessed.
4. Not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action restraining free competitive bidding for the project.

BID SCHEDULE

The award of Bid Schedule shall be based on the lowest bid for total of Schedule A, Schedule B, and Schedule C Bid Items.

Third Ave Stormwater Improvements
SCHEDULE A – ROADWAY
BID ITEMS

ITEM NO.	UNIT MEASURE	ITEM DESCRIPTION	APPROX. QUANTITY	UNIT PRICE IN FIGURES	EXTENDED PRICE IN FIGURES
A1	LUMP SUM	MOBILIZATION	1	$	$
A2	LUMP SUM	TRENCH SAFETY	1	$	$
A3A	LUMP SUM	TEMPORARY EROSION CONTROL	1	$	$
A3B	FORCE ACCOUNT	TEMPORARY EROSION CONTROL FORCE ACCOUNT	F.A.	$2,500	$ 2,500
A4	LUMP SUM	PROJECT TEMPORARY TRAFFIC CONTROL	1	$	$
A5	LUMP SUM	DEMOLITION	1	$	$
A6A	LUMP SUM	ROADWAY EXCAVATION & EMBANKMENT INCL HAUL	1	$	$
A6B	CUBIC YARD	UNSUITABLE EXCAVATION & EXPORT	150	$	$
A7	TON	HOT MIX ASPHALT	230	$	$
A8	CUBIC YARD	PERVIOUS CONCRETE	90	$	$
A9	SQUARE YARD	CONCRETE SIDEWALK	460	$	$

A10	SQUARE YARD	CEMENT CONCRETE DRIVEWAY ENTRANCE	71	$	$
A11	EACH	ADA RAMPS	2	$	$
A12	TON	CRUSHED SURFACING TOP COURSE	116	$	$
A13	TON	CRUSHED SURFACING BASE COURSE	173	$	$
A14	TON	GRAVEL BALLAST	640	$	$
A15	TON	GRAVEL BASE	245	$	$
A16	TON	CHOKER COURSE	42	$	$
A17	TON	SAND FILTER	370	$	$
A18	TON	PERMEABLE BALLAST	700	$	$
A19	SQUARE YARD	GEOTEXTILE	1020	$	$
A20	EACH	IMPERMEABLE CELL BARRIERS	12	$	$
A21	LINEAR FEET	INVERTED CONC CURB & GUTTER	530	$	$
A22	LINEAR FEET	6” PERFORATED PVC	450	$	$

A23	EACH	6” CLEANOUTS	12	$	$	
A24	EACH	STORM DRAIN CATCH BASIN, TYPE 2	2	$	$	
A25	LUMP SUM	SIGNAGE, STRIPING AND MARKING	1	$	$	
A26	LUMP SUM	ADJUST MH LIDS AND OTHER UTILITY LIDS	1	$	$	
A27	LUMP SUM	REPLACE TRAFFIC CONTROL SIGNAL LOOP	1	$	$	
A28	LUMP SUM	SITE RESTORATION	1	$	$	
A29	FORCE ACCOUNT	PUBLIC WORKS IMPROVEMENTS AND UNANTICIPATED SITE ITEMS FORCE ACCOUNT	F.A.	$30,000	$ 30,000	
A30	EACH	SPECIFIC POTHOLING LOCATIONS	5	$	$	

SUBTOTAL BID AMOUNT - SCHEDULE A BID ITEMS $ _____

Third Ave Stormwater Improvements
SCHEDULE B – WATER
BID ITEMS

ITEM NO.	UNIT MEASURE	ITEM DESCRIPTION	APPROX. QUANTITY	UNIT PRICE IN FIGURES	EXTENDED PRICE IN FIGURES
B1	LUMP SUM	MOBILIZATION	1	$	$
B2	LUMP SUM	TRENCH SAFETY	1	$	$
B3	LINEAR FEET	12” DIP WATER	340	$	$
B4	EACH	12” GATE VALVE	6	$	$
B5	EACH	REPLACE 1 INCH WATER SERVICES	2	$	$
B6	EACH	REPLACE 2 INCH WATER SERVICES	1	$	$
B7	LUMP SUM	REMOVE AND DISPOSE OF AC WATER MAIN	1	$	$
B8	EACH	HYDRANT ASSEMBLY	1	$	$

SUBTOTAL BID AMOUNT – SCHEDULE B BID ITEMS $

City of Ferndale Sales Tax (8.7%) $

SUBTOTAL BID AMOUNT – SCHEDULE B BID ITEMS $
(Bid Items, Including Tax)

Third Ave Stormwater Improvements
SCHEDULE C – SEWER
BID ITEMS

ITEM NO.	UNIT MEASURE	ITEM DESCRIPTION	APPROX. QUANTITY	UNIT PRICE IN FIGURES	EXTENDED PRICE IN FIGURES
C1	LUMP SUM	MOBILIZATION	1	$	$
C2	LUMP SUM	TRENCH SAFETY	1	$	$
C3	LINEAR FEET	8” PVC SEWER MAIN	155	$	$
C4	LUMP SUM	TEMPORARY SEWER EFFLUENT MANAGEMENT	1	$	$
C5	EACH	REPLACE SEWER SERVICES	2	$	$
C6	EACH	REPLACE SANITARY SEWER MANHOLE, 6’ – 8’	1	$	$
C7	EACH	REPLACE SANITARY SEWER MANHOLE, 11’ – 13’	1	$	$

SUBTOTAL BID AMOUNT – SCHEDULE C BID ITEMS $

City of Ferndale Sales Tax (8.7%) $

SUBTOTAL BID AMOUNT – SCHEDULE C BID ITEMS $
(Bid Items, Including Tax)

Third Ave Stormwater Improvements

PROPOSAL SUMMARY

SUBTOTAL BID AMOUNT - SCHEDULE A	$ _____
SUBTOTAL BID AMOUNT – SCHEDULE B (Bid Items, Including Tax)	$ _____
SUBTOTAL BID AMOUNT – SCHEDULE C (Bid Items, Including Tax)	$ _____
TOTAL PROJECT BID AMOUNT	$ _____

Contractor: _____

Address: _____

Phone: _____ Date: _____

Contractor's State License Number: _____

By: _____Title: _____
Signature

Name Printed _____

The bidder acknowledges receipt of the following addenda, and agrees to the conditions set forth therein, by initializing the appropriate place:

Addendum No. 1 _____Addendum No. 2 _____ Addendum No. 3 _____ Addendum No. 4 _____

NON-COLLUSION AFFIDAVIT

STATE OF WASHINGTON)
) ss.
COUNTY OF WHATCOM)

The undersigned, being duly sworn, deposes and says that the person, firm, association, co-partnership or corporation herein named, has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in the restraining of free competitive bidding in the preparation and submission of a proposal to the City of Ferndale for consideration in the award of a contract on the improvement named above.

_____
Contractor

Subscribed and sworn to before me this _____ day of _____, 2017.

Notary Public in and for the
State of Washington, residing at

BID BOND

Deposit Statement

Herewith find a deposit in the form of certified check, or cashier's check, in the amount of Five percent (5%) of maximum amount bid (Total for Bid Schedule A and Schedule B + sales tax) in the attached Proposal.

Bid Bond

KNOW ALL MEN BY THESE PRESENTS:

That we _____, as Principal and _____, as Surety, are held firmly bound unto the City of Ferndale, Washington, as Obligee, in the penal sum of Five percent (5%) of maximum amount bid (Total for Bid Schedule A and Schedule B + sales tax) in the attached Proposal, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally by these presents.

The conditions of this obligation are such that if the Obligee shall make any award to the Principal for Third Avenue Stormwater Improvements, Ferndale, Washington, according to the terms of the Proposal or Bid made by the Principal therefore, and the Principal shall duly make and enter into a contract with the Obligee in accordance with the terms of said Proposal or Bid and award and shall give bond for the faithful performance thereof, with Surety or Sureties approved by the Obligee, or if the Principal shall, in case of failure to do so, pay and forfeit to the Obligee the penal amount of the deposit specified in the call for bids, then this obligation shall be null and void; otherwise it shall be and remain in full force and effect and the Surety shall forthwith pay and forfeit to the Obligee, as penalty and liquidated damages, the amount of this Bond.

SIGNED, SEALED AND DATED THIS _____ DAY OF _____, 2017.

By: _____ _____

Principal Surety

QUALIFICATIONS

The below listed reference information shall be submitted with the Bid.

Bidder to list three previous stormwater or roadway projects with similar value ($300,000+/-) completed by Bidder as prime contractor. Bidder shall have successfully completed with their own equipment and personnel a minimum of three similar projects in the last four years to be considered qualified.

1. Project: _____
   (Name and Location)

   Contract Amount: _____

   Reference: _____
   (Company Name, Contact & Telephone)

2. Project: _____
   (Name and Location)

   Contract Amount: _____

   Reference: _____

   (Company Name, Contact & Telephone)

3. Project: _____
   (Name and Location)

   Contract Amount: _____

   Reference: _____
   (Company Name, Contact & Telephone)

Bidder shall provide the following information.

1. Resume of superintendent proposed for project.
2. List and provide references (Owner and Engineer) for any project within the last three years which have involved disputes for which the Contractor filed a claim resulting in formal dispute resolution, third-party mediation or arbitration, or a lawsuit.
3. List and provide references (Owner and Engineer) for all public works contracts in which the Contractor was sued by the Owner.

BID SUBMITTAL CHECKLIST

The bidder is advised to use the following list to assemble all forms required to be submitted with their bids. In accordance with RCW 39.30.060, bidders shall submit the required documentation in two sealed packages.

PART 1 - Must be received with bid prior to the Bid Date and Time and include:

1. _____ Bid Proposal
2. _____ Non-Collusion Affidavit
3. _____ Bid Bond
4. _____ Contractor's Qualifications

PART 2 - Must be received prior to 1 hour after the Bid Date and Time and include:

1. _____ List of Subcontractors
2. _____ Subcontractors Qualifications

SUBCONTRACTORS QUALIFICATIONS

The below listed reference information will be required with technical proposal for all listed subcontractors.

Bidder to list the following information for **three** projects for **each** of the subcontractors accounting for more than 10 percent of total bid amount. The selected projects must be of equivalent size and scope to the portion of work the subcontractor will complete on this project, and the subcontractor must have completed the work using his/her own personnel and equipment.

(This sheet shall be duplicated for each Subcontractor)

Name of Subcontractor: _____

1. Project: _____
   (Name and Location)

   Contract Amount: _____

   Reference: _____
   (Company Name, Contact & Telephone)

2. Project: _____
   (Name and Location)

   Contract Amount: _____

   Reference: _____
   (Company Name, Contact & Telephone)

3. Project: _____
   (Name and Location)

   Contract Amount: _____

   Reference: _____
   (Company Name, Contact & Telephone)

PART II - CONTRACT FORMS

CONTRACT
FOR:
Third Avenue Stormwater Improvements
FERNDALE, WASHINGTON

This Contract, made and entered into this ____ day of _____, 2017 by and between the City of Ferndale, hereinafter called the "Owner" and _____., hereinafter called the "Contractor".

WITNESSETH:

That in consideration of the terms and conditions contained herein and attached and made a part of this Contract, the parties hereto covenant and agree as follows:

1. The Contractor shall do all of the work and furnish all of the labor, materials, tools and equipment for the construction of the improvements and shall perform any changes in the work, all in full compliance with the contract documents entitled "Third Avenue Stormwater Improvements, Ferndale, Washington".

   The "Bid Proposal", "Specifications and Conditions", "Contract Forms", and the "Plans" sections contained in said contract documents are hereby referred to and by reference made a part hereof.

2. The Owner hereby promises and agrees with the Contractor to employ, and does employ the Contractor to furnish the labor, materials, tools and equipment, and to and cause to be done the above-described work, and to complete and finish the same in accordance with the said contract documents and the terms and conditions herein contained, and hereby contracts to pay for the same, according to the said contract documents, including the schedule of estimated quantities, and unit and lump sum prices in the Bid Proposal, the approximate sum of $_____, the total amount of bid, subject to the actual quantity of work performed, at the time and in the manner and upon the conditions provided for in this contract.

3. The Contractor for himself, and for his agents, successors, assigns, subcontractors and/or employees, does hereby agree to the full performance of all the covenants herein contained upon the part of the Contractor.

4. The Owner hereby appoints and the Contractor hereby accepts Wilson Engineering, Inc., hereinafter referred to as the Engineer, as the City's representative for the purpose of administering the provisions of this Contract, including the Owner's right to receive and act on all reports and documents related to this Contract, to request and receive additional information from the Contractor, to assess the general performance of the Contractor under this Contract, to determine if the contracted services are being performed in accordance with Federal, State or local laws, and to administer any other right granted to the Owner under this Contract. The Owner expressly reserves the right to terminate this Contract as provided in the contract documents, and also expressly the reserves the right to commence civil action for the enforcement of this contract.

5. This Contract contains terms and conditions agreed upon by the parties. The parties agree that there are no other understandings, oral or otherwise, regarding the subject matter of this Contract.

6. The Contractor agrees to comply with all applicable Federal, State, City or municipal standards for the licensing, certification, operation of facilities and programs, and accreditation and licensing of individuals.

7. The Contractor shall not assign or subcontract any portion of the work provided for under the terms of this Contract without obtaining prior written approval of the Engineer. All terms and conditions of this Contract shall apply to any approved subcontract or assignment related to this Contract.

8. The parties intend that an independent Contractor-Owner relationship will be created by this Contract. The Owner is interested only in the results to be achieved, the implementation of the work will lie solely with the Contractor. The Contractor will be solely and entirely responsible for its acts and for the acts of its agents, employees, servants, subcontractors, or otherwise during the performance of this Contract. In the performance of the work herein contemplated, the Contractor is an independent Contractor with regard to the performance of the details of the work; however, the components of and the results of the work contemplated herein must meet the approval of the Engineer and shall be subject to the Engineer's general rights of inspection and review to secure the satisfactory completion thereof.

9. The Contractor agrees and covenants to indemnify, defend, and save harmless, the Owner and the City of Ferndale and those persons who were, now are, or shall be duly elected or appointed officials or members of employees thereof, hereinafter referred to as the "Owner" or "City" against and from any loss, damage, costs, charge, expense, liability, claims, demands or judgments, of whatsoever kind or nature, whether to persons or to property, arising wholly or partially out of any act, action, neglect, omission, or default on the part of the Contractor, his agents, successors, assignees, subcontractors and/or employees, except only such injury or damage as shall have been caused by or resulted from the sole negligence of the City. In case any suit or cause of action shall be brought against the Owner or the City on account of any act, action, neglect, omission, or default on the part of the Contractor, his agents, successors, assignees, subcontractors and/or employees the Contractor hereby agrees and covenants to assume the defense thereof and to pay any and all costs, charges, attorney's fees and other expenses and any and all judgments that may be incurred or obtained against the City.

   In the event the Owner is required to institute legal action and/or participate in the legal action to enforce this Indemnification and Hold Harmless Clause, the Contractor agrees to pay the Owner or City's legal fees, costs and disbursements incurred in establishing the right to indemnification.

   If the claim, suit, or action for injuries, death, or damages as provided for in the preceding paragraphs of this specification is caused by or results from the concurrent negligence of (a) the indemnitee or the indemnitee's agents or employees and (b) the indemnitor or the indemnitor's agents for employees the indemnity provisions provided for in the preceding paragraphs of this specification shall be valid and enforceable only to the extent of the indemnitor's negligence.

Contractor hereby specifically and expressly waives any immunity under Industrial Insurance, Title 51 RCW and acknowledges that this waiver was mutually negotiated by the parties herein. In the event of litigation between the parties to enforce the rights under this paragraph, reasonable attorney's fees shall be allowed to the prevailing party.

10. This Contract has been and shall be construed as having been made and delivered within the State of Washington, and it is mutually understood and agreed by each party hereto that this Contract shall be governed by the laws of the State of Washington, both as to interpretation and performance. Any action in law, suit and equity or judicial proceedings for the enforcement of this contract, or any provisions thereof, shall be instituted and maintained in the courts of competent jurisdiction located in City of Ferndale, Washington.

11. The failure of the Owner to insist upon strict performance of any of the covenants and agreements of this Contract or to exercise any option herein conferred in any one or more instances shall not be construed to be a waiver or relinquishment of any such, or any other covenants or agreements, but the same shall be and remain in full force and effect.

12. It is understood and agreed by the parties hereto that if any part of this agreement is determined to be illegal, the validity of the remaining portions shall be construed as if the agreement did not contain the particular illegal part.

13. No change or addition to this Contract shall be valid or binding upon either party unless such change or addition shall be in writing, executed by both parties.

14. In the event that funding from State, Federal, or other sources is withdrawn, reduced, or limited in any way after the effective date of this Agreement, and prior to its normal completion, the Owner may summarily terminate this Agreement as to the funds withdrawn, reduced, or limited notwithstanding any other termination provisions of this Agreement. If the level of funding withdrawn, reduced or limited is so great that the Owner deems that the continuation of the programs covered by this Agreement is no longer in the best interest of the City, the Owner may summarily terminate this Agreement in whole notwithstanding any other termination of this Agreement. Termination under this section shall be effective upon receipt of written notice as specified herein.

15. **Third-Party Beneficiary**: All parties agree that the State of Washington shall be, and is hereby, named as an express third-party beneficiary of this contract, with full rights as such.

IN WITNESS WHEREOF, the Contractor has executed this instrument, on the day and year first below written and the Owner has caused this instrument to be executed by and in the name of the said County, the day and year first above written.

Executed by the Contractor this _____day of _____, 2017.

CITY OF FERNDALE:

By: _____
City Administrator / Mayor

STATE OF WASHINGTON)
) ss.
COUNTY OF WHATCOM)

On this _____ day of _____, 2017, before me personally appeared _____ to me personally known to be the person described in and who executed the above instrument and who acknowledged to me the act of signing thereof.

NOTARY PUBLIC, in and for the
State of Washington, residing at:

_____
My Commission Expires:_____

CONTRACTOR:

By: _____

Title: _____

STATE OF WASHINGTON)
) ss.
COUNTY OF WHATCOM)

On this _____ day of _____, 2017, before me personally appeared _____ to me personally known to be the person described in and who executed the above instrument and who acknowledged to me the act of signing thereof.

_____

NOTARY PUBLIC, in and for the
State of Washington, residing at:

_____

My Commission Expires:_____

PERFORMANCE BOND
to the
City of Ferndale

KNOW ALL MEN BY THESE PRESENTS, That we_____ _____ the Contractor named in the Contract hereinafter referred to as PRINCIPAL, and_____ as SURETY, are jointly and severally held and firmly bound to the City of Ferndale, hereinafter referred to as OWNER named in said Contract Third Avenue Stormwater Improvements, Ferndale, Washington, for the penal sum of,

_____

_____

DOLLARS ($_____),
lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our heirs, assigns, administrators and successors jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas, the Principal entered into a contract with the Owner, dated the _____day of _____, 2017, for such construction work with the City of Ferndale, Washington.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform all of the provisions and fulfill all of the undertakings, covenants, terms, conditions and agreements of said contract during the period of the original contract and any extensions thereof that may be granted by the Owner, with or without notices to the surety; and during the life of any guaranty required under the contract; and shall also well and truly perform and fulfill all of the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made; notice of which modifications to the surety being hereby waived, shall indemnify and save harmless owner from all cost and damage by reason of the principal's default of failure to do so, and shall pay the State of Washington sales and use taxes, and amounts due said state pursuant to Titles 50 and 51 of the Revised Code of Washington then this obligation to be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the above bonded parties have executed this instrument under their separate seals this _____ day of _____, 2017, the name and corporate seal of each corporate party hereto affixed, and these presents duly signed by its undersigned representatives pursuant to authority of its governing body.

PAYMENT BOND
to the
City of Ferndale

KNOW ALL MEN BY THESE PRESENTS: that

-

_____

_

(Name of Contractor)

_____

_

(Address of Contractor)

a _____ , hereinafter called Principal,
(Corporation, Partnership or Individual)

and_____

_

(Name of Surety)

_____

_

(Address of surety)

hereinafter called **SURETY**, are held and firmly bound unto_____

_____

_

(Name of Owner)

_____

_

(Address of Owner)

hereinafter called **OWNER**, in the penal sum of _____Dollars, $(_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the **OWNER**, dated the _____day of _____ 20___, a copy of which is hereto attached and made a part hereof for the construction of:

_____

_____

_____

_____

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, **SUBCONTRACTORS**, and corporations furnishing materials for or performing labor in the prosecution of

the **WORK** provided for in such contract, and any authorized extension or modification thereof including all amounts due for materials, lubricants, oil, gasoline, coal, and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such **WORK,** and all Insurance premiums on said **WORK,** and for all labor, performed in such **WORK** whether by **SUBCONTRACTOR** or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said **SURETY** for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the **WORK** to be performed thereunder or the **SPECIFICATIONS** accompanying the same shall in any wise affect its obligation on this **BOND,** and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the **WORK** or to the **SPECIFICATIONS.**
PROVIDED, FURTHER, that no final settlement between the **OWNER** and the **CONTRACTOR** shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in_____counterparts, each one of which
(number)
shall be deemed an original, this the _____day of _____

ATTEST:

_____
Principal

_____
(Principal) Secretary

(**SEAL)** **By** _____(s)

_____
(Address)
_____

_____
Witness as to Principal

_____
(Address)

_____ _____
(Surety)

ATTEST: **By** _____
(Attorney –in-Fact)

_____ _____
Witness as to Surety (Address)

_____ _____
(Address)

NOTE: Date of **BOND** must not be prior to date of Contract.
If **CONTRACTOR** is Partnership, all partners should execute **BOND.**

IMPORTANT: Surety companies executing **BONDS** must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the **PROJECT** is located.

CITY OF FERNDALE – RETAINAGE INVESTMENT OPTION

CONTRACTOR: _____

PROJECT NAME: _____

DATE: _____

Pursuant to Chapter 60.28 RCW, you may choose how your retainage under this contract will be held and invested. Please complete and sign this form indicating your preference. If you fail to do so, the City of Ferndale (City) will hold your retainage as described in "Current Expense", option 1 below.

_____1. Current Expense: The City will retain your money in its Current Expense Fund Account until thirty days following final acceptance of the improvement or work as completed. You will not receive interest earned on this money.

_____2. Interest Bearing Account: The City will deposit retainage checks in an interest-bearing account in a bank, mutual savings bank, or savings and loan association, not subject to withdrawal until after the final acceptance of the improvement or work as completed or until agreed to by both parties. Interest on the account will be paid to you.

BONDS AND SECURITIES ACCEPTABLE BY THE CITY OF FERNDALE:

1. Bills, certificates, notes or bonds of the United States.
2. Other obligations of the United States or its agencies.
3. Indebtedness of the Federal national Mortgage Association.
4. Time Deposits in commercial banks.

Designate below the type of investment selected:

_____

_____

_____

_____3. Bond-in-Lieu: With the consent of the City, the contractor may submit a bond for all or any portion of the amount of funds retained by the City in a form acceptable to the City and from a bonding company meeting standards established by the City, if any. Unless otherwise indicated, the contractor elects to submit a bond for the entire 5% retainage amount. Such bond and any proceeds there from shall be made subject to all claims and liens and in the same manner and priority as set forth for retained percentages in Chapter 60.28 RCW. Whenever the City accepts a bond-in-lieu of retained funds from a contractor, the contractor shall accept like bonds from any subcontractors or suppliers from which the contractor has retained funds. The contractor shall then release the funds retained from the subcontractor or supplier, to the subcontractor or supplier, within thirty days of the contractor's receipt of the retained funds from the City.

Retainage is normally released 30 - 45 days after final acceptance of work by the City, or following receipt Employment Security / Department of Revenue clearance, whichever takes longer.

_____

(Contractor's Signature) Date

Title: _____

PART III - SPECIFICATIONS AND CONDITIONS

AMENDMENTS TO STANDARD SPECIFICATIONS

INTRO.AP1

INTRODUCTION

The following Amendments and Special Provisions shall be used in conjunction with the 2016 Standard Specifications for Road, Bridge, and Municipal Construction.

AMENDMENTS TO THE STANDARD SPECIFICATIONS

The following Amendments to the Standard Specifications are made a part of this contract and supersede any conflicting provisions of the Standard Specifications. For informational purposes, the date following each Amendment title indicates the implementation date of the Amendment or the latest date of revision.

Each Amendment contains all current revisions to the applicable section of the Standard Specifications and may include references which do not apply to this particular project.

1-01.AP1

Section 1-01, Definitions and Terms
August 1, 2016

1-01.3 Definitions

The following new term and definition is inserted after the eighth paragraph:

Cold Weather Protection Period – A period of time 7 days from the day of concrete placement or the duration of the cure period, whichever is longer.

1-02.AP1

Section 1-02, Bid Procedures and Conditions
April 4, 2016

1-02.4(1) General

The first sentence of the last paragraph is revised to read:

Any prospective Bidder desiring an explanation or interpretation of the Bid Documents, shall request the explanation or interpretation in writing by close of business on the Thursday preceding the bid opening to allow a written reply to reach all prospective Bidders before the submission of their Bids.

1-02.9 Delivery of Proposal

The last sentence of the third paragraph is revised to read:

The Contracting Agency will not open or consider any Proposal when the Proposal or Bid deposit is received after the time specified for receipt of Proposals or received in a location other than that specified for receipt of Proposals unless an emergency or unanticipated event interrupts normal work processes of the Contracting Agency so that Proposals cannot be received.

The following new paragraph is inserted before the last paragraph:

If an emergency or unanticipated event interrupts normal work processes of the Contracting Agency so that Proposals cannot be received at the office designated for receipt of bids as

specified in Section 1-02.12 the time specified for receipt of the Proposal will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which the normal work processes of the Contracting Agency resume.

1-02.12 Public Opening of Proposals

This section is supplemented with the following new paragraph:

If an emergency or unanticipated event interrupts normal work processes of the Contracting Agency so that Proposals cannot be opened at the time indicated in the call for Bids the time specified for opening of Proposals will be deemed to be extended to the same time of day on the first work day on which the normal work processes of the Contracting Agency resume.

1-04.AP1

Section 1-04, Scope of the Work
January 3, 2017

1-04.2 Coordination of Contract Documents, Plans, Special Provisions, Specifications, and Addenda

The following new paragraph is inserted before the second to last paragraph:

Whenever reference is made in these Specifications or the Special Provisions to codes, rules, specifications, and standards, the reference shall be construed to mean the code, rule, specification, or standard that is in effect on the Bid advertisement date, unless otherwise stated or as required by law.

1-04.3 Reference Information

This section is supplemented with the following new sentence:

If a document that is provided as reference information contains material also included as a part of the Contract, that portion of the document shall be considered a part of the Contract and not as Reference Information.

1-06.AP1

Section 1-06, Control of Material
January 4, 2016

This section is supplemented with the following new section and subsections:

1-06.6 Recycled Materials

The Contractor shall make their best effort to utilize recycled materials in the construction of the project; the use of recycled concrete aggregate as specified in Section 1-06.6(1)A is a requirement of the Contract.

The Contractor shall submit a Recycled Material Utilization Plan as a Type 1 Working Drawing within 30 calendar days after the Contract is executed. The plan shall provide the Contractor's anticipated usage of recycled materials for meeting the requirements of these Specifications. The quantity of recycled materials will be provided in tons and as a percentage of the Plan quantity for each material listed in Section 9-03.21(1)E Table on Maximum Allowable Percent (By Weight) of Recycled Material. When a Contract does not

include Work that requires the use of a material that is included in the requirements for using materials the Contractor may state in their plan that no recycled materials are proposed for use.

Prior to Physical Completion the Contractor shall report the quantity of recycled materials that were utilized in the construction of the project for each of the items listed in Section 9-03.21. The report shall include hot mix asphalt, recycled concrete aggregate, recycled glass, steel furnace slag and other recycled materials (e.g. utilization of on-site material and aggregates from concrete returned to the supplier). The Contractor's report shall be provided on DOT Form 350-075 Recycled Materials Reporting.

1-06.6(1) Recycling of Aggregate and Concrete Materials

1-06.6(1)A General

The minimum quantity of recycled concrete aggregate shall be 25 percent of the total quantity of aggregate that is incorporated into the Contract for those items listed in Section 9-03.21(1)E Table on Maximum Allowable Percent (By Weight) of Recycled Material that allow the use of recycled concrete aggregate. The percentage of recycled material incorporated into the project for meeting the required percentage will be calculated in tons based on the quantity of recycled concrete used on the entire Contract and not as individual items.

If the Contractor's total cost for Work with recycled concrete aggregate is greater than without the Contractor may choose to not use recycled concrete aggregate. When the Contractor does not meet the minimum requirement of 25 percent recycled concrete aggregate for the Contract due to costs or any other reason the following shall be submitted:

1. A cost estimate for each material listed in Section 9-03.21(1)E that is utilized on the Contract. The cost estimate shall include the following:

    a. The estimated costs for the Work for each material with 25 percent recycled concrete aggregate. The cost estimate shall include for each material a copy of the price quote from the supplier with the lowest total cost for the Work.

    b. The estimated costs for the Work for each material without recycled concrete aggregate.

The Contractor's cost estimates shall be submitted as an attachment to the Recycled Materials Reporting form.

1-07.AP1

Section 1-07, Legal Relations and Responsibilities to the Public
January 3, 2017

1-07.1 Laws to be Observed

In the second to last sentence of the third paragraph, "WSDOT" is revised to read "Contracting Agency".

1-07.2(2) State Sales Tax: WAC 458-20-170 – Retail Sales Tax

The last three sentences of the first paragraph are deleted and replaced with the following new sentence:

The Contractor (Prime or Subcontractor) shall include sales or use tax on the purchase or rental of tools, machinery, equipment, or consumable supplies not integrated into the project, in the unit bid prices.

1-07.3(1) Forest Fire Prevention

This section is supplemented with the following new subsections:

1-07.3(1)A Fire Prevention Control and Countermeasures Plan

The Contractor shall prepare and implement a project-specific fire prevention, control, and countermeasures plan (FPCC Plan) for the duration of the project. The Contractor shall submit a Type 2 Working Drawing no later than the date of the preconstruction conference.

1-07.3(1)A1 FPCC Plan Implementation Requirements

The Contractor's FPCC Plan shall be fully implemented at all times. The Contractor shall update the FPCC Plan throughout project construction so that the plan reflects actual site conditions and practices. The Contractor shall update the FPCC Plan at least annually and maintain a copy of the updated FPCC Plan that is available for inspection on the project site. Revisions to the FPCC Plan and the Industrial Fire Precaution Level (IFPL) shall be discussed at the weekly project safety meetings.

1-07.3(1)A2 FPCC Plan Element Requirements

The FPCC Plan shall include the following:

1. The names, titles, and contact information for the personnel responsible for implementing and updating the plan.

2. The names and telephone numbers of the Federal, State, and local agencies the Contractor shall notify in the event of a fire.

3. All potential fire causing activities such as welding, cutting of metal, blasting, fueling operations, etc.

4. The location of fire extinguishers, water, shovels, and other firefighting equipment.

5. The response procedures the Contractor shall follow in the event of a fire.

Most of Washington State is covered under the IFPL system which, by law, is managed by the Department of Natural Resources (DNR). It is the Contractor's responsibility to be familiar with the DNR requirements and to verify whether or not IFPL applies to the specific project.

If the Contractor wishes to continue a work activity that is prohibited under an industrial fire precaution level, the Contractor shall obtain a waiver from the DNR and provide a copy to the Engineer prior to continuation of work on the project.

If the IFPL requirements prohibit the Contractor from performing Work the Contractor may be eligible for an unworkable day in accordance with Section 1-08.5.

The Contractor shall comply with the requirements of these provisions at no additional cost to the Contracting Agency.

1-07.8 High-Visibility Apparel

The last paragraph is revised to read:

High-visibility garments shall be labeled as, and in a condition compliant with the ANSI/ISEA 107 (2004 or later version) and shall be used in accordance with manufacturer recommendations.

1-07.8(1) Traffic Control Personnel

In this section, references to "ANSI/ISEA 107-2004" are revised to read "ANSI/ISEA 107".

1-07.8(2) Non-Traffic Control Personnel

In this section, the reference to "ANSI/ISEA 107-2004" is revised to read "ANSI/ISEA 107".

1-07.9(2) Posting Notices

Items 1 and 2 are revised to read:

1. EEOC - P/E-1 (revised 11/09, supplemented 09/15) – **Equal Employment Opportunity IS THE LAW** published by US Department of Labor. Post for projects with federal-aid funding.

2. FHWA 1022 (revised 05/15) – **NOTICE Federal-Aid Project** published by Federal Highway Administration (FHWA). Post for projects with federal-aid funding.

Items 5, 6 and 7 are revised to read:

5. WHD 1420 (revised 02/13) – **Employee Rights and Responsibilities Under The Family And Medical Leave Act** published by US Department of Labor. Post on all projects.

6. WHD 1462 (revised 01/16) – **Employee Polygraph Protection Act** published by US Department of Labor. Post on all projects.

7. F416-081-909 (revised 09/15) – **Job Safety and Health Law** published by Washington State Department of Labor and Industries. Post on all projects.

Items 9 and 10 are revised to read:

9. F700-074-909 (revised 06/13) – **Your Rights as a Worker in Washington State** by Washington State Department of Labor and Industries (L&I). Post on all projects.

10. EMS 9874 (revised 10/15) – **Unemployment Benefits** published by Washington State Employment Security Department. Post on all projects.

1-07.15(1) Spill Prevention, Control, and Countermeasures Plan

The second sentence of the first paragraph is deleted.

The first sentence of the second paragraph is revised to read:

> The SPCC Plan shall address all fuels, petroleum products, hazardous materials, and other materials defined in Chapter 447 of the WSDOT Environmental Manual M 31-11.

Item number four of the fourth paragraph (up until the colon) is revised to read:

> 4. **Potential Spill Sources** – Describe each of the following for all potentially hazardous materials brought or generated on-site, including but not limited to materials used for equipment operation, refueling, maintenance, or cleaning:

The first sentence of item 7e of the fourth paragraph is revised to read:

> BMP methods and locations where they are used to prevent discharges to ground or water during mixing and transfer of hazardous materials and fuel.

The last paragraph is deleted.

1-08.AP1

Section 1-08, Prosecution and Progress
January 3, 2017

1-08.1 Subcontracting

The second sentence of the second to last paragraph is revised to read:

> Whenever the Contractor withholds payment to a Subcontractor for any reason including disputed amounts, the Contractor shall provide notice within 10 calendar days to the Subcontractor with a copy to the Contracting Agency identifying the reason for the withholding and a clear description of what the Subcontractor must do to have the withholding released.

The fourth sentence of the second to last paragraph is revised to read:

> The Monthly Payment Summary shall include all Subcontractors that performed work that was paid on the progress estimate by the Contracting Agency.

1-08.1(1) Prompt Payment, Subcontract Completion and Return of Retainage Withheld

In item number 5 of the first paragraph, “WSDOT” is revised to read “Contracting Agency”.

The last sentence in item number 11 of the first paragraph is revised to read:

> The Contractor may also require any documentation from the Subcontractor that is required by the subcontract or by the Contract between the Contractor and Contracting Agency or by law such as affidavits of wages paid, and material acceptance certifications to the extent that they relate to the Subcontractor’s Work.

Item number 12 of the first paragraph is revised to read:

12. If the Contractor fails to comply with the requirements of the Specification and the Subcontractor's retainage or retainage bond is wrongfully withheld, the Contractor will be subject to the actions described in No. 7 listed above. The Subcontractor may also seek recovery against the Contractor under applicable prompt pay statutes in addition to any other remedies provided for by the subcontract or by law.

1-08.5 Time for Completion

In item 2c of the last paragraph, "Quarterly Reports" is revised to read "Monthly Reports".

1-09.AP1

Section 1-09, Measurement and Payment
April 4, 2016

1-09.6 Force Account

The second sentence of item number 4 is revised to read:

A "specialized service" is a work operation that is not typically done by worker classifications as defined by the Washington State Department of Labor and Industries and by the Davis Bacon Act, and therefore bills by invoice for work in road, bridge and municipal construction.

1-10.AP1

Section 1-10, Temporary Traffic Control
January 3, 2017

1-10.1(2) Description

The first paragraph is revised to read:

The Contractor shall provide flaggers and all other personnel required for labor for traffic control activities that are not otherwise specified as being furnished by the Contracting Agency.

In the third paragraph, "Project Engineer" is revised to read "Engineer".

The following new paragraph is inserted after the third paragraph:

The Contractor shall keep lanes, on-ramps, and off-ramps, open to traffic at all times except when Work requires closures. Ramps shall not be closed on consecutive interchanges at the same time, unless approved by the Engineer. Lanes and ramps shall be closed for the minimum time required to complete the Work. When paving hot mix asphalt the Contractor may apply water to the pavement to shorten the time required before reopening to traffic.

1-10.3(2)C Lane Closure Setup/Takedown

The following new paragraph is inserted before the last paragraph:

Channelization devices shall not be moved by traffic control personnel across an open lane of traffic. If an existing setup or staging of traffic control devices require crossing an open

lane of traffic, the traffic control devices shall be taken down completely and then set up in the new configuration.

2-03.AP2

Section 2-03, Roadway Excavation and Embankment
August 1, 2016

2-03.3(7)C Contractor-Provided Disposal Site

The second paragraph is revised to read:

> The Contractor shall acquire all permits and approvals required for the use of the disposal sites before any waste is hauled off the project. The Contractor shall submit a Type 1 Working Drawing consisting of copies of the permits and approvals for any disposal sites to be used. The cost of any such permits and approvals shall be included in the Bid prices for other Work.

The third paragraph is deleted.

2-06.AP2

Section 2-06, Subgrade Preparation
January 3, 2017

2-06.3(2) Subgrade for Pavement

The second sentence in the first paragraph is revised to read:

> The Contractor shall compact the Subgrade to a depth of 6 inches to 95 percent of maximum density as determined by the compaction control tests for granular materials.

3-04.AP3

Section 3-04, Acceptance of Aggregate
January 3, 2017

3-04.5 Payment

In Table 1, the **Contingent Unit Price Per Ton** value for the item HMA Aggregate is revised to read “$15.00”.

4-04.AP4

Section 4-04, Ballast and Crush Surfacing
January 3, 2017

4-04.3(5) Shaping and Compaction

The first sentence is revised to read:

> Immediately following spreading and final shaping, each layer of surfacing shall be compacted to at least 95 percent of maximum density determined by the requirements of Section 2-03.3(14)D before the next succeeding layer of surfacing or pavement is placed.

5-01.AP5

Section 5-01, Cement Concrete Pavement Rehabilitation
January 3, 2017

In this section, "portland cement" is revised to read "cement".

5-01.2 Materials

In the first paragraph, the following item is inserted after the item "Joint Sealants":

Closed Cell Foam Backer Rod 9-04.2(3)A

5-01.3(1)A Concrete Mix Designs

This section, including title, is revised to read:

5-01.3(1)A Mix Designs

The Contractor shall use either concrete patching materials or cement concrete for the rehabilitation of cement concrete pavement. Concrete patching materials shall be used for spall repair and dowel bar retrofitting and cement concrete shall be used for concrete panel replacement.

5-01.3(1)A1 Concrete Patching Materials

Item number 1 is revised to read:

1. **Materials** – The prepackaged concrete patching material and the aggregate extender shall conform to Section 9-20.

5-01.3(1)A2 Portland Cement Concrete

This section, including title, is revised to read:

5-01.3(1)A2 Cement Concrete for Panel Replacement

Cement concrete for panel replacement shall meet the requirements of Sections 5-05.3(1) and 5-05.3(2) and be air entrained with a design air content of 5.5 percent. Cement concrete for panel replacement may use rapid hardening hydraulic cement meeting the requirements of Section 9-01.2(2). Rapid hardening hydraulic cement will be considered a cementitious material for the purpose of calculating the water/cementitious materials ratio and the minimum cementitious materials requirement.

5-01.3(1)B Equipment

This section's title is revised to read:

Equipment for Panel Replacement

5-01.3(2)B Portland Cement Concrete

This section's title is revised to read:

Cement Concrete for Panel Replacement

This section is supplemented with the following new subsection:

5-01.3(2)B1 Conformance to Mix Design

Acceptance of cement concrete pavement for panel replacement shall be in accordance with Section 5-01.3(2)B. The cement, coarse, and fine aggregate weights shall be within the tolerances of the mix design in accordance with Section 5-05.3(1).

5-01.3(2)B1 Rejection of Concrete

This section is renumbered as follows:

5-01.3(2)B2 Rejection of Concrete

5-01.3(4) Replace Portland Cement Concrete Panel

This section's title is revised to read:

Replace Cement Concrete Panel

5-01.3(8) Sealing Existing Transverse and Longitudinal Joints

This section's title is revised to read:

Sealing Existing Longitudinal and Transverse Joint

The first paragraph is revised to read:

The Contractor shall clean and seal existing longitudinal and transverse joints where shown in the Plans or as marked by the Engineer.

The first sentence of the second paragraph is revised to read:

Old sealant and incompressible material shall be completely removed from the joint to the depth of the new reservoir with a diamond blade saw in accordance with the detail shown in the Standard Plans.

The fifth paragraph is revised to read:

Immediately prior to sealing, the cracks shall be blown clean with dry oil-free compressed air. If shown in the Plans, a backer rod shall be placed at the base of the sawn reservoir. The joints shall be completely dry before the sealing installation may begin. Immediately following the air blowing and backer rod placement, if required, the sealant material shall be installed in conformance to manufacturer's recommendations and in accordance with Section 5-05.3(8)B.

5-01.3(9) Portland Cement Concrete Pavement Grinding

This section's title is revised to read:

Cement Concrete Pavement Grinding

5-01.3(11) Concrete Slurry and Grinding Residue

The last sentence of the first paragraph is revised to read:

Slurry shall not be allowed to drain into an area open to traffic, off of the paved surface, into any drainage structure, water of the state, or wetlands.

The following new sentence is inserted at the end of the second paragraph:

The Contractor shall submit copies of all disposal tickets to the Engineer within 5 calendar days.

5-01.4 Measurement

The fourth paragraph is revised to read:

Sealing existing longitudinal and transverse joint will be measured by the linear foot, measured along the line of the completed joint.

5-01.5 Payment

The Bid item "Sealing Transverse and Longitudinal Joints", per linear foot and the paragraph following Bid item are revised to read:

"Sealing Existing Longitudinal and Transverse Joint", per linear foot.

The unit Contract price per linear foot for "Sealing Existing Longitudinal and Transverse Joint", shall be full payment for all costs to complete the Work as specified, including removing incompressible material, preparing and sealing existing transverse and longitudinal joints where existing transverse and longitudinal joints are cleaned and for all incidentals required to complete the Work as specified.

5-02.AP5

Section 5-02, Bituminous Surface Treatment
April 4, 2016

5-02.3(2) Preparation of Roadway Surface

This section is supplemented with the following new subsection:

5-02.3(2)E Crack Sealing

Where shown in the Plans, seal cracks and joints in the pavement in accordance with Section 5-04.3(4)A1 and the following:

1. Cracks ¼ inch to 1 inch in width - fill with hot poured sealant.

2. Cracks greater than 1 inch in width – fill with sand slurry.

5-04.AP5

Section 5-04, Hot Mix Asphalt
April 3, 2017

This section (and all subsections) is revised to read:

This Section 5-04 is written in a style which, unless otherwise indicated, shall be interpreted as direction to the Contractor.

5-04.1 Description

This Work consists of providing and placing one or more layers of plant-mixed hot mix asphalt (HMA) on a prepared foundation or base, in accordance with these Specifications and the lines, grades, thicknesses, and typical cross-sections shown in the Plans. The manufacture of HMA may include warm mix asphalt (WMA) processes in accordance with these Specifications.

HMA shall be composed of asphalt binder and mineral materials as required, and may include reclaimed asphalt pavement (RAP) or reclaimed asphalt shingles (RAS), mixed in the proportions specified to provide a homogeneous, stable, and workable mix.

5-04.2 Materials

Provide materials as specified in these sections:

Asphalt Binder	9-02.1(4)
Cationic Emulsified Asphalt	9-02.1(6)
Anti-Stripping Additive	9-02.4
Warm Mix Asphalt Additive	9-02.5
Aggregates	9-03.8
Reclaimed Asphalt Pavement (RAP)	9-03.8(3)B
Reclaimed Asphalt Shingles (RAS)	9-03.8(3)B
Mineral Filler	9-03.8(5)
Recycled Material	9-03.21
Joint Sealants	9-04.2
Closed Cell Foam Backer Rod	9-04.2(3)A

5-04.2(1) How to Get an HMA Mix Design on the QPL

Comply with each of the following:

- Develop the mix design in accordance with WSDOT SOP 732.
- Develop a mix design that complies with Sections 9-03.8(2) and 9-03.8(6).
- Develop a mix design no more than 6 months prior to submitting it for QPL evaluation.
- Submit mix designs to the WSDOT State Materials Laboratory in Tumwater, including WSDOT Form 350-042.
- Include representative samples of the materials that are to be used in the HMA production as part of the mix design submittal.
- Identify the brand, type, and percentage of anti-stripping additive in the mix design submittal.
- Include with the mix design submittal a certification from the asphalt binder supplier that the anti-stripping additive is compatible with the crude source and the formulation of asphalt binder proposed for use in the mix design.
- Do not include warm mix asphalt (WMA) additives when developing a mix design or submitting a mix design for QPL evaluation. The use of warm mix

asphalt (WMA) additives is not part of the process for obtaining approval for listing a mix design on the QPL. Refer to Section 5-04.2(2)B.

The Contracting Agency's basis for approving, testing, and evaluating HMA mix designs for approval on the QPL is dependent on the contractual basis for acceptance of the HMA mixture, as shown in Table 1.

Table 1

Basis for Contracting Agency Evaluation of HMA Mix Designs for Approval on the QPL		
Contractual Basis for Acceptance of HMA Mixture (see Section 5-04.3(9))	**Basis for Contracting Agency Approval of Mix Design for Placement on QPL**	**Contracting Agency Materials Testing for Evaluation of the Mix Design**
Statistical Evaluation	WSDOT Standard Practice QC-8	The Contracting Agency will test the mix design materials for compliance with Sections 9-03.8(2) and 9-03.8(6).
Visual Evaluation	Review of Form 350-042 for compliance with Sections 9-03.8(2) and 9-03.8(6)	The Contracting Agency may elect to test the mix design materials, or evaluate in accordance with WSDOT Standard Practice QC-8, at its sole discretion.

If the Contracting Agency approves the mix design, it will be listed on the QPL for 12 consecutive months. The Contracting Agency may extend the 12 month listing provided the Contractor submits a certification letter to the Qualified Products Engineer verifying that the aggregate source and job mix formula (JMF) gradation, and asphalt binder crude source and formulation have not changed. The Contractor may submit the certification no sooner than three months prior to expiration of the initial 12 month mix design approval. Within 7 calendar days of receipt of the Contractor's certification, the Contracting Agency will update the QPL. The maximum duration for approval of a mix design and listing on the QPL will be 24 months from the date of initial approval or as approved by the Engineer.

5-04.2(1)A Mix Designs Containing RAP and/or RAS

Mix designs are classified by the RAP and/or RAS content as shown in Table 2.

Table 2

Mix Design Classification Based on RAP/RAS Content	
RAP/RAS Classification	**RAP/RAS Content**[1]
Low RAP/No RAS	0% ≤ RAP% ≤ 20% and RAS% = 0%
High RAP/Any RAS	20% < RAP% ≤ Maximum Allowable RAP[2] and/or 0% < RAS% ≤ Maximum

	Allowable RAS[2]

[1]Percentages in this table are by total weight of HMA
[2]See Table 4 to determine the limits on the maximum amount RAP and/or RAS.

5-04.2(1)A1 Low RAP/No RAS – Mix Design Submittals for Placement on QPL

For Low RAP/No RAS mix designs, comply with the following additional requirements:

1. Develop the mix design with or without the inclusion of RAP.

2. The asphalt binder grade shall be the grade indicated in the Bid item name or as otherwise required by the Contract.

3. Submit samples of RAP if used in development of the mix design.

4. Testing RAP or RAS stockpiles is not required for obtaining approval for placing these mix designs on the QPL.

5-04.2(1)A2 High RAP/Any RAS - Mix Design Submittals for Placement on QPL

For High RAP/Any RAS mix designs, comply with the following additional requirements:

1. For mix designs with any RAS, test the RAS stockpile (and RAP stockpile if any RAP is in the mix design) in accordance with Table 3.

2. For High RAP mix designs with no RAS, test the RAP stockpile in accordance with Table 3.

3. For mix designs with High RAP/Any RAS, construct a single stockpile for RAP and a single stockpile for RAS and isolate (sequester) these stockpiles from further stockpiling before beginning development of the mix design. Test the RAP and RAS during stockpile construction as required by item 1 and 2 above. Use the test data in developing the mix design, and report the test data to the Contracting Agency on WSDOT Form 350-042 as part of the mix design submittal for approval on the QPL. Account for the reduction in asphalt binder contributed from RAS in accordance with AASHTO PP 78. Do not add to these stockpiles after starting the mix design process.

Table 3

Test Frequency of RAP/RAS During RAP/RAS Stockpile Construction For Approving a High RAP/Any RAS Mix Design for Placement on the QPL		
Test Frequency[1]	Test for	Test Method
• 1/1000 tons of	Asphalt Binder	FOP for AASHTO T

RAP (minimum of 10 per mix design) and • 1/100 tons of RAS (minimum of 10 per mix design)	Content and Sieve Analysis of Fine and Coarse Aggregate	308 and FOP for WAQTC T 27/T 11

[1]"tons", in this table, refers to tons of the reclaimed material before being incorporated into HMA.

4. Limit the amount of RAP and/or RAS used in a High RAP/Any RAS mix design by the amount of binder contributed by the RAP and/or RAS, in accordance with Table 4.

Table 4

Maximum Amount of RAP and/or RAS in HMA Mixture	
Maximum Amount of Binder Contributed from:	
RAP	RAS
40%[1] minus contribution of binder from RAS	20%[2]

[1] Calculated as the weight of asphalt binder contributed from the RAP as a percentage of the total weight of asphalt binder in the mixture.

[2] Calculated as the weight of asphalt binder contributed from the RAS as a percentage of the total weight of asphalt binder in the mixture.

5. Develop the mix design including RAP, RAS, recycling agent, and new binder.

6. Extract, recover, and test the asphalt residue from the RAP and RAS stockpiles to determine the percent of recycling agent and/or grade of new asphalt binder needed to meet but not exceed the performance grade (PG) of asphalt binder required by the Contract.

   a. Perform the asphalt extraction in accordance with AASHTO T 164 or ASTM D 2172 using reagent grade solvent.

   b. Perform the asphalt recovery in accordance with AASHTO R 59 or ASTM D 1856.

   c. Test the recovered asphalt residue in accordance with AASHTO R 29 to determine the asphalt binder grade in accordance with Section 9-02.1(4).

   d. After determining the recovered asphalt binder grade, determine the percent of recycling agent and/or grade of new asphalt binder in accordance with ASTM D 4887.

e. Test the final blend of recycling agent, binder recovered from the RAP and RAS, and new asphalt binder in accordance with AASHTO R 29. The final blended binder shall meet but not exceed the performance grade of asphalt binder required by the Contract and comply with the requirements of Section 9-02.1(4).

7. Include the following test data with the mix design submittal:

   a. All test data from RAP and RAS stockpile construction.

   b. All data from testing the recovered and blended asphalt binder.

8. Include representative samples of the following with the mix design submittal:

   a. RAP and RAS.

   b. 150 grams of recovered asphalt residue from the RAP and RAS that are to be used in the HMA production.

5-04.2(1)B Commercial HMA - Mix Design Submittal for Placement on QPL

For HMA used in the Bid item Commercial HMA, in addition to the requirements of 5-04.2(1) identify the following in the submittal:

1. Commercial HMA

2. Class of HMA

3. Performance grade of binder

4. Equivalent Single Axle Load (ESAL)

The Contracting Agency may elect to approve Commercial HMA mix designs without evaluation.

5-04.2(1)C Mix Design Resubmittal for QPL Approval

Develop a new mix design and resubmit for approval on the QPL when any of the following changes occur. When these occur, discontinue using the mix design until after it is reapproved on the QPL.

1. Change in the source of crude petroleum used in the asphalt binder.

2. Changes in the asphalt binder refining process.

3. Changes in additives or modifiers in the asphalt binder.

4. Changes in the anti-strip additive, brand, type or quantity.

5. Changes to the source of material for aggregate.

6. Changes to the job mix formula that exceed the amounts as described in item 2 of Section 9-03.8(7), unless otherwise approved by the Engineer.

7. Changes in the percentage of material from a stockpile, when such changes exceed 5% of the total aggregate weight.

    a. For Low RAP/No RAS mix designs developed without RAP, changes to the percentage of material from a stockpile will be calculated based on the total aggregate weight not including the weight of RAP.

    b. For Low RAP/No RAS mix designs developed with RAP, changes to the percentage of material from a stockpile will be calculated based on the total aggregate weight including the weight of RAP.

    c. For High RAP/Any RAS mix designs, changes in the percentage of material from a stockpile will be based on total aggregate weight including the weight of RAP (and/or RAS when included in the mixture).

Prior to making any change in the amount of RAS in an approved mix design, notify the Engineer for determination of whether a new mix design is required, and obtain the Engineer's approval prior to implementing such changes.

5-04.2(2) Mix Design – Obtaining Project Approval

Use only mix designs listed on the Qualified Products List (QPL). Submit WSDOT Form 350-041 to the Engineer to request approval to use a mix design from the QPL. Changes to the job mix formula (JMF) that have been approved on other contracts may be included. The Engineer may reject a request to use a mix design if production of HMA using that mix design on any contract is not in compliance with Section 5-04.3(11)D, E, F, and G for mixture or compaction.

5-04.2(2)A Changes to the Job Mix Formula

The approved mix design obtained from the QPL will be considered the starting job mix formula (JMF) and shall be used as the initial basis for acceptance of HMA mixture, as detailed in Section 5-04.3(9).

During production the Contractor may request to adjust the JMF. Any adjustments to the JMF will require approval of the Engineer and shall be made in accordance with item 2 of Section 9-03.8(7). After approval by the Engineer, such adjusted JMF's shall constitute the basis for acceptance of the HMA mixture.

5-04.2(2)B Using Warm Mix Asphalt Processes

The Contractor may, at the Contractor's discretion, elect to use warm mix asphalt (WMA) processes for producing HMA. WMA processes include organic additives, chemical additives, and foaming. The use of WMA is subject to the following:

- Do not use WMA processes in the production of High RAP/Any RAS mixtures.
- Before using WMA processes, obtain the Engineer's approval using WSDOT Form 350-076 to describe the proposed WMA process.

5-04.3 Construction Requirements

5-04.3(1) Weather Limitations

Do not place HMA for wearing course on any Traveled Way beginning October 1st through March 31st of the following year, without written concurrence from the Engineer.

Do not place HMA on any wet surface, or when the average surface temperatures are less than those specified in Table 5, or when weather conditions otherwise prevent the proper handling or finishing of the HMA.

Table 5

Minimum Surface Temperature for Paving		
Compacted Thickness (Feet)	**Wearing Course**	**Other Courses**
Less than 0.10	55°F	45°F
0.10 to 0.20	45°F	35°F
More than 0.20	35°F	35°F

5-04.3(2) Paving Under Traffic

These requirements apply when the Roadway being paved is open to traffic.

In hot weather, the Engineer may require the application of water to the pavement to accelerate the finish rolling of the pavement and to shorten the time required before reopening to traffic.

During paving operations, maintain temporary pavement markings throughout the project. Install temporary pavement markings on the Roadway prior to opening to traffic. Temporary pavement markings shall comply with Section 8-23.

5-04.3(3) Equipment

5-04.3(3)A Mixing Plant

Equip mixing plants as follows.

1. **Use tanks for storage and preparation of asphalt binder which:**

   - Heat the contents by means that do not allow flame to contact the contents or the tank, such as by steam or electricity.

   - Heat and hold contents at the required temperatures.

   - Continuously circulate contents to provide uniform temperature and consistency during the operating period.

   - Provide an asphalt binder sampling valve, in either the storage tank or the supply line to the mixer.

2. **Provide thermometric equipment:**

- In the asphalt binder feed line near the charging valve at the mixer unit, capable of detecting temperature ranges expected in the HMA and in a location convenient and safe for access by Inspectors.

- At the discharge chute of the drier to automatically register or indicate the temperature of the heated aggregates, and situated in full view of the plant operator.

3. **When heating asphalt binder:**

   - Do not exceed the maximum temperature of the asphalt binder recommended by the asphalt binder supplier.

   - Avoid local variations in heating.

   - Provide a continuous supply of asphalt binder to the mixer at a uniform average temperature with no individual variations exceeding 25°F.

4. **Provide a mechanical sampler for sampling mineral materials that:**

   - Meets the crushing or screening requirements of Section 1-05.6.

5. **Provide HMA sampling equipment that complies with WSDOT T168.**

   - Use a mechanical sampling device installed between the discharge of the silo and the truck transport, approved by the Engineer, or

   - Platforms or devices to enable sampling from the truck transport without entering the truck transport for sampling HMA.

6. **Provide for setup and operation of the Contracting Agency's field testing:**

   - As required in Section 3-01.2(2).

7. **Provide screens or a lump breaker:**

   - When using any RAP or any RAS, to eliminate oversize RAP or RAS particles from entering the pug mill or drum mixer.

5-04.3(3)B Hauling Equipment

Provide HMA hauling equipment with tight, clean, smooth metal beds and a cover of canvas or other suitable material of sufficient size to protect the HMA from adverse weather. Securely attach the cover to protect the HMA whenever the weather conditions during the work shift include, or are forecast to include, precipitation or an air temperature less than 45°F.

Prevent HMA from adhering to the hauling equipment. Spray metal beds with an environmentally benign release agent. Drain excess release agent prior to filling hauling equipment with HMA. Do not use petroleum derivatives or other coating

material that contaminate or alter the characteristics of the HMA. For hopper trucks, operate the conveyer during the process of applying the release agent.

5-04.3(3)C Pavers

Use self-contained, power-propelled pavers provided with an internally heated vibratory screed that is capable of spreading and finishing courses of HMA in lane widths required by the paving section shown in the Plans.

When requested by the Engineer, provide written certification that the paver is equipped with the most current equipment available from the manufacturer for the prevention of segregation of the coarse aggregate particles. The certification shall list the make, model, and year of the paver and any equipment that has been retrofitted to the paver.

Operate the screed in accordance with the manufacturer's recommendations and in a manner to produce a finished surface of the required evenness and texture without tearing, shoving, segregating, or gouging the mixture. Provide a copy of the manufacturer's recommendations upon request by the Contracting Agency. Extensions to the screed will be allowed provided they produce the same results, including ride, density, and surface texture as obtained by the primary screed. In the Travelled Way do not use extensions without both augers and an internally heated vibratory screed.

Equip the paver with automatic screed controls and sensors for either or both sides of the paver. The controls shall be capable of sensing grade from an outside reference line, sensing the transverse slope of the screed, and providing automatic signals that operate the screed to maintain the desired grade and transverse slope. Construct the sensor so it will operate from a reference line or a mat referencing device. The transverse slope controller shall be capable of maintaining the screed at the desired slope within plus or minus 0.1 percent.

Equip the paver with automatic feeder controls, properly adjusted to maintain a uniform depth of material ahead of the screed.

Manual operation of the screed is permitted in the construction of irregularly shaped and minor areas. These areas include, but are not limited to, gore areas, road approaches, tapers and left-turn channelizations.

When specified in the Contract, provide reference lines for vertical control. Place reference lines on both outer edges of the Traveled Way of each Roadway. Horizontal control utilizing the reference line is permitted. Automatically control the grade and slope of intermediate lanes by means of reference lines or a mat referencing device and a slope control device. When the finish of the grade prepared for paving is superior to the established tolerances and when, in the opinion of the Engineer, further improvement to the line, grade, cross-section, and smoothness can best be achieved without the use of the reference line, a mat referencing device may be substituted for the reference line. Substitution of the device will be subject to the continued approval of the Engineer. A joint matcher may be used subject to the approval of the Engineer. The reference line may be removed after completion of the first course of HMA when approved by the Engineer. Whenever the Engineer determines that any of these methods are

failing to provide the necessary vertical control, the reference lines will be reinstalled by the Contractor.

Furnish and install all pins, brackets, tensioning devices, wire, and accessories necessary for satisfactory operation of the automatic control equipment.

If the paving machine in use is not providing the required finish, the Engineer may suspend Work as allowed by Section 1-08.6.

5-04.3(3)D Material Transfer Device or Material Transfer Vehicle

Use a material transfer device (MTD) or material transfer vehicle (MTV) to deliver the HMA from the hauling equipment to the paving machine for any lift in (or partially in) the top 0.30 feet of the pavement section used in traffic lanes. However, an MTD/V is not required for HMA placed in irregularly shaped and minor areas such as tapers and turn lanes, or for HMA mixture that is accepted by Visual Evaluation. At the Contractor's request the Engineer may approve paving without an MTD/V; the Engineer will determine if an equitable adjustment in cost or time is due. If a windrow elevator is used, the Engineer may limit the length of the windrow in urban areas or through intersections.

To be approved for use, an MTV:

1. Shall be a self-propelled vehicle, separate from the hauling vehicle or paver.

2. Shall not connected to the hauling vehicle or paver.

3. May accept HMA directly from the haul vehicle or pick up HMA from a windrow.

4. Shall mix the HMA after delivery by the hauling equipment and prior to placement into the paving machine.

5. Shall mix the HMA sufficiently to obtain a uniform temperature throughout the mixture.

To be approved for use, an MTD:

1. Shall be positively connected to the paver.

2. May accept HMA directly from the haul vehicle or pick up HMA from a windrow.

3. Shall mix the HMA after delivery by the hauling equipment and prior to placement into the paving machine.

4. Shall mix the HMA sufficiently to obtain a uniform temperature throughout the mixture.

5-04.3(3)E Rollers

Operate rollers in accordance with the manufacturer's recommendations. When requested by the Engineer, provide a Type 1 Working Drawing of the manufacturer's recommendation for the use of any roller planned for use on the project. Do not use rollers that crush aggregate, produce pickup or washboard, unevenly compact the surface, displace the mix, or produce other undesirable results.

5-04.3(4) Preparation of Existing Paved Surfaces

Before constructing HMA on an existing paved surface, the entire surface of the pavement shall be clean. Entirely remove all fatty asphalt patches, grease drippings, and other deleterious substances from the existing pavement to the satisfaction of the Engineer. Thoroughly clean all pavements or bituminous surfaces of dust, soil, pavement grindings, and other foreign matter. Thoroughly remove any cleaning or solvent type liquids used to clean equipment spilled on the pavement before paving proceeds. Fill all holes and small depressions with an appropriate class of HMA. Level and thoroughly compact the surface of the patched area.

Apply a uniform coat of asphalt (tack coat) to all paved surfaces on which any course of HMA is to be placed or abutted. Apply tack coat to cover the cleaned existing pavement with a thin film of residual asphalt free of streaks and bare spots. Apply a heavy application of tack coat to all joints. For Roadways open to traffic, limit the application of tack coat to surfaces that will be paved during the same working shift. Equip the spreading equipment with a thermometer to indicate the temperature of the tack coat material.

Do not operate equipment on tacked surfaces until the tack has broken and cured. Repair tack coat damaged by the Contractor's operation, prior to placement of the HMA.

Unless otherwise approved by the Engineer, use cationic emulsified asphalt CSS-1, CSS-1h, STE-1, or Performance Graded (PG) asphalt for tack coat. The CSS-1 and CSS-1h may be diluted with water at a rate not to exceed one part water to one part emulsified asphalt. Do not allow the tack coat material to exceed the maximum temperature recommended by the asphalt supplier.

When shown in the Plans, prelevel uneven or broken surfaces over which HMA is to be placed by using an asphalt paver, a motor patrol grader, or by hand raking, as approved by the Engineer.

5-04.3(4)A Crack Sealing

5-04.3(4)A1 General

When the Proposal includes a pay item for crack sealing, seal all cracks ¼ inch in width and greater.

Cleaning: Ensure that cracks are thoroughly clean, dry and free of all loose and foreign material when filling with crack sealant material. Use a hot compressed air lance to dry and warm the pavement surfaces within the crack immediately prior to filling a crack with the sealant material. Do not overheat pavement. Do not use direct flame dryers. Routing cracks is not required.

Sand Slurry: For cracks that are to be filled with sand slurry, thoroughly mix the components and pour the mixture into the cracks until full. Add additional CSS-1 cationic emulsified asphalt to the sand slurry as needed for workability to ensure the mixture will completely fill the crack. Strike off the sand slurry flush with the existing pavement surface and allow the mixture to cure. Top off cracks that were not completely filled with additional sand slurry. Do not place the HMA overlay until the slurry has fully cured.

Hot Poured Sealant: For cracks that are to be filled with hot poured sealant, apply the material in accordance with these requirements and the manufacturer's recommendations. Furnish a Type 1 Working Drawing of the manufacturer's product information and recommendations to the Engineer prior to the start of work, including the manufacturer's recommended heating time and temperatures, allowable storage time and temperatures after initial heating, allowable reheating criteria, and application temperature range. Confine hot poured sealant material within the crack. Clean any overflow of sealant from the pavement surface. If, in the opinion of the Engineer, the Contractor's method of sealing the cracks with hot poured sealant results in an excessive amount of material on the pavement surface, stop and correct the operation to eliminate the excess material.

5-04.3(4)A2 Crack Sealing Areas Prior to Paving

In areas where HMA will be placed, use sand slurry to fill the cracks.

5-04.3(4)A3 Crack Sealing Areas Not to be Paved

In areas where HMA will not be placed, fill the cracks as follows:

1. Cracks ¼ inch to 1 inch in width - fill with hot poured sealant.

2. Cracks greater than 1 inch in width – fill with sand slurry.

5-04.3(4)B Soil Residual Herbicide

Where shown in the Plans, apply one application of an approved soil residual herbicide. Comply with Section 8-02.3(3)B. Complete paving within 48 hours of applying the herbicide.

Use herbicide registered with the Washington State Department of Agriculture for use under pavement. Before use, obtain the Engineer's approval of the herbicide and the proposed rate of application. Include the following information in the request for approval of the material:

1. Brand Name of the Material,

2. Manufacturer,

3. Environmental Protection Agency (EPA) Registration Number,

4. Material Safety Data Sheet, and

5. Proposed Rate of Application.

5-04.3(4)C Pavement Repair

Excavate pavement repair areas and backfill these with HMA in accordance with the details shown in the Plans and as staked. Conduct the excavation operations in a manner that will protect the pavement that is to remain. Repair pavement not designated to be removed that is damaged as a result of the Contractor's operations to the satisfaction of the Engineer at no cost to the Contracting Agency. Excavate only within one lane at a time unless approved otherwise by the Engineer. Do not excavate more area than can be completely backfilled and compacted during the same shift.

Unless otherwise shown in the Plans or determined by the Engineer, excavate to a depth of 1.0 feet. The Engineer will make the final determination of the excavation depth required.

The minimum width of any pavement repair area shall be 40 inches unless shown otherwise in the Plans. Before any excavation, sawcut the perimeter of the pavement area to be removed unless the pavement in the pavement repair area is to be removed by a pavement grinder.

Excavated materials shall be the property of the Contractor and shall be disposed of in a Contractor-provided site off the Right of Way or used in accordance with Sections 2-02.3(3) or 9-03.21.

Apply a heavy application of tack coat to all surfaces of existing pavement in the pavement repair area, in accordance with Section 5-04.3(4).

Place the HMA backfill in lifts not to exceed 0.35-foot compacted depth. Thoroughly compact each lift by a mechanical tamper or a roller.

5-04.3(5) Producing/Stockpiling Aggregates, RAP, & RAS

Produce aggregate in compliance with Section 3-01. Comply with Section 3-02 for preparing stockpile sites, stockpiling, and removing from stockpile each of the following: aggregates, RAP, and RAS. Provide sufficient storage space for each size of aggregate, RAP and RAS. Fine aggregate or RAP may be uniformly blended with the RAS as a method of preventing the agglomeration of RAS particles. Remove the aggregates, RAP and RAS from stockpile(s) in a manner that ensures minimal segregation when being moved to the HMA plant for processing into the final mixture. Keep different aggregate sizes separated until they have been delivered to the HMA plant.

5-04.3(5)A Stockpiling RAP or RAS for High RAP/Any RAS Mixes

Do not place any RAP or RAS into a stockpile which has been sequestered for a High RAP/Any RAS mix design. Do not incorporate any RAP or RAS into a High RAP/Any RAS mixture from any source other than the stockpile which was sequestered for approval of that particular High RAP/Any RAS mix design.

RAP that is used in a Low RAP/No RAS mix is not required to come from a sequestered stockpile.

5-04.3(6) Mixing

The asphalt supplier shall introduce anti-stripping additive, in the amount designated on the QPL for the mix design, into the asphalt binder prior to shipment to the asphalt mixing plant.

Anti-strip is not required for temporary work that will be removed prior to Physical Completion.

Use asphalt binder of the grade, and from the supplier, in the approved mix design.

Prior to introducing reclaimed materials into the asphalt plant, remove wire, nails, and other foreign material. Discontinue use of the reclaimed material if the Engineer, in their sole discretion, determines the wire, nails, or other foreign material to be excessive.

Size RAP and RAS prior to entering the mixer to provide uniform and thoroughly mixed HMA. If there is evidence of the RAP or RAS not breaking down during the heating and mixing of the HMA, immediately suspend the use of the RAP or RAS until changes have been approved by the Engineer.

After the required amount of mineral materials, RAP, RAS, new asphalt binder and recycling agent have been introduced into the mixer, mix the HMA until complete and uniform coating of the particles and thorough distribution of the asphalt binder throughout the mineral materials, RAP and RAS is ensured.

Upon discharge from the mixer, ensure that the temperature of the HMA does not exceed the optimum mixing temperature shown on the approved Mix Design Report by more than 25°F, or as approved by the Engineer. When a WMA additive is included in the manufacture of HMA, do not heat the WMA additive (at any stage of production including in binder storage tanks) to a temperature higher than the maximum recommended by the manufacturer of the WMA additive.

A maximum water content of 2 percent in the mix, at discharge, will be allowed providing the water causes no problems with handling, stripping, or flushing. If the water in the HMA causes any of these problems, reduce the moisture content.

During the daily operation, HMA may be temporarily held in approved storage facilities. Do not incorporate HMA into the Work that has been held for more than 24 hours after mixing. Provide an easily readable, low bin-level indicator on the storage facility that indicates the amount of material in storage. Waste the HMA in storage when the top level of HMA drops below the top of the cone of the storage facility, except as the storage facility is being emptied at the end of the working shift. Dispose of rejected or waste HMA at no expense to the Contracting Agency.

5-04.3(7) Spreading and Finishing

Do not exceed the maximum nominal compacted depth of any layer in any course, as shown in Table 6, unless approved by the Engineer:

Table 6

Maximum Nominal Compacted Depth of Any Layer		
HMA Class	**Wearing Course**	**Other than Wearing Course**
1 inch	0.35 feet	0.35 feet
¾ and ½ inch	0.30 feet	0.35 feet
⅜ inch	0.15 feet	0.15 feet

Use HMA pavers complying with Section 5-04.3(3) to distribute the mix. On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the paving may be done with other equipment or by hand.

When more than one JMF is being utilized to produce HMA, place the material produced for each JMF with separate spreading and compacting equipment. Do not intermingle HMA produced from more than one JMF. Each strip of HMA placed during a work shift shall conform to a single JMF established for the class of HMA specified unless there is a need to make an adjustment in the JMF.

5-04.3(8) Aggregate Acceptance Prior to Incorporation in HMA

Sample aggregate for meeting the requirements of Section 3-04 prior to being incorporated into HMA. (The acceptance data generated for the Section 3-04 acceptance analysis will not be commingled with the acceptance data generated for the Section 5-04.3(9) acceptance analysis.) Aggregate acceptance samples shall be taken as described in Section 3-04. Aggregate acceptance testing will be performed by the Contracting Agency. Aggregate contributed from RAP and/or RAS will not be evaluated under Section 3-04.

For aggregate that will be used in HMA mixture which will be accepted by Statistical Evaluation, the Contracting Agency's acceptance of the aggregate will be based on:

1. Samples taken prior to mixing with asphalt binder, RAP, or RAS;

2. Testing for the materials properties of fracture, uncompacted void content, and sand equivalent;

3. Evaluation by the Contracting Agency in accordance with Section 3-04, including price adjustments as described therein.

For aggregate that will be used in HMA which will be accepted by Visual Evaluation, evaluation in accordance with items 1, 2, and 3 above is at the discretion of the Engineer.

5-04.3(9) HMA Mixture Acceptance

The Contracting Agency will evaluate HMA mixture for acceptance by one of two methods as determined from the criteria in Table 7.

Table 7

Basis of Acceptance for HMA Mixture		
	Visual Evaluation	**Statistical Evaluation**

Criteria for Selecting the Evaluation Method	• Commercial HMA placed at any location • Any HMA placed in: o sidewalks o road approaches o ditches o slopes o paths o trails o gores o prelevel o temporary pavement[1] o pavement repair • Other nonstructural applications of HMA as approved by the Engineer	• All HMA mixture other than that accepted by Visual Evaluation

[1] Temporary pavement is HMA that will be removed before Physical Completion of the Contract.

5-04.3(9)A Test Sections

This Section applies to HMA mixture accepted by Statistical Evaluation. A test section is not allowed for HMA accepted by Visual Evaluation.

The purpose of a test section is to determine whether or not the Contractor's mix design and production processes will produce HMA meeting the Contract requirements related to mixture. Construct HMA mixture test sections at the beginning of paving, using at least 600 tons and a maximum of 1,000 tons or as specified by the Engineer. Each test section shall be constructed in one continuous operation.

5-04.3(9)A1 Test Section – When Required, When to Stop

Use Tables 8 and 9 to determine when a test section is required, optional, or not allowed, and to determine when performing test sections may end. Each mix design will be evaluated independently for the test section requirements. If more than one test section is required, each test section shall be evaluated separately by the criteria in table 8 and 9.

Table 8

Criteria for Conducting and Evaluating HMA Mixture Test Sections (For HMA Mixture Accepted by Statistical Evaluation)		
	High RAP/Any RAS	**Low RAP/No RAS**
Is Mixture Test Section Optional or Mandatory?	Mandatory[1]	At Contractor's Option
Waiting period after	4 calendar days[2]	4 calendar days[2]

paving the test section.		
What Must Happen to Stop Performing Test Sections?	Meet "Results Required to Stop Performing Test Sections" in Table 9 for High RAP/Any RAS.	Provide samples and respond to WSDOT test results required by Table 9 for Low RAP/No RAS.

[1]If a mix design has produced an acceptable test section on a previous contract (paved in the same calendar year, from the same plant, using the same JMF) the test section may be waived if approved by the Engineer.

[2]This is to provide time needed by the Contracting Agency to complete testing and the Contractor to adjust the mixture in response to those test results. Paving may resume when this is done.

1

Table 9

Results Required to Stop Performing HMA Mixture Test Sections[1] (For HMA Mixture Accepted by Statistical Evaluation)		
Test Property	**Type of HMA**	
	High RAP/Any RAS	**Low RAP/No RAS**
Gradation	Minimum PF_i of 0.95 based on the criteria in Section 5-04.3(9)B4[2]	None[4]
Asphalt Binder	Minimum PF_i of 0.95 based on the criteria in Section 5-04.3(9)B4[2]	None[4]
V_a	Minimum PF_i of 0.95 based on the criteria in Section 5-04.3(9)B4[2]	None[4]
Hamburg Wheel Track Indirect Tensile Strength	Meet requirements of Section 9-03.8(2).[3]	These tests will not be done as part of Test Section.
Aggregates Sand Equivalent Uncompacted Void Content Fracture	Nonstatistical Evaluation in accordance with the requirements of Section 3-04[3]	None[3]

[1]In addition to the requirements of this table, acceptance of the HMA mixture used in each test section is subject to the acceptance criteria and price adjustments for Statistical Evaluation (see Table 9a).

[2]Divide the test section lot into three sublots, approximately equal in size. Take one sample from each sublot, and test each sample for the property in the first column.
[3]Take one sample for each test section lot. Test the sample for the properties in the first column.
[4]Divide the test section lot into three sublots, approximately equal in size. Take one sample from each sublot, and test each sample for the property in the first column. There are no criteria for discontinuing test sections for these mixes; however, the contractor must comply with Section 5-04.3(11)F before resuming paving.

5-04.3(9)A2 Test Section – Evaluating the HMA Mixture in a Test Section

The Engineer will evaluate the HMA mixture in each test section for rejection, acceptance, and price adjustments based on the criteria in Table 9a using the data generated from the testing required by Table 9. Each test section shall be considered a separate lot.

Table 9a

Acceptance Criteria for HMA Mixture Placed in a Test Section (For HMA Mixture Accepted by Statistical Evaluation)		
Test Property	**Type of HMA**	
	High RAP/Any RAS	**Low RAP/No RAS**
Gradation Asphalt Binder V_a	Statistical Evaluation	Statistical Evaluation
Hamburg Wheel Track Indirect Tensile Strength	Pass/Fail for the requirements of Section 9-03.8(2)[1]	N/A
HMA Aggregate Sand Equivalent Uncompacted Void Content	Nonstatistical Evaluation in accordance with the requirements of Section 3-04	Nonstatistical Evaluation in accordance with the requirements of Section 3-04

[1]Failure to meet the specifications for Hamburg and/or IDT will cause the mixture in the test section to be rejected. Refer to Section 5-04.3(11).

5-04.3(9)B Mixture Acceptance – Statistical Evaluation

5-04.3(9)B1 Mixture Statistical Evaluation – Lots and Sublots

HMA mixture which is accepted by Statistical Evaluation will be evaluated by the Contracting Agency dividing that HMA tonnage into mixture lots, and each mixture lot will be evaluated using stratified random sampling by the Contracting Agency sub-dividing each mixture lot into mixture sublots. All mixture in a mixture lot shall be of the same mix design. The mixture sublots will be numbered in the order in which the mixture (of a particular mix design) is paved.

Each mixture lot comprises a maximum of 15 mixture sublots, except:

- The final mixture lot of each mix design on the Contract will comprise a maximum of 25 sublots.
- A mixture lot for a test section will consist of three sublots.

Each mixture sublot shall be approximately uniform in size with the maximum mixture sublot size as specified in Table 10. The quantity of material represented by the final mixture sublot of the project, for each mix design on the project, may be increased to a maximum of two times the mixture sublot quantity calculated.

Table 10

Maximum HMA Mixture Sublot Size For HMA Accepted by Statistical Evaluation	
HMA Original Plan Quantity (tons)[1]	**Maximum Sublot Size (tons)[2]**
< 20,000	1,000
20,000 to 30,000	1,500
>30,000	2,000

[1] "Plan quantity" means the plan quantity of all HMA of the same class and binder grade which is accepted by Statistical Evaluation.

[2] The maximum sublot size for each combination of HMA class and binder grade shall be calculated separately.

- For a mixture lot in progress with a mixture CPF less than 0.75, a new mixture lot will begin at the Contractor's request after the Engineer is satisfied that material conforming to the Specifications can be produced. See also Section 5-04.3(11)F.

- If, before completing a mixture lot, the Contractor requests a change to the JMF which is approved by the Engineer, the mixture produced in that lot after the approved change will be evaluated on the basis of the changed JMF, and the mixture produced in that lot before the approved change will be evaluated on the basis of the unchanged JMF; however, the mixture before and after the change will be evaluated in the same lot. Acceptance of subsequent mixture lots will be evaluated on the basis of the changed JMF.

5-04.3(9)B2 Mixture Statistical Evaluation – Sampling

Comply with Section 1-06.2(1).

Samples of HMA mixture which is accepted by Statistical Evaluation will be randomly selected from within each sublot, with one sample per sublot. The Engineer will determine the random sample location using WSDOT Test Method T 716. The Contractor shall obtain the sample when ordered by the Engineer. The Contractor shall sample the HMA

mixture in the presence of the Engineer and in accordance with FOP for WAQTC T 168.

5-04.3(9)B3 Mixture Statistical Evaluation – Acceptance Testing

Comply with Section 1-06.2(1).

The Contracting Agency will test the mixture sample from each sublot (including sublots in a test section) for the properties shown in Table 11.

Table 11

Testing Required for each HMA Mixture Sublot		
Test	**Procedure**	**Performed by**
V_a	WSDOT SOP 731	Engineer
Asphalt Binder Content	FOP for AASHTO T 308	Engineer
Gradation: Percent Passing 1½″, 1″, ¾″, ½″, ⅜″, No. 4, No. 8, No. 200	FOP for WAQTC T 27/T 11	Engineer

The mixture samples and tests taken for the purpose of determining acceptance of the test section (as described in Section 5-04.3(9)A) shall also be used as the test results for acceptance of the mixture described in 5-04.3(9)B3, 5-04.3(9)B4, 5-04.3(9)B5, and 5-04.3(9)B6.

5-04.3(9)B4 Mixture Statistical Evaluation – Pay Factors

Comply with Section 1-06.2(2).

The Contracting Agency will determine a pay factor (PF_i) for each of the properties in Table 11, for each mixture lot, using the quality level analysis in Section 1-06.2(2)D. For Gradation, a pay factor will be calculated for each of the sieve sizes listed in Table 11 which is equal to or smaller than the maximum allowable aggregate size (100 percent passing sieve) of the HMA mixture. The USL and LSL shall be calculated using the Job Mix Formula Tolerances (for Statistical Evaluation) in Section 9-03.8(7).

If a constituent is not measured in accordance with these Specifications, its individual pay factor will be considered 1.00 in calculating the Composite Pay Factor (CPF).

5-04.3(9)B5 Mixture Statistical Evaluation – Composite Pay Factors (CPF)

Comply with Section 1-06.2(2).

In accordance with Section 1-06.2(2)D4, the Contracting Agency will determine a Composite Pay Factor (CPF) for each mixture lot from the pay factors calculated in Section 5-04.3(9)B4, using the price adjustment factors in Table 12. Unless otherwise specified, the maximum CPF for HMA mixture shall be 1.05.

Table 12

HMA Mixture Price Adjustment Factors	
Constituent	**Factor "f"**
All aggregate passing: 1½″, 1″, ¾″, ½″, ⅜″ and No.4 sieves	2
All aggregate passing No. 8 sieve	15
All aggregate passing No. 200 sieve	20
Asphalt binder	40
Air Voids (V_a)	20

5-04.3(9)B6 Mixture Statistical Evaluation – Price Adjustments

For each HMA mixture lot, a Job Mix Compliance Price Adjustment will be determined and applied, as follows:

JMCPA = [0.60 x (CPF – 1.00)] x Q x UP

Where

JMCPA = Job Mix Compliance Price Adjustment for a given lot of mixture ($)
CPF = Composite Pay factor for a given lot of mixture (maximum is 1.05)
Q = Quantity in a given lot of mixture (tons)
UP = Unit price of the HMA in a given lot of mixture ($/ton)

5-04.3(9)B7 Mixture Statistical Evaluation – Retests

The Contractor may request that a mixture sublot be retested. To request a retest, submit a written request to the Contracting Agency within 7 calendar days after the specific test results have been posted to the website or emailed to the Contractor, whichever occurs first. The Contracting Agency will send a split of the original acceptance sample for testing by the Contracting Agency to either the Region Materials Laboratory or the State Materials Laboratory as determined by the Engineer. The Contracting Agency will not test the split of the sample with the same equipment or by the same tester that ran the original acceptance test. The sample will be tested for a complete gradation analysis, asphalt binder content, and V_a, and the results of the retest will be used for the acceptance of the HMA mixture in place of the original mixture sublot sample test results. The cost of testing will be deducted from any monies due or that may come due the Contractor under the Contract at the rate of $250 per sample.

5-04.3(9)C Vacant

5-04.3(9)D Mixture Acceptance – Visual Evaluation

Visual Evaluation of HMA mixture will be by visual inspection by the Engineer or, in the sole discretion of the Engineer, the Engineer may sample and test the mixture.

5-04.3(9)D1 Mixture Visual Evaluation – Lots, Sampling, Testing, Price Adjustments

HMA mixture accepted by Visual Evaluation will not be broken into lots unless the Engineer determines that testing is required. When that occurs, the Engineer will identify the limits of the questionable HMA mixture, and that questionable HMA mixture shall constitute a lot. Then, the Contractor will take samples from the truck, or the Engineer will take core samples from the roadway at a minimum of three random locations from within the lot, selected in accordance with WSDOT Test Method T 716, taken from the roadway in accordance with WSDOT SOP 734, and tested in accordance with WSDOT SOP 737. The Engineer will test one of the samples for all constituents in Section 5-04.3(9)B3. If all constituents from that test fall within the Job Mix Formula Tolerances (for Visual Evaluation) in Section 9-03.8(7), the lot will be accepted at the unit Contract price with no further evaluation.

When one or more constituents fall outside those tolerance limits, the other samples will be tested for all constituents in Section 5-04.3(9)B3, and a Job Mix Compliance Price Adjustment will be calculated in accordance with Table 13.

Table 13

Visual Evaluation – Out of Tolerance Procedures	
Comply with the Following	
Pay Factors[1]	Section 5-04.3(9)B4
Composite Pay Factors[2]	Section 5-04.3(9)B5
Price Adjustments	Section 5-04.3(9)B6

[1]The Visual Evaluation tolerance limits in Section 9-03.8(7) will be used in the calculation of the PF_i.

[2]The maximum CPF shall be 1.00.

5-04.3(9)E Mixture Acceptance – Notification of Acceptance Test Results

The results of all mixture acceptance testing and the Composite Pay Factor (CPF) of the lot after three sublots have been tested will be available to the Contractor through The Contracting Agency's website.

The Contracting Agency will endeavor to provide written notification (via email to the Contractor's designee) of acceptance test results through its web-based materials testing system Statistical Analysis of Materials (SAM) within 24 hours of the sample being made available to the Contracting Agency. However, the Contractor agrees:

1. Quality control, defined as the system used by the Contractor to monitor, assess, and adjust its production processes to ensure that the final HMA mixture will meet the specified level of quality, is the sole responsibility of the Contractor.

2. The Contractor has no right to rely on any testing performed by the Contracting Agency, nor does the Contractor have any right to rely

on timely notification by the Contracting Agency of the Contracting Agency's test results (or statistical analysis thereof), for any part of quality control and/or for making changes or correction to any aspect of the HMA mixture.

3. The Contractor shall make no claim for untimely notification by the Contracting Agency of the Contracting Agency's test results or statistical analysis.

5-04.3(10) HMA Compaction Acceptance

For all HMA, the Contractor shall comply with the General Compaction Requirements in Section 5-04.3(10)A. The Contracting Agency will evaluate all HMA for compaction compliance with one of the following - Statistical Evaluation, Visual Evaluation, or Test Point Evaluation - determined by the criteria in Table 14:

Table 14

Criteria for Determining Method of Evaluation for HMA Compaction[1]		
Statistical Evaluation of HMA Compaction is Required For:	**Visual Evaluation of HMA Compaction is Required For:**	**Test Point Evaluation of HMA Compaction is Required For:**
• Any HMA for which the specified course thickness is greater than 0.10 feet, and the HMA is in: o traffic lanes, including but not limited to: • ramp lanes • truck climbing lanes • weaving lanes • speed change lanes	• "HMA for Preleveling…" • "HMA for Pavement Repair…"	• Any HMA not meeting the criteria for Statistical Evaluation or Visual Evaluation

[1]This table applies to all HMA, and shall be the sole basis for determining the acceptance method for compaction.

The Contracting Agency may, at its sole discretion, evaluate any HMA for compliance with the Cyclic Density requirements of Section 5-04.3(10)B.

5-04.3(10)A HMA Compaction – General Compaction Requirements

Immediately after the HMA has been spread and struck off, and after surface irregularities have been adjusted, thoroughly and uniformly compact the mix. The completed course shall be free from ridges, ruts, humps, depressions, objectionable marks, and irregularities and shall conform to the line, grade, and cross-section shown in the Plans. If necessary, alter the JMF in accordance with Section 9-03.8(7) to achieve desired results.

Compact the mix when it is in the proper condition so that no undue displacement, cracking, or shoving occurs. Compact areas inaccessible to large compaction equipment by mechanical or hand tampers. Remove HMA that becomes loose, broken, contaminated, shows an excess or deficiency of asphalt, or is in any way defective. Replace the removed material with new HMA, and compact it immediately to conform to the surrounding area.

The type of rollers to be used and their relative position in the compaction sequence shall generally be the Contractor's option, provided the specified densities are attained. An exception shall be that pneumatic tired rollers shall be used for compaction of the wearing course beginning October 1st of any year through March 31st of the following year. Coverage with a steel wheel roller may precede pneumatic tired rolling. Unless otherwise approved by the Engineer, operate rollers in the static mode when the internal temperature of the mix is less than 175°F. Regardless of mix temperature, do not operate a roller in a mode that results in checking or cracking of the mat.

On bridge decks and on the five feet of roadway approach immediately adjacent to the end of bridge/back of pavement seat, operate rollers in static mode only.

5-04.3(10)B HMA Compaction – Cyclic Density

Low cyclic density areas are defined as spots or streaks in the pavement that are less than 90 percent of the theoretical maximum density. At the Engineer's discretion, the Engineer may evaluate the HMA pavement for low cyclic density, and when doing so will follow WSDOT SOP 733. A $500 Cyclic Density Price Adjustment will be assessed for any 500-foot section with two or more density readings below 90 percent of the theoretical maximum density.

5-04.3(10)C HMA Compaction Acceptance – Statistical Evaluation

HMA compaction which is accepted by Statistical Evaluation will be based on acceptance testing performed by the Contracting Agency, and statistical analysis of those acceptance tests results. This will result in a Compaction Price Adjustment.

5-04.3(10)C1 HMA Compaction Statistical Evaluation – Lots and Sublots

HMA compaction which is accepted by Statistical Evaluation will be evaluated by the Contracting Agency dividing the project into compaction lots, and each compaction lot will be evaluated using stratified random sampling by the Contracting Agency sub-dividing each compaction lot into compaction sublots. All mixture in any individual compaction lot shall be of the same mix design. The compaction sublots will be numbered in the order in which the mixture (of a particular mix design) is paved.

Each compaction lot comprises a maximum of 15 compaction sublots, except for the final compaction lot of each mix design on the Contract, which comprises a maximum of 25 sublots.

Each compaction sublot shall be uniform in size as shown in Table 15, except that the last compaction sublot of each day may be increased to a maximum of two times the compaction sublot quantity calculated. Minor variations in the size of any sublot shall not be cause to invalidate the associated test result.

Table 15

HMA Compaction Sublot Size	
HMA Original Plan Quantity (tons)[1]	Compaction Sublot Size (tons)
<20,000	100
20,000 to 30,000	150
>30,000	200

[1] In determining the plan quantity tonnage, do not include any tons accepted by test point evaluation.

The following will cause one compaction lot to end prematurely and a new compaction lot to begin:

- For a compaction lot in progress with a compaction CPF less than 0.75, a new compaction lot will begin at the Contractor's request after the Engineer is satisfied that material conforming to the Specifications can be produced. See also Section 5-04.3(11)F.

All HMA which is paved on a bridge and accepted for compaction by Statistical Evaluation will compose a bridge compaction lot. If the contract includes such HMA on more than one bridge, compaction will be evaluated on each bridge individually, as separate bridge compaction lots.

Bridge compaction sublots will be determined by the Engineer subject to the following:

- All sublots on a given bridge will be approximately the same size.

- Sublots will be stratified from the lot.

- In no case will there be less than 3 sublots in each bridge compaction lot.

- No sublot will exceed 50 tons.

- Compaction test locations will be determined by the Engineer in accordance with WSDOT FOP for AASHTO T716.

5-04.3(10)C2 HMA Compaction Statistical Evaluation – Acceptance Testing

Comply with Section 1-06.2(1).

The location of HMA compaction acceptance tests will be randomly selected by the Contracting Agency from within each sublot, with one test per sublot. The Contracting Agency will determine the random sample location using WSDOT Test Method T 716.

Use Table 16 to determine compaction acceptance test procedures and to allocate compaction acceptance sampling and testing responsibilities between the Contractor and the Contracting Agency. HMA cores shall be taken or nuclear density testing shall occur after completion of the finish rolling, prior to opening to traffic, and on the same day that the mix is placed.

Table 16

HMA Compaction Acceptance Testing Procedures and Responsibilities			
	When Contract Includes Bid Item "HMA Core – Roadway" or "HMA Core – Bridge"[4]	When Contract Does Not Include Bid Item "HMA Core – Roadway" or "HMA Core – Bridge"[4]	
Basis for Test:	Cores	Cores[3]	Nuclear Density Gauge[3]
In-Place Density Determined by:	Contractor shall take cores[1] using WSDOT SOP 734[2] **or** Contracting Agency will determine core density using FOP for AASHTO T 166	Contracting Agency will take cores[1] using WSDOT SOP 734 **or** Contracting Agency will determine core density using FOP for AASHTO T 166	Contracting Agency, using WSDOT FOP for AASHTO T 355
Theoretical Maximum Density Determined by:	Contracting Agency, using FOP for AASHTO T 209		
Rolling Average of Theoretical Maximum Densities Determined by:	Contracting Agency, using WSDOT SOP 729		
Percent Compaction in Each Sublot Determined by:	Contracting Agency, using WSDOT SOP 736	Contracting Agency, using WSDOT SOP 736	Contracting Agency, using WSDOT FOP for AASHTO

			T 355

[1]The core diameter shall be 4-inches unless otherwise approved by the Engineer.

[2]The Contractor shall take the core samples in the presence of the Engineer, at locations designated by the Engineer, and deliver the core samples to the Contracting Agency.

[3]The Contracting Agency will determine, in its sole discretion, whether it will take cores or use the nuclear density gauge to determine in-place density. Exclusive reliance on cores for density acceptance is generally intended for small paving projects and is not intended as a replacement for nuclear gauge density testing on typical projects.

[4]The basis for test of all compaction sublots in a bridge compaction lot shall be cores. These cores shall be taken by the Contractor when the Proposal includes the bid item "HMA Cores – Bridge". When there is no bid item for "HMA Cores – Bridge", the Engineer will be responsible for taking HMA cores for all compaction sublots in a bridge compaction lot. In either case, the Engineer will determine core location, in-place density of the core, theoretical maximum density, rolling average of theoretical maximum density, and percent compaction using the procedure called for in this Section.

When using the nuclear density gauge for acceptance testing of pavement density, the Engineer will follow WSDOT SOP 730 for correlating the nuclear gauge with HMA cores. When cores are required for the correlation, coring and testing will be by the Contracting Agency. When a core is taken for gauge correlation at the location of a sublot, the relative density of the core will be used for the sublot test result and is exempt from retesting.

5-04.3(10)C3 HMA Statistical Compaction – Price Adjustments

For each HMA compaction lot (that is accepted by Statistical Evaluation) which has less than three compaction sublots, for which all compaction sublots attain a minimum of 91 percent compaction determined in accordance with WSDOT FOP for AASHTO T 355 (or WSDOT SOP 736 when provided by the Contract), the HMA will be accepted at the unit Contract price with no further evaluation.

For each HMA compaction lot (that is accepted by Statistical Evaluation) which does not meet the criteria in the preceding paragraph, the compaction lot shall be evaluated in accordance with Section 1-06.2(2) to determine the appropriate Compaction Price Adjustment (CPA). All of the test results obtained from the acceptance samples from a given compaction lot shall be evaluated collectively. Additional testing by either a nuclear density gauge or cores will be completed as required to provide a minimum of three tests for evaluation.

For the statistical analysis in Section 1-06.2, use the following values:

x = Percent compaction of each sublot
USL = 100
LSL= 91

Each CPA will be determined as follows:

CPA = [0.40 x (CPF – 1.00)] x Q x UP

Where

CPA = Compaction Price Adjustment for the compaction lot ($)
CPF = Composite Pay Factor for the compaction lot (maximum is 1.05)
Q = Quantity in the compaction lot (tons)
UP = Unit price of the HMA in the compaction lot ($/ton)

5-04.3(10)C4 HMA Statistical Compaction – Requests for Retesting

For a compaction sublot that has been tested with a nuclear density gauge that did not meet the minimum of 91 percent of the theoretical maximum density in a compaction lot with a CPF below 1.00 and thus subject to a price reduction or rejection, the Contractor may request that a core, taken at the same location as the nuclear density test, be used for determination of the relative density of the compaction sublot. The relative density of the core will replace the relative density determined by the nuclear density gauge for the compaction sublot and will be used for calculation of the CPF and acceptance of HMA compaction lot. When cores are taken by the Contracting Agency at the request of the Contractor, they shall be requested by noon of the next workday after the test results for the compaction sublot have been provided or made available to the Contractor. Traffic control shall be provided by the Contractor as requested by the Engineer. Failure by the Contractor to provide the requested traffic control will result in forfeiture of the request for retesting. When the CPF for the compaction lot based on the results of the cores is less than 1.00, the Contracting Agency will deduct the cost for the coring from any monies due or that may become due the Contractor under the Contract at the rate of $200 per core and the Contractor shall pay for the cost of the traffic control.

5-04.3(10)D HMA Compaction – Visual Evaluation

Visual Evaluation will be the basis of acceptance for compaction of the Bid items “HMA for Pavement Repair Cl. ___ PG ___”and “HMA for Prelevelling Class___ PG___”. This HMA shall be thoroughly compacted to the satisfaction of the Engineer. HMA that is used to prelevel wheel ruts shall be compacted with a pneumatic tire roller.

5-04.3(10)E HMA Compaction – Test Point Evaluation

When compaction acceptance is by Test Point Evaluation, compact HMA based on a test point evaluation of the compaction train. Perform the test point evaluation in accordance with instructions from the Engineer. The number of passes with an approved compaction train, required to attain the maximum test point density, shall be used on all subsequent paving.

5-04.3(10)F HMA Compaction Acceptance – Notification of Acceptance Test Results

The obligations and responsibilities for notifying the Contractor of compaction acceptance test results are the same as for mixture acceptance test results. See Section 5-04.3(9)E.

5-04.3(11) Reject Work

This Section applies to HMA and all requirements related to HMA (except aggregates prior to being incorporated into HMA). For rejection of aggregate prior to its incorporation into HMA refer to Section 3-04.

5-04.3(11)A Reject Work – General

Work that is defective or does not conform to Contract requirements shall be rejected. The Contractor may propose, in writing, alternatives to removal and replacement of rejected material. Acceptability of such alternative proposals will be determined at the sole discretion of the Engineer.

5-04.3(11)B Rejection by Contractor

The Contractor may, prior to acceptance sampling and testing, elect to remove any defective material and replace it with new material. Any such new material will be sampled, tested, and evaluated for acceptance.

5-04.3(11)C Rejection Without Testing (Mixture or Compaction)

The Engineer may, without sampling, reject any batch, load, or section of Roadway that appears defective. Material rejected before placement shall not be incorporated into the pavement.

No payment will be made for the rejected materials or the removal of the materials unless the Contractor requests the rejected material to be tested. If the Contractor requests testing, acceptance will be by Statistical Evaluation, and a minimum of three samples will be obtained and tested. When uncompacted material is required for testing but not available, the Engineer will determine random sample locations on the roadway in accordance with WSDOT Test Method T 716, take cores in accordance with WSDOT SOP 734, and test the cores in accordance with WSDOT SOP 737.

If the CPF for the rejected material is less than 0.75, no payment will be made for the rejected material; in addition, the cost of sampling and testing shall be borne by the Contractor. If the CPF is greater than or equal to 0.75, the cost of sampling and testing will be borne by the Contracting Agency. If the material is rejected before placement and the CPF is greater than or equal to 0.75, compensation for the rejected material will be at a CPF of 0.75. If rejection occurs after placement and the CPF is greater than or equal to 0.75, compensation for the rejected material will be at the calculated CPF with an addition of 25 percent of the unit Contract price added for the cost of removal and disposal.

5-04.3(11)D Rejection – A Partial Sublot (Mixture or Compaction)

In addition to the random acceptance sampling and testing, the Engineer may also isolate from a mixture or compaction sublot any material that is suspected of being defective in relative density, gradation or asphalt binder

content. Such isolated material will not include an original sample location. The Contracting Agency will obtain a minimum of three random samples of the suspect material and perform the testing. When uncompacted material is required for testing but is not available, the Engineer will select random sample locations on the roadway in accordance with WSDOT Test Method T 716, take cores samples in accordance with WSDOT SOP 734, and test the material in accordance with WSDOT SOP 737. The material will then be statistically evaluated as an independent lot in accordance with Section 1-06.2(2).

5-04.3(11)E Rejection – An Entire Sublot (Mixture or Compaction)

An entire mixture or compaction sublot that is suspected of being defective may be rejected. When this occurs, a minimum of two additional random samples from this sublot will be obtained. When uncompacted material is required for the additional samples but the material has been compacted, the Contracting Agency will take and test cores from the roadway as described in Section 5-04.3(11)D. The additional samples and the original sublot will be evaluated as an independent lot in accordance with Section 1-06.2(2).

5-04.3(11)F Rejection - A Lot in Progress (Mixture or Compaction)

The Contractor shall shut down operations and shall not resume HMA placement until such time as the Engineer is satisfied that material conforming to the Specifications can be produced when:

1. the Composite Pay Factor (CPF) of a mixture or compaction lot in progress drops below 1.00 and the Contractor is taking no corrective action, or

2. the Pay Factor (PF_i) for any constituent of a mixture or compaction lot in progress drops below 0.95 and the Contractor is taking no corrective action, or

3. either the PF_i for any constituent (or the CPF) of a mixture or compaction lot in progress is less than 0.75.

5-04.3(11)G Rejection – An Entire Lot (Mixture or Compaction)

An entire lot with a CPF of less than 0.75 will be rejected.

5-04.3(12) Joints

5-04.3(12)A HMA Joints

5-04.3(12)A1 Transverse Joints

Conduct operations such that placement of the top or wearing course is a continuous operation or as close to continuous as possible. Unscheduled transverse joints will be allowed, but the roller may pass over the unprotected end of the freshly laid HMA only when the placement of the course is discontinued for such a length of time that the HMA will cool below compaction temperature. When the Work is resumed, cut back the previously compacted HMA to produce a slightly beveled edge for the full thickness of the course.

Construct a temporary wedge of HMA on a 50H:1V where a transverse joint as a result of paving or planing is open to traffic. Separate the HMA in the temporary wedge from the permanent HMA upon which it is placed by strips of heavy wrapping paper or other methods approved by the Engineer. Remove the wrapping paper and trim the joint to a slightly beveled edge for the full thickness of the course prior to resumption of paving.

Waste the material that is cut away and place new HMA against the cut. Use rollers or tamping irons to seal the joint.

5-04.3(12)A2 Longitudinal Joints

Offset the longitudinal joint in any one course from the course immediately below by not more than 6 inches nor less than 2 inches. Locate all longitudinal joints constructed in the wearing course at a lane line or an edge line of the Traveled Way. Construct a notched wedge joint along all longitudinal joints in the wearing surface of new HMA unless otherwise approved by the Engineer. The notched wedge joint shall have a vertical edge of not less than the maximum aggregate size nor more than ½ of the compacted lift thickness, and then taper down on a slope not steeper than 4H:1V. Uniformly compact the sloped portion of the HMA notched wedge joint.

On one-lane ramps a longitudinal joint may be constructed at the center of the traffic lane, subject to approval by the Engineer, if:

1. The ramp must remain open to traffic, or

2. The ramp is closed to traffic and a hot-lap joint is constructed.

    a. Two paving machines shall be used to construct the hot-lap joint.

    b. The pavement within 6 inches of the hot-lap joint will not be excluded from random location selection for compaction testing.

    c. Construction equipment other than rollers shall not operate on any uncompacted HMA.

When HMA is placed adjacent to cement concrete pavement, construct longitudinal joints between the HMA and the cement concrete pavement. Saw the joint to the dimensions shown on Standard Plan A-40.10 and fill with joint sealant meeting the requirements of Section 9-04.2.

5-04.3(12)B Bridge Paving Joint Seals

5-04.3(12)B1 HMA Sawcut and Seal

Prior to placing HMA on the bridge deck, establish sawcut alignment points at both ends of the bridge paving joint sealsto be placed at the bridge ends, and at interior joints within the bridge deck when and where shown in the Plans. Establish the sawcut alignment points in a manner

that they remain functional for use in aligning the sawcut after placing the HMA overlay.

Submit a Type 1 Working Drawing consisting of the sealant manufacturer's application procedure.

Construct the bridge paving joint seal as specified in the Plans and in accordance with the detail shown in the Standard Plans. Construct the sawcut in accordance with Section 5-05.3(8). Apply the sealant in accordance with Section 5-05.3(8)B and the manufacturer's application procedure.

5-04.3(12)B2 Paved Panel Joint Seal

Construct the paved panel joint seal in accordance with the requirements specified in Section 5-04.3(12)B1 and the following requirement:

1. Clean and seal the existing joint between concrete panels in accordance with Section 5-01.3(8) and the details shown in the Standard Plans.

5-04.3(13) Surface Smoothness

The completed surface of all courses shall be of uniform texture, smooth, uniform as to crown and grade, and free from defects of all kinds. The completed surface of the wearing course shall not vary more than ⅛ inch from the lower edge of a 10-foot straightedge placed on the surface parallel to the centerline. The transverse slope of the completed surface of the wearing course shall vary not more than ¼ inch in 10 feet from the rate of transverse slope shown in the Plans.

When deviations in excess of the above tolerances are found that result from a high place in the HMA, correct the pavement surface by one of the following methods:

1. Remove material from high places by grinding with an approved grinding machine, or

2. Remove and replace the wearing course of HMA, or

3. By other method approved by the Engineer.

Correct defects until there are no deviations anywhere greater than the allowable tolerances.

Deviations in excess of the above tolerances that result from a low place in the HMA and deviations resulting from a high place where corrective action, in the opinion of the Engineer, will not produce satisfactory results will be accepted with a price adjustment. The Engineer shall deduct from monies due or that may become due to the Contractor the sum of $500.00 for each and every section of single traffic lane 100 feet in length in which any excessive deviations described above are found.

When portland cement concrete pavement is to be placed on HMA, the surface tolerance of the HMA shall be such that no surface elevation lies above the Plan grade minus the specified Plan depth of portland cement concrete pavement. Prior to placing the portland cement concrete pavement, bring any such irregularities to the required tolerance by grinding or other means approved by the Engineer.

When utility appurtenances such as manhole covers and valve boxes are located in the Traveled Way, pave the Roadway before the utility appurtenances are adjusted to the finished grade.

5-04.3(14) Planing Bituminous Pavement

Plane in such a manner that the underlying pavement is not torn, broken, or otherwise damaged by the planing operation. Delamination or raveling of the underlying pavement will not be construed as damage due to the Contractor's operations. Pavement outside the limits shown in the Plans or designated by the Engineer that is damaged by the Contractor's operations shall be repaired to the satisfaction of the Engineer at no additional cost to the Contracting Agency.

For mainline planing operations, use equipment with automatic controls and with sensors for either or both sides of the equipment. The controls shall be capable of sensing the grade from an outside reference line, or a mat-referencing device. The automatic controls shall have a transverse slope controller capable of maintaining the mandrel at the desired transverse slope (expressed as a percentage) within plus or minus 0.1 percent.

Remove all loose debris from the planed surface before opening the planed surface to traffic. The planings and other debris resulting from the planing operation shall become the property of the Contractor and be disposed of in accordance with Section 2-03.3(7)C, or as otherwise allowed by the Contract.

5-04.3(15) Sealing Pavement Surfaces

Apply a fog seal where shown in the Plans. Construct the fog seal in accordance with Section 5-02.3. Unless otherwise approved by the Engineer, apply the fog seal prior to opening to traffic.

5-04.3(16) HMA Road Approaches

Construct HMA approaches at the locations shown in the Plans or where staked by the Engineer, in accordance with Section 5-04.

5-04.4 Measurement

HMA Cl. ___ PG ___, HMA for ___ Cl. ___ PG ___, and Commercial HMA will be measured by the ton in accordance with Section 1-09.2, with no deduction being made for the weight of asphalt binder, mineral filler, or any other component of the HMA. If the Contractor elects to remove and replace HMA as allowed by Section 5-04.3(11), the material removed will not be measured.

Roadway cores will be measured per each for the number of cores taken.

Crack Sealing-LF will be measured by the linear foot along the line of the crack.

Soil residual herbicide will be measured by the mile for the stated width to the nearest 0.01 mile or by the square yard, whichever is designated in the Proposal.

Pavement repair excavation will be measured by the square yard of surface marked prior to excavation.

Asphalt for fog seal will be measured by the ton, as provided in Section 5-02.4.

Longitudinal joint seals between the HMA and cement concrete pavement will be measured by the linear foot along the line and slope of the completed joint seal.

HMA sawcut and seal, and paved panel joint seal, will be measured by the linear foot along the line and slope of the completed joint seal.

Planing bituminous pavement will be measured by the square yard.

Temporary pavement marking will be measured by the linear foot as provided in Section 8-23.4.

Water will be measured by the M gallon as provided in Section 2-07.4.

5-04.5 Payment

Payment will be made for each of the following Bid items that are included in the Proposal:

"HMA Cl. ___ PG ___", per ton.
"HMA for Approach Cl. ___ PG ___", per ton.
"HMA for Preleveling Cl. ___ PG ___", per ton.
"HMA for Pavement Repair Cl. ___ PG ___", per ton.
"Commercial HMA", per ton.
The unit Contract price per ton for "HMA Cl. ___ PG ___", "HMA for Approach Cl. ___ PG ___", "HMA for Preleveling Cl. ___ PG ___", "HMA for Pavement Repair Cl. ___ PG ___", and "Commercial HMA" shall be full compensation for all costs, including anti-stripping additive, incurred to carry out the requirements of Section 5-04 except for those costs included in other items which are included in this Subsection and which are included in the Proposal.

"Crack Sealing-FA", by force account.
"Crack Sealing-FA" will be paid for by force account as specified in Section 1-09.6. For the purpose of providing a common Proposal for all Bidders, the Contracting Agency has entered an amount in the Proposal to become a part of the total Bid by the Contractor.

"Crack Sealing-LF", per linear foot.
The unit Contract price per linear foot for "Crack Sealing-LF" shall be full payment for all costs incurred to perform the Work described in Section 5-04.3(4)A.

"Soil Residual Herbicide ____ ft. Wide", per mile, or
"Soil Residual Herbicide", per square yard.
The unit Contract price per mile or per square yard for "Soil Residual Herbicide" shall be full payment for all costs incurred to obtain, provide and install herbicide in accordance with Section 5-04.3(4)B.

"Pavement Repair Excavation Incl. Haul", per square yard.
The unit Contract price per square yard for "Pavement Repair Excavation Incl. Haul" shall be full payment for all costs incurred to perform the Work described in Section 5-04.3(4)C with the exception, however, that all costs involved in the placement of HMA shall be included in the unit Contract price per ton for "HMA for Pavement Repair Cl. ___ PG ___", per ton.

"Asphalt for Fog Seal", per ton.
Payment for "Asphalt for Fog Seal" is described in Section 5-02.5.

"Longitudinal Joint Seal", per linear foot.
The unit Contract price per linear foot for "Longitudinal Joint Seal" shall be full payment for all costs incurred to construct the longitudinal joint between HMA and cement concrete pavement, as described in Section 5-04.3(12)B.

"HMA Sawcut And Seal", per linear foot.
The unit Contract price per linear foot for "HMA Sawcut And Seal" shall be full payment for all costs incurred to perform the Work described in Section 5-04.3(12)B1.

"Paved Panel Joint Seal", per linear foot.
The unit Contract price per linear foot for "Paved Panel Joint Seal" shall be full payment for all costs incurred to perform the Work described in Section 5-04.3(12)B2.

"Planing Bituminous Pavement", per square yard.
The unit Contract price per square yard for "Planing Bituminous Pavement" shall be full payment for all costs incurred to perform the Work described in Section 5-04.3(14).

"Temporary Pavement Marking", per linear foot.
Payment for "Temporary Pavement Marking" is described in Section 8-23.5.

"Water", per M gallon.
Payment for "Water" is described in Section 2-07.5.

"Job Mix Compliance Price Adjustment", by calculation.
"Job Mix Compliance Price Adjustment" will be calculated and paid for as described in Section 5-04.3(9)B6 and 5-04.3(9)D1.

"Compaction Price Adjustment", by calculation.
"Compaction Price Adjustment" will be calculated and paid for as described in Section 5-04.3(10)C3.

"HMA Core – Bridge", per each.
The unit Contract price per each for "HMA Core – Bridge" shall be full payment for all costs, including traffic control, associated with taking HMA density cores in pavement that is on a bridge deck.

"HMA Core – Roadway", per each.
The unit Contract price per each for "HMA Core – Roadway" shall be full payment for all costs, including traffic control, associated with taking HMA density cores in pavement that is not on a bridge deck.

"Cyclic Density Price Adjustment", by calculation.
"Cyclic Density Price Adjustment" will be calculated and paid for as described in Section 5-04.3(10)B.

5-05.AP5

Section 5-05, Cement Concrete Pavement
January 3, 2017

5-05.3(1) Concrete Mix Design for Paving

In last sentence of the second paragraph of item number 1, the reference to "Section 9-01.2(4)" is revised to read "Section 9-01.2(1)B".

The following is inserted after item number 2:

3. **Mix Design Modifications** - The Contractor may initiate adjustments to the aggregate proportions of the approved mix design. An adjustment in both the fine and coarse aggregate batch target weights of plus or minus 200 pounds per cubic yard will be allowed without resubmittal of the mix design. The adjusted aggregate weights shall become the new batch target weights for the mix design.

Item number 3 is renumbered to 4 and revised (up until the table) to read:

4. **Conformance to Mix Design** - Cement and coarse and fine aggregate weights shall be within the following tolerances of the batch target weights of the mix design:

Portland Cement Concrete Batch Weights		
Cement	+5%	-1%
Coarse Aggregate	+2%	-2%
Fine Aggregate	+2%	-2%

5-05.3(3)B Mixing Equipment

The last sentence of item number 4 is revised to read:

Plant-mixed concrete may be transported in nonagitated vehicles provided that the concrete is in a workable condition when placed and:

a. discharge is completed within 45 minutes after the introduction of mixing water to the cement and aggregates, or

b. discharge is completed within 60 minutes after the introduction of mixing water to the cement and aggregates, provided the concrete mix temperature is 70°F or below during placement, or

c. discharge is completed within 60 minutes after the introduction of mixing water to the cement and aggregates, provided the mix contains an approved set retarder at the manufacturer's minimum dosage rate.

5-05.3(6) Subgrade

This section, including title, is revised to read:

5-05.3(6) Surface Preparation

The Subgrade surface shall be prepared and compacted a minimum of 3 feet beyond each edge of the area which is to receive concrete pavement in order to accommodate the slip-form equipment.

Concrete shall not be placed during a heavy rainfall. Prior to placing concrete:

1. The surface shall be moist;

2. Excess water (e.g., standing, pooling or flowing) shall be removed from the surface.

3. The surface shall be clean and free of any deleterious materials.

4. The surface temperature shall not exceed 120°F or be frozen.

5-05.3(7)A Slip-Form Construction

The second sentence of the first paragraph is revised to read:

The alignment and elevation of the paver shall be regulated from outside reference lines established for this purpose, or by an electronic control system capable of controlling the line and grade within required tolerances.

6-02.AP6

Section 6-02, Concrete Structures
April 3, 2017

6-02.3(2) Proportioning Materials

In the sixth paragraph, the reference to “Section 9-01.2(4)” is revised to read “9-01.2(1)B”.

6-02.3(2)A Contractor Mix Design

The following new sentence is inserted after the first sentence of the third paragraph:

The mix design submittal shall also include test results no older than one year showing that the Aggregates do not contain Deleterious Substances in accordance with Section 9-03.

6-02.3(2)A1 Contractor Mix Design for Concrete Class 4000D

The following new sentence is inserted after the second sentence of the last paragraph:

Mix designs using shrinkage reducing admixture shall state the specific quantity required.

The following new sentence is inserted before the last sentence of the last paragraph:

Testing samples of mixes using shrinkage reducing admixture shall use the admixture amount specified in the mix design submittal.

6-02.3(2)B Commercial Concrete

The last sentence of the first paragraph is revised to read:

Commercial concrete does not require mix design or source approvals for cement, aggregate, and other admixtures.

6-02.3(6)A1 Hot Weather Protection

This section is revised to read:

The Contractor shall provide concrete within the specified temperature limits. Cooling of the coarse aggregate piles by sprinkling with water is permitted provided the moisture content is monitored and the mixing water is adjusted for the free water in the aggregate. Shading or cooling aggregate piles (sprinkling of fine aggregate piles with water is not allowed). If sprinkling of the coarse aggregates is to be used, the piles moisture content shall be monitored and the mixing water adjusted for the free water in the aggregate. In addition, when removing the coarse aggregate, it shall be removed from at least 1 foot above the bottom of the pile. Refrigerating mixing water; or replacing all or part of the mixing water with crushed ice, provided the ice is completely melted by placing time.

If air temperature exceeds 90°F, the Contractor shall use water spray or other accepted methods to cool all concrete-contact surfaces to less than 90°F. These surfaces include forms, reinforcing steel, steel beam flanges, and any others that touch the mix.

6-02.3(6)A2 Cold Weather Protection

This section is revised to read:

Concrete shall be maintained at or above a temperature of 40°F during the first seven days of the Cold Weather Protection Period and at or above a temperature of 35°F during the remainder of the Cold Weather Protection Period. Cold weather protection requirements do not apply to concrete in shafts and piles placed below the ground line.

Prior to placing concrete in cold weather, the Contractor shall submit a Type 2 Working Drawing with a written procedure for cold weather concreting. The procedure shall detail how the Contractor will adequately cure the concrete and prevent the concrete temperature from falling below the minimum temperature. Extra protection shall be provided for areas especially vulnerable to freezing (such as exposed top surfaces, corners and edges, thin sections, and concrete placed into steel forms). Concrete placement will only be allowed if the Contractor's cold weather protection plan has been accepted by the Engineer.

Prior to concrete placement, the Contractor shall review the 7-day temperature predictions for the job site from the Western Region Headquarters of the National Weather Service (www.wrh.noaa.gov). When temperatures below 35°F are predicted, the Contractor shall:

1. Install temperature data loggers in each concrete pour. One data logger shall be installed for every 100 yards of concrete placed. Data loggers shall be installed at locations directed by the Engineer, and shall be placed 1.5 inches from the face of concrete.

2. Immediately after concrete placement, temperature data loggers shall be installed on the concrete surface at locations directed by the Engineer. One data logger shall be installed for every 100 yards of concrete placed.

The data loggers shall be operated continuously during the Cold Weather Protection Period. Temperatures shall be measured, recorded and stored a minimum of every 30

minutes. Temperature data shall be submitted to the Engineer as a Type 1 Working Drawing within three days following the end of the Cold Weather Protection Period.

For each day that the concrete temperature falls below 40°F during the first seven days of the Cold Weather Protection Period, no curing time is awarded for that day and the Cold Weather Protection Period is extended for one additional day. If the concrete temperature falls below 35°F during Cold Weather Protection Period, the concrete may be rejected by the Engineer.

6-02.3(7) Concrete Exposed to Sea Water

This section including title is revised to read:

6-02.3(7) Vacant

6-02.3(8) Concrete Exposed to Alkaline Soils or Water

This section including title is revised to read:

6-02.3(8) Vacant

6-02.3(17)K Concrete Forms on Steel Spans

In the last paragraph, “ASTM A325” is revised to read “ASTM F3125 Grade A325”.

6-02.3(17)N Removal of Falsework and Forms

The fifth paragraph is deleted.

6-02.3(25) Prestressed Concrete Girders

Under the heading “**Prestressed Concrete Slab Girder**”, the second sentence is deleted.

6-02.3(25)A Shop Drawings

The sixth paragraph is deleted.

6-02.3(25)F Prestress Release

The last two sentences of the last paragraph are deleted and replaced with the following single sentence:

This request shall be submitted as a Type 2E Working Drawing analyzing changes in vertical deflection, girder lateral stability and concrete stresses in accordance with Section 6-02.3(25)L2.

6-02.3(25)H Finishing

Item number 2 in the first paragraph is revised to read:

2. The bottoms, sides, and tops of the lower flanges on all girders, including the top of the bottom slab between the tub girder webs.

6-02.3(25)I Fabrication Tolerances

Items 4 and 5 in the first paragraph are revised to read:

4. Flange Depth: ± ¼ inch

5. Strand Position:

   Individual strands: ± ¼ inch

   Bundled strands: ± ½ inch

   Harped strand group center of gravity at the girder ends: ± 1 inch

Items 7, 8 and 9 in the first paragraph are revised to read:

7. Position of an Interior Void, vertically and horizontally: ± ½ inch.

8. Bearing Recess (center of recess to girder end): ± ⅝ inch.

9. Girder Ends (deviation from square or designated skew):

   Horizontal: ± ⅛ inch per foot of girder width, up to a maximum of ± ½ inch

   Vertical: ± $\frac{3}{16}$ inch per foot of girder depth, up to a maximum of ± 1½ inch

Items 14 and 15 in the first paragraph are revised to read:

14. Local smoothness of any surface: ± ¼ inch in 10 feet.

15. Differential Camber between Girders in a Span (measured in place at the job site):

For wide flange deck and deck bulb tee girders with a cast-in-place reinforced concrete deck:	Cambers shall be equalized when the differences in cambers between adjacent girders exceeds ± ¾ inch
For wide flange deck, deck bulb tee and slab girders without a cast-in-place reinforced concrete deck:	Cambers shall be equalized when the differences in cambers between adjacent girders exceeds ± ¼ inch

Item 17 in the first paragraph is revised to read:

17. Position of Lifting Embedments: ± 3 inches longitudinal, ± ¼ inch transverse.

6-02.3(25)J Horizontal Alignment

This section is revised to read:

The Contractor shall check and record the horizontal alignment (sweep) of each girder at the following times:

1. Initial – Upon removal of the girder from the casting bed

2. Shipment – Within 14 days prior to shipment; and

3. Erection – After girder erection and cutting temporary top strands but prior to any equalization, welding ties or placement of diaphragms.

Horizontal alignment of the top and bottom flanges shall be checked and recorded. Alternatively, the Contractor may check and record the horizontal alignment of the web near mid-height of the girder. Each check shall be made by measuring the maximum offset at mid-span relative to a chord that starts and stops at the girder ends. The Contractor shall check and record the alignment at a time when the girder is not influenced by temporary differences in surface temperature. Records for the initial check (item 1 above) shall be included in the Contractor's prestressed concrete certificate of compliance. Records for all other checks shall be submitted as a Type 1 Working Drawing.

For each check (Items 1 to 3 above), the alignment shall not be offset more than ⅛ inch for each 10 feet of girder length. Girders not meeting this tolerance for the shipment check (Item 2 above) shall require an analysis of girder lateral stability and stresses in accordance with Section 6-02.3(25)L1. The Contractor shall perform this analysis and submit it as a Type 2E Working Drawing prior to shipment of the girder. Any girder that exceeds an offset of $\frac{1}{8}$ inch for each 10 feet of girder length for the erection check (Item 3 above) shall be corrected at the job site to the $\frac{1}{8}$ inch maximum offset per 10 feet of girder length before concrete is placed into the diaphragms. The Contractor shall submit a Type 2 Working Drawing for any required corrective action.

The maximum distance between the side of a prestressed concrete slab girder, or the edge of the top flange of a wide flange deck, wide flange thin deck or deck bulb tee girder, and a chord that extends the full length of the girder shall be ±½ inch after erection (Item 3 above).

6-02.3(25)K Vertical Deflection

Items 2 and 3 in the first paragraph are revised to read:

2. Shipment – Within 14 days prior to shipment;

3. Erection – After girder erection and cutting temporary top strands but prior to any equalization, welding ties or placement of diaphragms.

The following new paragraph is inserted after the second paragraph:

Girders with vertical deflections not meeting the limit shown in the Plans for the shipment check (Item 2 above) shall require an analysis of girder lateral stability and stresses in accordance with Section 6-02.3(25)L1. The Contractor shall perform this analysis and submit it as a Type 2E Working Drawing prior to shipment.

The following new sentence is inserted after the second sentence of the fourth to last paragraph:

Any diaphragms are assumed to be placed.

The last three paragraphs are deleted and replaced with the following:

If the girder vertical deflection measured for the erection check (Item 3 above) is not between the lower "D" dimension bound shown in the Plans and the upper "D" dimension bound shown in the Plans plus ¾ inches, the Engineer may require corrective action. The Contractor shall submit a Type 2 Working Drawing for any required corrective action.

6-02.3(25)L Handling and Storage

The second paragraph is revised to read:

For strand lift loops, only ½-inch diameter or 0.6-inch diameter strand conforming to Section 9-07.10 shall be used, and a minimum 2-inch diameter straight pin of a shackle shall be used through the loops. Multiple loops shall be held level in the girder during casting in a manner that allows each loop to carry its share of the load during lifting. The minimum distance from the end of the girder to the centroid of the strand lift loops shall be 3 feet. The loops for all prestressed concrete girders, with the exception of prestressed concrete slab girders, shall project a minimum of 1′-6″ from the top of the girder. The loops for prestressed concrete slab girders shall project a minimum of 4 inches. Loops shall extend to within 3 inches clear of the bottom of the girder, terminating with a 9-inch long 90-degree hook. Loads on individual loops shall be limited to 12 kips, and all girders shall be picked up at a minimum angle of 60 degrees from the top of the girder.

The third sentence of the fourth paragraph is revised to read:

Alternatively, these temporary strands may be post-tensioned provided the strands are stressed on the same day that the permanent prestress is released into the girder and the strands are tensioned prior to lifting the girder.

The second to last sentence of the fourth paragraph is revised to read:

When the post-tensioned alternative is used, the Contractor shall be responsible for properly sizing the anchorage plates, and configuring the reinforcement adjacent to the anchorage plates, to prevent bursting or splitting of the concrete in the top flange.

The second to last pargraph is deleted.

This section is supplemented with the following new subsections:

6-02.3(25)L1 Girder Lateral Stability and Stresses

The Contractor shall be responsible for safely lifting, storing, shipping and erecting prestressed concrete girders.

The Contract documents may provide shipping and handling details for girders including lifting embedment locations (L), shipping support locations (L_1 and L_2), minimum shipping support rotational spring constants (K_θ), minimum shipping support center-to-center wheel spacings (W_{cc}), vertical deflections and number of temporary top strands. These shipping and handling details have been determined in accordance with Section 6-02.3(25)L2.

The Contractor shall submit a Type 2E Working Drawing analyzing girder lateral stability and concrete stresses during lifting, storage, shipping and erection in accordance with Section 6-02.3(25)L2 in the following cases:

1. Any of the analysis assumptions listed in Section 6-02.3(25)L2 are invalid. Determination of validity shall be made by the Contractor, except that analysis assumptions shall be considered invalid if the actual values are outside of the provided tolerances.

2. The Contractor intends to alter the shipping and handling details provided in the Contract documents.

3. The Contract documents do not provide shipping and handling details.

6-02.3(25)L2 Lateral Stability and Stress Analysis

Analysis for girder lateral stability and concrete stresses during lifting, storage, shipping and erection shall be in accordance with the PCI Recommended Practice for Lateral Stability of Precast, Prestressed Concrete Bridge Girders, First Edition, Publication CB-02-16-E and the AASHTO LRFD Bridge Design Specifications edition identified in the Contract documents. The following design criteria shall be met:

1. Factor of Safety against cracking shall be at least 1.0

2. Factor of Safety against failure shall be at least 1.5

3. Factor of Safety against rollover shall be at least 1.5

4. Allowable concrete stresses shall be as specified in Section 6-02.3(25)L3

The analysis shall address any effects on girder vertical deflection (camber), "A" dimensions at centerline of bearings and deck screed cambers (C).

Shipping and handling details provided in the Contract documents have been determined using the following analysis assumptions:

1. Girder dimensions, strand locations and lifting embedment locations are within the tolerances specified in Section 6-02.3(25)I

2. Girder horizontal alignment (sweep) is within the tolerance specified in Section 6-02.3(25)J

3. Girder vertical deflection (camber) at midspan is less than or equal to the value shown in the Plans for shipping

4. Minimum concrete compressive strength at release (f'_{ci}) has been reached before initial lifting from casting bed. Minimum concrete compressive strength at 28 days (f'_c) has been reached before shipping.

5. Height of girder bottom above roadway at shipping supports is less than or equal to 72 inches

6. Height of shipping support roll center above roadway is 24 inches, ± 2 inches

7. Shipping support longitudinal placement (L_1 and L_2) tolerance is ± 6 inches

8. Shipping support lateral placement tolerance is ±1 inches

9. Shipping supports provide the minimum shipping support rotational spring constant (K_θ) and minimum shipping support center-to-center wheel spacings (W_{cc}) shown in the Plans

10. For shipping at highway speeds a ± 20% dynamic load allowance (impact) is included with a typical roadway superelevation of 2%

11. For turning at slow speeds, no dynamic load allowance (impact) is included with a maximum roadway superelevation of 6%

12. Wind, centrifugal and seismic forces are not considered

6-02.3(25)L3 Allowable Stresses

Prestressed concrete girder stresses shall be limited to the following values at all stages of construction and in service:

Condition	Stress	Location	Allowable Stress (ksi)
Temporary Stress at Transfer and Lifting from Casting Bed	Tensile	In areas without bonded reinforcement sufficient to resist the tensile force in the concrete	$0.0948\lambda\sqrt{f'_{ci}} \leq 0.2$
		In areas with bonded reinforcement sufficient to resist the tensile force in the concrete	$0.24\lambda\sqrt{f'_{ci}}$
	Compressive	All locations	$0.65f'_{ci}$
Temporary Stress at Shipping and Erection	Tensile	In areas without bonded reinforcement sufficient to resist the tensile force in the concrete	$0.0948\lambda\sqrt{f'_c} \leq 0.2$
		In areas with bonded reinforcement sufficient to resist the tensile force in the concrete	$0.19\lambda\sqrt{f'_c}$
		In areas with bonded reinforcement sufficient to resist the tensile force in the concrete when shipping at 6% superelevation, without impact	$0.24\lambda\sqrt{f'_c}$
	Compressive	All locations	$0.65f'_c$
Final Stresses at Service Load	Tensile	Precompressed tensile zone	0.0
	Compressive	Effective prestress and permanent loads	$0.45f'_c$
		Effective prestress, permanent loads and transient (live) loads	$0.60f'_c$
Final Stresses	Compressive	Fatigue I Load Combination plus one-	$0.40f'_c$

at Fatigue Load		half effective prestress and permanent loads	

Variables are as defined in the AASHTO LRFD Bridge Design Specifications.

6-02.3(25)M Shipping

The last four paragraphs are deleted and replaced with the following:

Girder lateral stability and stresses during shipping shall be in accordance with Section 6-02.3(25)L1.

If the Contractor elects to assemble spliced prestressed concrete girders into shipping configurations not shown in the Contract documents, the Contractor shall submit a Type 2E Working Drawing analyzing girder lateral stability and concrete stresses in accordance with Section 6-02.3(25)L2 before shipping.

6-02.3(25)N Prestressed Concrete Girder Erection

The second sentence of the first paragraph is revised to read:

The erection plan shall conform to Section 6-02.3(25)L1.

The last paragraph is revised to read:

Stop plates and dowel bars for prestressed concrete girders shall be set with either epoxy grout conforming to Section 9-26.3 or type IV epoxy bonding agent conforming to Section 9-26.1.

6-02.3(25)O Girder to Girder Connections

The second paragraph is revised to read:

Prestressed concrete girders shall be constructed in the following sequence:

1. If required, deflections shall be equalized in accordance with the Contractor's equalization plan.

2. Any intermediate diaphragms shall be placed and any weld ties shall be welded in accordance with Section 6-03.3(25). Welding ground shall be attached directly to the steel plates being welded when welding the weld-ties.

3. Any keyways between adjacent girders shown in the Plans to receive grout shall be filled flush with the surrounding surfaces using a grout conforming to Section 9-20.3(2).

4. Equalization equipment shall not be removed and other construction equipment shall not be placed on the structure until intermediate diaphragms and keyway grout have attained a minimum compressive strength of 2,500 psi.

6-02.3(26)D2 Test Block Dimensions

The first sentence is revised to read:

The dimensions of the test block perpendicular to the tendon in each direction shall be the smaller of twice the minimum edge distance or the minimum spacing specified by the special anchorage device manufacturer, with the stipulation that the concrete cover over any confining reinforcing steel or supplementary skin reinforcement shall be appropriate for the project-specific application and circumstances.

6-02.3(26)E2 Ducts for External Exposed Installation

In the first paragraph, “ASTM D3350” is revised to read “ASTM D3035”.

In the fourth paragraph, "ASTM D3505" is revised to read "ASTM D3035".

6-02.3(26)G Tensioning

Item number 1 of the second paragraph is revised to read:

1. All concrete has reached a compressive strength of at least 4,000 psi or the strength specified in the Plans. When tensioning takes place prior to 28-day compressive strength testing on concrete sampled in accordance with Section 6-02.3(25)H, compressive strength shall be verified on field cured cylinders in accordance with the FOP for AASHTO T23.

6-02.3(27)A Use of Self-Consolidating Concrete for Precast Units

Item number 2 of the first paragraph is revised to read:

2. Precast reinforced concrete three-sided structures, box culverts and split box culverts in accordance with Section 7-02.3(6).

6-03.AP6

Section 6-03, Steel Structures
January 3, 2017

6-03.3(33) Bolted Connections

In this section, “AASHTO M253” is revised to read “ASTM F3125 Grade A490”, “ASTM F1852” is revised to read “ASTM F3125 Grade F1852”, and “ASTM A325” is revised to read “ASTM F3125 Grade A325”.

In the headings of Table 3, “A 325” is revised to read “ASTM F3125 Grade A325”.

In the headings of Table 3, “M 253” is revised to read “ASTM F3125 Grade A490”.

6-05.AP6

Section 6-05, Piling
August 1, 2016

In this section, the words “capacity” and “capacities” are replaced with “resistance” and “resistances”, respectively.

6-05.3(1) Piling Terms

The third paragraph is revised to read:

Overdriving – Over-driving of piles occurs when the ultimate bearing resistance calculated from the equation in Section 6-05.3(12), or the wave equation driving criteria if applicable, exceeds the ultimate bearing resistance required in the Contract in order to reach the minimum tip elevation specified in the Contract, or as required by the Engineer.

The first sentence of the last paragraph is revised to read:

Minimum Tip Elevation – The minimum tip elevation is the elevation to which the pile tip shall be driven.

6-05.3(3)A Casting and Stressing

The last sentence of the third paragraph is revised to read:

If the corrective action is not acceptable to the Engineer, the piling(s) will be subject to rejection by the Engineer.

6-05.3(5) Manufacture of Steel Piles

This section is supplemented with the following new paragraph:

At least 14-days prior to the start of production of the piling, the Contractor shall advise the Engineer of the production schedule. The Contractor shall give the Inspector safe and free access to the Work. If the Inspector observes any nonspecification Work or unacceptable quality control practices, the Inspector will advise the plant manager. If the corrective action is not acceptable to the Engineer, the piling(s) will be subject to rejection by the Engineer.

6-05.3(9)A Pile Driving Equipment Approval

The first sentence of the second paragraph is revised to read:

The Contractor shall submit Type 2E Working Drawings consisting of a wave equation analysis for all pile driving systems used to drive piling with required maximum driving resistances of greater than 300 tons.

6-07.AP6

Section 6-07, Painting
April 3, 2017

6-07.3(10)A Containment

The first sentence of the fourth paragraph is replaced with the following two new sentences:

The containment system shall ensure no discharge into waters of the state. When there is no threat of discharging to the waters of the state, emissions shall not exceed the Level 2 Emissions standard in SSPC Technology Guide No. 6, Section 5.5, and assessed by Method A, Visible Emissions.

6-07.3(10)F Collecting, Testing, and Disposal of Containment Waste

The third, fourth and fifth paragraphs are deleted and replaced with the following two new paragraphs:

Containment waste is defined as all paint chips and debris removed from the steel surface and all abrasive blast media, as contained by the containment system. After all waste from

the containment system has been collected, the Contractor shall collect representative samples of the components that field screening indicates are lead-contaminated material. The Contractor shall collect at least one representative sample from each container. The Contractor may choose to collect a composite sample of each container, but the composite sample must consist of several collection points (a minimum of 3 random samples) that are representative of the entire contents of the container and representative of the characteristics of the type of waste in the container. In accordance with WAC 173–303-040, a representative sample means "a sample which can be expected to exhibit the average properties of the sample source."

The debris shall be tested for metals using the Toxicity Characteristics Leaching Procedure (TCLP) and EPA Methods 1311 and 6010. At a minimum, the materials should be analyzed for the Resource Conservation and Recovery Act (RCRA) 8 Metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). Pursuant to the Dangerous Waste (DW) Regulations Chapter 173-303-90(8)(c) WAC, "Any waste that contains contaminants which occur at concentrations at or above the DW threshold must be designated as DW." All material within each individual container or containment system that designates as DW shall be disposed of at a legally permitted Subtitle C Hazardous Waste Landfill. All material within each individual container or containment system that designate below the DW threshold, will be designated as "Solid Waste" and shall be disposed of at a legally permitted Subtitle D Landfill. Disposal shall be in accordance with WAC 173-303 for waste designated "Dangerous Waste" and pursuant to WAC 173-350 for waste designated as "Solid Waste".

6-08.AP6

Section 6-08, Waterproofing
January 3, 2017

This section and all subsections, including title, is revised to read:

6-08 Bituminous Surfacing on Structure Decks

6-08.1 Description

This Work consists of removing and placing Hot Mix Asphalt (HMA) or Bituminous Surface Treatment (BST) directly on or over a Structure. This Work also includes performing concrete bridge deck repair, applying waterproofing membrane, and sealing paving joints.

6-08.2 Materials

Materials shall meet the requirements of the following sections:

Bituminous Surface Treatment	5-02.2
Hot Mix Asphalt	5-04.2
Joint Sealants	9-04.2
Closed Cell Foam Backer Rod	9-04.2(3)A
Waterproofing Membrane (Deck Seal)	9-11
Bridge Deck Repair Material	9-20.5

6-08.3 Construction Requirements

6-08.3(1) Definitions

Adjusted Removal Depth – the Bituminous Pavement removal depth specified by the Engineer to supersede the Design Removal Depth after review of the Contractor survey of the existing Bituminous Pavement grade profile.

Bituminous Pavement – the surfacing material containing an asphalt binder.

Design Removal Depth – the value shown in the "pavement schedule" or elsewhere in the Plans to indicate the design thickness of Bituminous Pavement to be removed.

Final Grade Profile – the compacted finished grade surface of completed Bituminous Pavement surfacing consisting of a vertical profile and superelevation cross-slope, developed by the Engineer for Grade Controlled Structure Decks based on the Contractor survey.

Grade Controlled – a Structure Deck requiring restriction of Bituminous Pavement work, including restriction of pavement removal methods and restriction of overlay pavement thicknesses.

Structure Deck – the bridge deck (concrete or timber), bridge approach slab, top of concrete box culvert, or other concrete surfaces over or upon which existing Bituminous Pavement is removed and new Bituminous Pavement is applied.

6-08.3(2) Contractor Survey for Grade Controlled Structure Decks

Prior to removing existing Bituminous Pavement from a Grade Controlled Structure Deck, the Contractor shall complete a survey of the existing surface for use in establishing the existing cross section and grade profile elevations. When removal of Bituminous Pavement is to be achieved by rotary milling/planing, the Contractor's survey shall also include the depths of the existing surfacing at each survey point.

The Contractor is responsible for all calculations, surveying, installation of control points, and measuring required for setting, maintaining and resetting equipment and materials necessary for the construction of the overlay to the Final Grade Profile.

6-08.3(2)A Survey Requirements

The Contractor shall establish at least two primary survey control points for controlling actual Bituminous Pavement removal depth and the Final Grade Profile. Horizontal control shall be by station and offset which shall be tied to either the Roadway centerline or the Structure centerline. Vertical control may be an assumed datum established by the Contractor.

Primary control points shall be described by station or milepost and offset on the baseline selected by the Contractor. The Contractor may expand the survey control information to include secondary horizontal and vertical control points as needed for the project.

Survey information collected shall include station or milepost, offset, and elevation for each lane line and curb line. Survey information shall be collected at even 20 foot station intervals, and along the centerline of each bridge expansion joint. The survey shall extend 300'-0" beyond the bridge back of pavement seat or end of Structure Deck. The survey information shall include the top of Bituminous Pavement elevation and, when rotary milling/planing equipment is used, the corresponding depth of Bituminous Pavement to the Structure Deck. The Contractor shall ensure a surveying accuracy to within ± 0.01 feet for vertical control and ± 0.2 feet for horizontal control.

Voids in HMA created by the Contractor's Bituminous Pavement depth measurements shall be filled by material conforming to Section 9-20 or another material acceptable to the Engineer.

6-08.3(2)B Survey Submittal

The Contractor's survey records shall include descriptions of all survey control points including station/milepost, offset, and elevations of all secondary control points. The Contractor shall maintain survey records of sufficient detail to allow the survey to be reproduced. The Contractor shall submit a Type 2 Working Drawing consisting of the compiled survey records and information. Survey data shall be submitted as an electronic file in Microsoft Excel format.

6-08.3(2)C Final Grade Profile and Adjusted Removal Depth

Based on the results of the survey, the Engineer may develop a Final Grade Profile and Adjusted Removal Depth. If they are developed, the Final Grade Profile and Adjusted Removal Depth will be provided to the Contractor within three working days after receiving the Contractor's survey information. When provided, the Adjusted Removal Depth supersedes the Design Removal Depth to become the Bituminous Pavement removal depth for that Structure Deck.

6-08.3(3) General Bituminous Pavement Removal Requirements

The Contractor shall remove Bituminous Pavement and associated deck repair material from Structure Decks to the horizontal limits shown in the Plans and to either the specified or adjusted Bituminous Pavement removal depth as applicable.

Removal of Bituminous Pavement within 12-inches of existing permanent features that limit the reach of the machine or the edge of the following items shall be by hand or by hand operated (nominal 30-pounds class) power tools: existing bridge expansion joint headers; steel expansion joint assemblies; concrete butt joints between back of pavement seats and bridge approach slabs, bridge drain assemblies; thrie beam post steel anchorage assemblies fastened to the side or top of the Structure Deck.

When removing Bituminous Pavement with a planer, Section 5-04.3(14) shall apply. If the planer contacts the Structure Deck in excess of the specified planing depth tolerance, or contacts steel reinforcing bars at any time, the Contractor shall immediately cease planing operations and notify the Engineer. Planing operations

shall not resume until completion of the appropriate adjustments to the planing machine and receiving the Engineer's concurrence to resume.

6-08.3(4) Partial Depth Removal of Bituminous Pavement from Structure Decks

The depth of surfacing removal, as measured to the bottom of the lowest milling groove generated by the rotary milling/planing machine shall be +0.01, -0.02-feet of the specified or Adjusted Removal Depth as applicable.

6-08.3(5) Full Depth Removal of Bituminous Pavement from Structure Decks

6-08.3(5)A Method of Removal

The Contractor shall perform full depth removal by a method that does not damage or remove the Structure Deck in excess of the specified Bituminous Pavement removal tolerance. The Contractor shall submit a Type 2 Working Drawing consisting of the proposed methods and equipment to be used for full depth removal.

6-08.3(5)B Planer Requirements for Full Depth Removal

The final planed surface shall have a finished surface with a tolerance of +0.01, -0.02 feet within the planed surface profile, as measured from a 10-foot straight edge. Multiple passes of planing to achieve smoothness will not be allowed.

In addition to Section 6-08.3(3), the planing equipment shall conform to the following additional requirements:

1. The cutting tooth spacing on the rotary milling head shall be less than or equal to ¼ inch.

2. The rotary milling/planing machine shall have cutting teeth that leave a uniform plane surface at all times. All teeth on the mill head shall be kept at a maximum differential tolerance of $\frac{3}{8}$-inch between the shortest and longest tooth, as measured by a straight edge placed the full width of the rotary milling head.

3. Cutting tips shall be replaced when 30 percent of the total length of the cutting tip material remains.

Prior to each day's Bituminous Pavement removal operations, the Contractor shall confirm to the satisfaction of the Engineer that the rotary head cutting teeth are within the specified tolerances.

6-08.3(5)C Structure Deck Cleanup after Bituminous Pavement Removal

Waterproofing membrane that is loose or otherwise not firmly bonded to the Structure Deck shall be removed as an incidental component of the Work of surfacing removal. Existing waterproofing membrane bonded to the Structure Deck need not be removed.

6-08.3(6) Repair of Damage due to Bituminous Pavement Removal Operations

All concrete bridge deck, pavement seat, and steel reinforcing bar damage due to the Contractor's surfacing removal operations shall be repaired by the Contractor in accordance with Section 1-07.13, and as specified below.

Damaged concrete in excess of the specified Bituminous Pavement removal tolerance shall be repaired in accordance with Section 6-08.3(7), with the bridge deck repair material placed to the level of the surrounding bridge deck and parallel to the final grade paving profile.

Damaged steel reinforcing bar shall be repaired as follows:

1. Damage to steel reinforcing bar resulting in a section loss less than 20-percent of the bar with no damage to the surrounding concrete shall be left in place and shall be repaired by removing the concrete to a depth ¾-inches around the top steel reinforcing bar and placing bridge deck repair material accepted by the Engineer to the level of the bridge deck and parallel to the final grade paving profile.

2. Damage to steel reinforcing bar resulting in a section loss of 20-percent or more in one location, bars partially or completely removed from the bridge deck, or where there is a lack of bond to the concrete, shall be repaired by removing the adjacent concrete and splicing a new bar of the same size. Concrete shall be removed to provide a ¾-inch minimum clearance around the bars. The splice bars shall extend a minimum of 40 bar diameters beyond each end of the damage.

6-08.3(7) Concrete Deck Repair

This Work consists of repairing the concrete deck after Bituminous Pavement has been removed.

6-08.3(7)A Concrete Deck Preparation

The Contractor, with the Engineer, shall inspect the exposed concrete deck to establish the extent of bridge deck repair in accordance with Section 6-09.3(6), except item 4 in Section 6-09.3(6) does not apply. Areas of Structure Deck left with existing well bonded waterproof membrane after full depth Bituminous Pavement removal are exempt from this inspection requirement.

All loose and unsound concrete within the repair area shall be removed with jackhammers or chipping hammers no more forceful than the nominal 30 pounds class, or other mechanical means acceptable to the Engineer, and operated at angles less than 45 degrees as measured from the surface of the deck to the tool. If unsound concrete exists around the existing steel reinforcing bars, or if the bond between concrete and steel reinforcing bar is broken, the Contractor shall remove the concrete to provide a ¾ inch minimum clearance to the bar. The Contractor shall take care to prevent damage to the existing steel reinforcing bars and concrete to remain.

After removing sufficient concrete to establish the limits of the repair area, the Contractor shall make ¾ inch deep vertical saw cuts and maintain square

edges at the boundaries of the repair area. The exposed steel reinforcing bars and concrete in the repair area shall be abrasive blasted and blown clean just prior to placing the bridge deck repair material.

6-08.3(7)B Ultra-Low Viscosity, Two-Part Liquid, Polyurethane-Hybrid Polymer Concrete

The ultra-low viscosity, two-part liquid, polyurethane-hybrid polymer concrete shall be mixed in accordance with the manufacturer's recommendations.

Aggregate shall conform to the gradation limit requirements recommended by the manufacturer. The aggregate and the ultra-low viscosity, two-part liquid, polyurethane-hybrid polymer concrete shall be applied to the repair areas in accordance with the sequence and procedure recommended by the manufacturer.

All repairs shall be float finished flush with the surrounding surface within a tolerance of $\frac{1}{8}$ inch of a straight edge placed across the full width and breadth of the repair area.

6-08.3(7)C Pre-Packaged Cement Based Repair Mortar

The Contractor shall mix the pre-packaged cement based repair mortar using equipment, materials and proportions, batch sizes, and process as recommended by the manufacturer.

All repairs shall be float finished flush with the surrounding surface within a tolerance of $\frac{1}{8}$ inch of a straight edge placed across the full width and breadth of the repair area.

6-08.3(7)D Cure

All bridge deck repair areas shall be cured in accordance with the manufacturer's recommendations and attain a minimum compressive strength of 2,500 psi before allowing vehicular and foot traffic on the repair and placing waterproofing membrane on the bridge deck over the repair.

6-08.3(8) Waterproof Membrane for Structure Decks

This work consists of furnishing and placing a waterproof sheet membrane system over a prepared Structure Deck prior to placing an HMA overlay. The waterproof membrane system shall consist of a sheet membrane adhered to the Structure Deck with a primer.

The Contractor shall comply with all membrane manufacturer's installation recommendations.

6-08.3(8)A Structure Deck Preparation

The Structure Deck and ambient air temperatures shall be above 50°F and the Structure Deck shall be surface-dry at the time of the application of the primer and membrane.

All areas of a Structure Deck that have fresh cast bridge deck concrete less than 28 days old (not including bridge deck repair concrete placed in accordance with Section 6-08.3(7)) shall cure for a period of time

recommended by the membrane manufacturer, or as specified by the Engineer, before application of the membrane.

The entire Structure Deck and the sides of the curb and expansion joint headers to the height of the HMA overlay shall be free of all foreign material such as dirt, grease, etc. Prior to applying the primer or sheet membrane, all dust and loose material shall be removed from the Structure Deck with compressed air. All surface defects such as spalled areas, cracks, protrusions, holes, sharp edges, ridges, etc., and other surface imperfections greater than ¼ inch in width shall be corrected prior to application of the membrane.

6-08.3(8)B Applying Primer

The primer shall be applied to the cleaned deck surfaces at the rate according to the procedure recommended by the membrane manufacturer. All surfaces to be covered by the membrane shall be thoroughly and uniformly coated with primer. Structure Deck areas left with existing well bonded waterproof membrane after bituminous surfacing removal shall receive an application of primer in accordance with the membrane manufacturer's recommendations. Precautionary measures shall be taken to ensure that pools and thick layers of primer are not left on the deck surface. The membrane shall not be applied until the primer has cured or volatile material has substantially dissipated, in accordance with the membrane manufacturer's recommendations.

The primer and waterproof membrane shall extend from the bridge deck up onto the curb face and expansion joint header face the thickness of the HMA overlay. The membrane shall adhere to the vertical surface.

6-08.3(8)C Placing Waterproof Membrane

Membrane application shall begin at the low point on the deck, and continue in a lapped shingle pattern. The overlap shall be a minimum of six inches or greater if recommended by the membrane manufacturer. Membrane seams shall be sealed as recommended by the membrane manufacturer. Hand rollers or similar tools shall be used on the applied membrane to assure firm and uniform contact with the primed Structure surfaces.

The fabric shall be neatly cut and contoured at all expansion joints and drains. The cuts at bridge drains shall be two right angle cuts made to the inside diameter of the bridge deck drain outlet, after which the corners of the waterproof membrane shall be turned down into the drains and laid in a coating of primer.

6-08.3(8)D Membrane Repair and Protection

The waterproof membrane will be visually inspected by the Engineer for uniformity, tears, punctures, bonding, bubbles, wrinkles, voids and other defects. All such deficiencies shall be repaired in accordance with the membrane manufacturer's recommendations prior to placement of the HMA overlay.

The membrane material shall be protected from damage due to the paving operations in accordance with the membrane manufacturer's

recommendations. No traffic or equipment except that required for the actual waterproofing and paving operations will be permitted to travel or rest on the membrane until it is covered by the HMA overlay. The use of windrows is not allowed for laydown of HMA on a membrane.

Where waterproofing membrane is placed in stages or applied at different times, a strip of temporary paper shall be used to protect the membrane overlap from the HMA hand removal methods.

6-08.3(9) Placing Bituminous Pavement on Structure Decks

HMA overlay shall be applied on Grade Controlled Structure Decks using reference lines for vertical control in accordance with Section 5-04.3(3)C.

The compacted elevation of the HMA overlay on Structure Decks shall be within ± 0.02 feet of the specified overlay thickness or Final Grade Profile as applicable. Deviations from the final grade paving profile in excess of the specified tolerance and areas of non-conforming surface smoothness shall be corrected in accordance with Section 5-04.3(13).

Final grade Roadway transitions to a Structure Deck with Bituminous Pavement shall not exceed a 0.20 percent change in grade in accordance with the bridge deck transition for HMA overlay Standard Plan, unless shown otherwise in the Plans.

Final grade compacted HMA elevations shall be higher than an adjacent concrete edge by ¼ inch ± $\frac{1}{8}$ inch at all expansion joint headers and concrete butt joints as shown in the concrete to asphalt butt joint details of the bridge paving joint seals Standard Plan. This also applies to steel edges within the limits of the overlay such as bridge drain frames and steel joint riser bars at bridge expansion joints.

6-08.3(9)A Protection of Structure Attachments and Embedments

The Contractor is responsible for protecting all Structure attachments and embedments from the application of BST and HMA.

Drainage inlets that are to remain open, and expansion joints, shall be cleaned out immediately after paving is completed. Materials passing through expansion joints shall be removed from the bridge within 10 working days.

All costs incurred by the Contractor in protective measures and clean up shall be included in the unit Contract prices for the associated Bid items of Work.

6-08.3(10) HMA Compaction on Structure Decks

Compaction of HMA on Structure Decks shall be in accordance with Section 5-04.3(10).

Work rejected in accordance with Section 5-04.3(11) shall include the materials, work, and incidentals to repair an existing waterproof membrane damaged by the removal of the rejected work.

6-08.3(11) Paved Panel Joint Seals and HMA Sawcut and Seal

Bridge paving joint seals shall be installed in accordance with Section 5-04.3(12)B and the details shown in the Plans and Standard Plans.

When concrete joints are exposed after removal of Bituminous Pavement, the joints shall be cleaned and sealed in accordance with Section 5-01.3(8) and the paved panel joint seal details of the bridge paving joint seals Standard Plan, including placement of the closed cell backer rod at the base of the cleaned joint. If waterproofing membrane is required, the membrane shall be slack or folded at the concrete joint to allow for Structure movements without stress to the membrane. After placement of the HMA overlay, the second phase of the paved panel joint seal shall be completed by sawing the HMA and sealing the sawn joint in accordance with Section 5-04.3(12)B2.

6-08.4 Measurement

Removing existing Bituminous Pavement from Structure Decks will be measured by the square yard of Structure Deck surface area with removed overlay.

Bridge deck repair will be measured by the square foot surface area of deck concrete removed with the measurement taken at the plane of the top mat of steel reinforcing bars.

Waterproof membrane will be measured by the square yard surface area of Structure Deck and curb and header surface area covered by membrane.

6-08.5 Payment

Payment will be made for each of the following Bid items when they are included in the Proposal:

"Structure Surveying", lump sum.

"Removing Existing Overlay From Bridge Deck___", per square yard.
The unit Contract price per square yard for "Removing Existing Overlay From Bridge Deck___", shall be full pay for performing the Work as specified for full removal of Bituminous Pavement on Structure Decks, including the removal of existing waterproof membrane and disposing of materials.

"Bridge Deck Repair Br. No.___", per square foot.
The unit Contract price per square foot for "Bridge Deck Repair Br. No.___" shall be full pay for performing the Work as specified, including removing and disposing of the concrete within the repair area and furnishing, placing, finishing, and curing the repair concrete.

"Waterproof Membrane Br. No.___", per square yard.
The unit Contract price per square yard for "Waterproof Membrane Br. No.___" shall be full pay for performing the Work as specified, including repairing any damaged or defective waterproofing membrane and repair of damaged HMA overlay.

6-09.AP6

Section 6-09, Modified Concrete Overlays
April 4, 2016

6-09.3(8)A Quality Assurance for Microsilica Modified and Fly Ash Modified Concrete Overlays

The first sentence of the first paragraph is revised to read the following two new sentences:

> The Engineer will perform slump, temperature, and entrained air tests for acceptance in accordance with Section 6-02.3(5)D and as specified in this Section after the Contractor has turned over the concrete for acceptance testing. Concrete samples for testing shall be supplied to the Engineer in accordance with Section 6-02.3(5)E.

The last paragraph is deleted.

6-09.3(8)B Quality Assurance for Latex Modified Concrete Overlays

The first two paragraphs are deleted and replaced with the following:

> The Engineer will perform slump, temperature, and entrained air tests for acceptance in accordance with Section 6-02.3(5)D and as specified in this Section after the Contractor has turned over the concrete for acceptance testing. The Engineer will perform testing as the concrete is being placed. Samples shall be taken on the first charge through each mobile mixer and every other charge thereafter. The sample shall be taken after the first 2 minutes of continuous mixer operation. Concrete samples for testing shall be supplied to the Engineer in accordance with Section 6-02.3(5)E.

The second to last sentence of the last paragraph is revised to read:

> Recommendations made by the technical representative on or off the jobsite shall be adhered to by the Contractor.

6-10.AP6

Section 6-10, Concrete Barrier
August 1, 2016

6-10.3(5) Temporary Concrete Barrier

This section title is revised to read:

> **Temporary Barrier**

The first paragraph is revised to read:

> For temporary barrier, the Contractor may use precast concrete barrier or temporary steel barrier. Temporary concrete barrier shall comply with Standard Plan requirements and cross-sectional dimensions, except that: (1) it may be made in other lengths than those shown in the Standard Plan, and (2) it may have permanent lifting holes no larger than 4 inches in diameter or lifting loops. Temporary steel barrier shall be certified that it meets NCHRP 350 or MASH crash test requirements and shall be installed in accordance with the manufacturer's recommendations.

6-10.4 Measurement

The first sentence of the second paragraph is revised to read:

Temporary barrier will be measured by the linear foot along the completed line and slope of the barrier, one time only for each setup of barrier protected area.

6-10.5 Payment

The Bid item “Temporary Conc. Barrier”, per linear foot, and the paragraph following this Bid item, is revised to read:

“Temporary Barrier”, per linear foot.

The unit Contract price per linear foot for “Temporary Barrier” shall be full pay for all costs, including furnishing, installing, connecting, anchoring, maintaining, temporary storage, and final removal of the temporary barrier.

6-12.AP6

Section 6-12, Noise Barrier Walls
January 3, 2017

6-12.3(9) Access Doors and Concrete Landing Pads

The first sentence of the last paragraph is revised to read:

The Contractor shall construct concrete landing pads for each access door location as shown in the Plans.

6-12.5 Payment

In the paragraph following the bid item “Noise Barrier Wall Access Door”, per each, “concrete landing pad” is revised to read “concrete landing pads”.

6-14.AP6

Section 6-14, Geosynthetic Retaining Walls
January 3, 2017

6-14.3(2) Submittals

The first sentence of the first paragraph is revised to read:

The Contractor shall submit Type 2E Working Drawings consisting of detailed plans for each wall.

6-14.5 Payment

The bid item “Concrete Fascia Panel”, per square foot, and the paragraph following this bid item are revised to read:

“Concrete Fascia Panel For Geosynthetic Wall”, per square foot.

All costs in connection with constructing the concrete fascia panels as specified shall be included in the unit Contract price per square foot for “Concrete Fascia Panel For Geosynthetic Wall”, including all steel reinforcing bars, premolded joint filler, polyethylene bond breaker strip, joint sealant, PVC pipe for weep holes, exterior surface finish, and

pigmented sealer (when specified), constructing and placing the concrete footing, edge beam, anchor beam, anchor rod assembly, and backfill.

6-19.AP6

Section 6-19, Shafts
January 3, 2017

6-19.3 Construction Requirements

This section is supplemented with the following new subsection:

6-19.3(10) Engineer's Final Acceptance of Shafts

The Engineer will determine final acceptance of each shaft, based on the nondestructive QA test results and analysis for the tested shafts, and will provide a response to the Contractor within 3 working days after receiving the test results and analysis submittal.

6-19.3(1)B Nondestructive Testing of Shafts

This section's content is deleted and replaced with the following new subsections:

6-19.3(1)B1 Nondestructive Quality Assurance (QA) Testing of Shafts

Unless otherwise specified in the Special Provisions, the Contractor shall perform nondestructive QA testing of shafts, except for those constructed completely in the dry. Either crosshole sonic log (CSL) testing in accordance with ASTM D 6760 or thermal integrity profiling (TIP) testing in accordance with ASTM D 7949 shall be used.

6-19.3(1)B2 Nondestructive Quality Verification (QV) Testing of Shafts

The Contracting Agency may perform QV nondestructive testing of shafts that have been QA tested by the Contractor. The Contracting Agency may test up to ten percent of the shafts. The Engineer will identify the shafts selected for QV testing and the testing method the Contracting Agency will use.

The Contractor shall accommodate the Contracting Agency's nondestructive testing.

6-19.3(2) Shaft Construction Submittal

This section is revised to read:

The shaft construction submittal shall be comprised of the following four components: construction experience; shaft installation narrative; shaft slurry technical assistance; and nondestructive QA testing personnel. The submittals shall be Type 2 Working Drawings, except the shaft slurry technical assistance and nondestructive QA testing personnel submittals shall be Type 1.

This section is supplemented with the following new subsection:

6-19.3(2)D Nondestructive QA Testing Organization and Personnel

The Contractor shall submit the names of the testing organizations, and the names of the personnel who will conduct nondestructive QA testing of shafts. The submittal shall include documentation that the qualifications specified below are satisfied. For TIP testing, the testing organization is the group that performs the data analysis and produces the final report. The testing organizations and the testing personnel shall meet the following minimum qualifications:

1. The testing organization shall have performed nondestructive tests on a minimum of three deep foundation projects in the last two years.

2. Personnel conducting the tests for the testing organization shall have a minimum of one year experience in nondestructive testing and interpretation.

3. The experience requirements for the organization and personnel shall be consistent with the testing methods the Contractor has selected for nondestructive testing of shafts.

4. Personnel preparing test reports shall be a Professional Engineers, licensed under Title 18 RCW, State of Washington, and in accordance with WAC 196-23-020.

6-19.3(3) Shaft Excavation

The second paragraph is revised to read:

Shaft excavation shall not be started until the Contractor has received the Engineer's acceptance for the reinforcing steel centralizers required when the casing is to be pulled during concrete placement.

This section is supplemented with the following:

Except as otherwise noted, the Contractor shall not commence subsequent shaft excavations until receiving the Engineer's acceptance of the first shaft, based on the results and analysis of the nondestructive testing for the first shaft. The Contractor may commence subsequent shaft excavations prior to receiving the Engineer's acceptance of the first shaft, provided the following condition is satisfied:

The Engineer permits continuing with shaft construction based on the Engineer's observations of the construction of the first shaft, including, but not limited to, conformance to the shaft installation narrative in accordance with Section 6-19.3(2)B, and the Engineer's review of Contractor's daily reports and Inspector's daily logs concerning excavation, steel reinforcing bar placement, and concrete placement.

6-19.3(5)B Steel Reinforcing Bar Cage Centralizers

This section is supplemented with the following new sentence:

The Contractor shall furnish and install additional centralizers as required to maintain the specified concrete cover throughout the length of the shaft.

6-19.3(5)C Concrete Cover Over Steel Reinforcing Bars

In the table, the second column (including heading) is revised to read:

Minimum Concrete Cover, and Concrete Cover Tolerance, Except at Permanent Slip Casing (Inches)
3, -1½
4, -2

4, -2
6, -3

The following new paragraph is inserted after the table:

The concrete cover tolerances specified above apply to the concrete cover specified in the Plans, even if it exceeds the minimum concrete cover.

6-19.3(6) Access Tubes for Crosshole Sonic Log (CSL) Testing

This section title is revised to read:

6-19.3(6) Contractor Furnished Accessories for Nondestructive QA Testing

This section is supplemented with the following three new subsections:

6-19.3(6)D Shafts Requiring Thermal Wire

The Contractor shall furnish and install thermal wire in all shafts receiving the thermal wire method of TIP testing, except as otherwise noted in Section 6-19.3(1)B1.

6-19.3(6)E Thermal Wire and Thermal Access Points (TAPs)

The thermal wire and associated couplers shall be obtained from the source specified in the Special Provisions.

The Contractor shall securely attach the thermal wire to the interior of the reinforcement cage of the shaft in conformance with the supplier's instructions. At a minimum, one thermal wire shall be furnished and installed for each foot of shaft diameter, rounded to the nearest whole number, as shown in the Plans. The number of thermal wires for shaft diameters specified as "X feet 6 inches" shall be rounded up to the next higher whole number. The thermal wires shall be placed around the shaft, inside the spiral or hoop reinforcement, and tied to the vertical reinforcement with plastic "zip" ties at a maximum spacing of 2-feet. Steel tie wire shall not be used.

The thermal wire shall be installed in straight alignment and taut, but with enough slack to not be damaged during reinforcing cage lofting. The wires shall be as near to parallel to the vertical axis of the reinforcement cage as possible. The thermal wire shall extend from the bottom of the reinforcement cage to the top of the shaft, with 15-feet of slack wire provided above the top of shaft. Care shall be taken to prevent damaging the thermal wires during reinforcement cage installation and concrete placement operations in the shaft excavation.

After completing shaft reinforcement cage fabrication at the site and prior to installation of the cage into the shaft excavation, the Contractor shall install and connect thermal access points (TAPs) to the thermal wires. The TAPs shall record data for at least one hour after the cage is placed in the excavation to measure the slurry temperature and enable the steel and slurry temperatures to equilibrate prior to placing concrete in the shaft. The TAPs shall record and store data every 15 minutes. The TAPs shall remain active for a minimum of 36 hours.

Prior to beginning concrete placement the TAPs shall be checked to ensure they are recording data and that the wires have not been damaged. If a TAP unit is not functioning due to a damaged wire, the Contractor shall repair or replace the wire. If a TAP unit fails or

a wire breaks after concrete placement has started, the Contractor shall not stop the concrete placement operation to repair the wire.

6-19.3(6)F Use of Access Tubes for TIP Testing Under the Thermal Probe Method

The Contractor may use access tubes for TIP testing under the thermal probe method. Access tubes shall be cared for in accordance with Section 6-19.3(6)C. Prior to TIP testing under the thermal probe method, the water in each tube shall be removed, collected, and stored in an insulated container. The access tube shall be blown dry and swabbed to remove residual water. After TIP testing, the collected and stored tube water shall be introduced back into the access tube. New potable water may be used, provided the water temperature is not more than 10°F cooler than the average concrete temperature measured by the probe.

6-19.3(6)A Shafts Requiring CSL Access Tubes

This section, including title, is revised to read:

6-19.3(6)A Shafts Requiring Access Tubes

The Contractor shall furnish and install access tubes in all shafts receiving CSL testing or the thermal probe method of TIP testing, except as otherwise noted in Section 6-19.3(1)B1.

6-19.3(6)B Orientation and Assembly of the CSL Access Tubes

This section's title is revised to read:

6-19.3(6)B Orientation and Assembly of the Access Tubes

6-19.3(6)C Care for CSL Access Tubes from Erection through CSL Testing

This section's title is revised to read:

6-19.3(6)C Care for Access Tubes from Erection Through Nondestructive QA Testing

The second sentence is revised to read:

The Contractor shall keep all of a shaft's access tubes full of water through the completion of nondestructive QA testing of that shaft.

6-19.3(7)A Concrete Class for Shaft Concrete

This section is revised to read:

Shaft concrete shall be Class 5000P conforming to Section 6-02.

6-19.3(7)B Concrete Placement Requirements

The last sentence of the last paragraph is revised to read:

The Section 6-02.3(6) restriction for 5 feet maximum free fall shall not apply to placement of concrete into a shaft.

6-19.3(7)I Requirements for Placing Concrete Above the Top of Shaft

This section is revised to read:

Concrete shall not be placed above the top of shaft (for column splice zones, columns, footings, or shaft caps) until the Contractor receives the Engineer's acceptance of nondestructive QA testing, if performed at that shaft, and acceptance of the shaft.

6-19.3(9) Nondestructive Testing of Shafts (Crosshole Sonic Log (CSL) Testing)

This section, including title, is revised to read:

6-19.3(9) Nondestructive QA Testing of Shafts

The Contractor shall provide nondestructive QA testing and analysis on all shafts with access tubes or thermal wires and TAPs facilitating the testing (See Section 6-19.3(1)B). The testing and analysis shall be performed by the testing organizations identified by the Contractor's submittal in accordance with Section 6-19.3(2)D.

The Engineer may direct that additional testing be performed at a shaft if anomalies or a soft bottom are detected by the Contractor's testing. If additional testing at a shaft confirms the presence of a defect(s) in the shaft, the testing costs and the delay costs resulting from the additional testing shall be borne by the Contractor in accordance with Section 1-05.6. If the additional testing indicates that the shaft has no defect, the testing costs and the delay costs resulting from the additional testing will be paid by the Contracting Agency in accordance with Section 1-05.6, and, if the shaft construction is on the critical path of the Contractor's schedule, a time extension equal to the delay created by the additional testing will be granted in accordance with Section 1-08.8.

6-19.3(9)A Schedule of CSL Testing

This section, including title, is revised to read:

6-19.3(9)A TIP Testing Using Thermal Probes or CSL Testing

If selected as the nondestructive QA testing method by the Contractor, TIP testing using thermal probes, or CSL testing shall be performed after the shaft concrete has cured at least 96 hours. Additional curing time prior to testing may be required if the shaft concrete contains admixtures, such as set retarding admixture or water-reducing admixture, added in accordance with Section 6-02.3(3). The additional curing time prior to testing required under these circumstances shall not be grounds for additional compensation or extension of time to the Contractor in accordance with Section 1-08.8.

6-19.3(9)B Inspection of CSL Access Tubes

This section's title is revised to read:

6-19.3(9)B Inspection of Access Tubes

6-19.3(9)C Engineer's Final Acceptance of Shafts

This section, including title, is revised to read:

6-19.3(9)C TIP Testing With Thermal Wires and TAPs

If selected as the nondestructive QA testing method by the Contractor, TIP testing with thermal wires and TAPs (See Section 6-19.3(6)E) shall be performed. The TIP testing shall commence at the beginning of the concrete placement operation, recording temperature readings at 15-minute intervals until the peak temperature is captured in the data. Additional curing time may be required if the shaft concrete contains admixtures, such as set retarding admixture or water-reducing admixture, added in accordance with Section 6-

02.3(3). The additional curing time required under these circumstances shall not be grounds for additional compensation or extension of time to the Contractor in accordance with Section 1-08.8.

TIP testing shall be conducted at all shafts in which thermal wires and TAPs have been installed for thermal wire analysis (Section 6-19.3(6)A).

6-19.3(9)D Requirements to Continue Shaft Excavation Prior to Acceptance of First Shaft

This section, including title, is revised to read:

6-19.3(9)D Nondestructive QA Testing Results Submittal

The Contractor shall submit the results and analysis of the nondestructive QA testing for each shaft tested. The Contractor shall submit the test results within three working days of testing. Results shall be a Type 1 Working Drawing presented in a written report.

TIP reports shall include:

1. A map or plot of the wire/tube location within the shaft and their position relative to a known and identifiable location, such as North.

2. Graphical displays of temperature measurements versus depth of each wire or tube for the analysis time selected, overall average temperature with depth, shaft radius or diameter with depth, concrete cover versus cage position with depth, and effective radius.

3. The report shall identify unusual temperatures, particularly significantly cooler local deviations from the overall average.

4. The report shall identify the location and extent where satisfactory or questionable concrete is identified.

    a. Satisfactory (S) - 0 to 6% Effective Radius Reduction and Cover Criteria Met

    b. Questionable (Q) - Effective Local Radius Reduction > 6%, Effective Local Average Diameter Reduction > 4%, or Cover Criteria Not Met

5. Variations in temperature between wire/tubes (at each depth) which in turn correspond to variations in cage alignment.

6. Where shaft specific construction information is available (e.g. elevations of the top of shaft, bottom of casing, bottom of shaft, etc.), these values shall be noted on all pertinent graphical displays.

CSL reports shall include:

1. A map or plot of the tube location within the shaft and their position relative to a known and identifiable location, such as North.

2. Graphical displays of CSL Energy versus Depth and CSL signal arrival time versus depth or velocity versus depth.

3. The report shall identify the location and extent where good, questionable, and poor concrete is identified, where no signal was received, or where water is present.

    a. Good (G) - No signal distortion and decrease in signal velocity of 10% or less is indicative of good quality concrete.

    b. Questionable (Q) - Minor signal distortion and a lower signal amplitude with a decrease in signal velocity between 10% and 20%.

    c. Poor (P) - Severe signal distortion and much lower signal amplitude with a decrease in signal velocity of 20% or more.

    d. No Signal (NS) - No signal was received.

    e. Water (W) - A measured signal velocity of nominally V = 4,800 to 5,000 fps.

All QA test reports will provide a recommendation to accept the shaft as-is, recommendation for further review by the Engineer, or will provide a plan for further testing, investigation or repair to address any deficiencies identified by the testing.

6-19.3(9)E Additional CSL Testing

This section, including title, is revised to read:

6-19.3(9)E Vacant

6-19.3(9)I Requirements for CSL Access Tubes and Cored Holes After CSL Testing

This section's title is revised to read:

6-19.3(9)I Requirements for Access Tubes and Cored Holes After CSL Testing

6-19.4 Measurement

This section is revised to read:

Constructing shafts will be measured by the linear foot. The linear foot measurement will be calculated using the top of shaft elevation and the bottom of shaft elevation for each shaft as shown in the Plans.

Rock excavation for shaft, including haul, will be measured by the linear foot of shaft excavated. The linear feet measurement will be computed using the top of the rock line, defined as the highest bedrock point within the shaft diameter, and the bottom elevation shown in the Plans.

QA shaft test will be measured once per shaft tested.

6-19.5 Payment

This section is revised to read:

Payment will be made for the following Bid items when they are included in the Proposal:

"Constructing___Diam. Shaft", per linear foot.
The unit Contract price per linear foot for "Constructing___Diam. Shaft" shall be full pay for performing the Work as specified, including:

1. Soil excavation for shaft, including all costs in connection with furnishing, mixing, placing, maintaining, containing, collecting, and disposing of all mineral, synthetic and water slurry, and disposing of groundwater collected by the excavated shaft.

2. Furnishing and placing temporary shaft casing, including temporary casing in addition to the required casing specified in the Special Provisions, and including all costs in connection with completely removing the casing after completing shaft construction.

3. Furnishing permanent casing for shaft.

4. Placing permanent casing for shaft.

5. Casing shoring, including all costs in connection with furnishing and installing casing shoring above the specified upper limit for casing shoring but necessary to provide for sufficient water head pressure to resist artesian water pressure present in the shaft excavation, removing casing shoring, and placing seals when required.

6. Furnishing and placing steel reinforcing bar and epoxy-coated steel reinforcing bar, including furnishing and installing steel reinforcing bar centralizers.

7. Installation of CSL tubes or thermal wires.

8. Furnishing, placing and curing concrete to the top of shaft or to the construction joint at the base of the shaft-column splice zone as applicable.

Payment for "Constructing___Diam. Shaft" will be made upon Engineer acceptance of the shaft, including completion of satisfactory QA shaft tests as applicable.

"Rock Excavation For Shaft Including Haul", per linear foot.
When rock excavation is encountered, payment for rock excavation is in addition to the unit Contract price per linear foot for "Constructing___Diam. Shaft"

"Shoring Or Extra Excavation Cl. A - ___", lump sum.
The lump sum Contract price for "Shoring Or Extra Excavation Cl. A - ___" shall be full pay for performing the Work as specified, including all costs in connection with all excavation outside the limits specified for soil and rock excavation for shaft including haul, all temporary telescoping casings, and all temporary casings beyond the limits of required temporary casing specified in the Special Provisions.

"QA Shaft Test", per each.

The unit Contract price per each for “QA Shaft Test” shall be full pay for performing the Work as specified, including operating all associated accessories necessary to record and process data and develop the summary QA test reports. Section 1-04.6 does not apply to this bid item.

“Removing Shaft Obstructions”, estimated.
Payment for removing, breaking-up, or pushing aside shaft obstructions, as defined in Section 6-19.3(3)E, will be made for the changes in shaft construction methods necessary to deal with the obstruction. The Contractor and the Engineer shall evaluate the effort made and reach agreement on the equipment and employees utilized, and the number of hours involved for each. Once these cost items and their duration have been agreed upon, the payment amount will be determined using the rate and markup methods specified in Section 1-09.6. For the purpose of providing a common proposal for all Bidders, the Contracting Agency has entered an amount for the item “Removing Shaft Obstructions” in the Bid Proposal to become a part of the total Bid by the Contractor.

If drilled shaft tools, cutting teeth, casing or Kelly bar is damaged as a result of the obstruction removal work, the Contractor will be compensated for the costs to repair this equipment in accordance with Section 1-09.6.

If shaft construction equipment is idled as a result of the Work required to deal with the obstruction and cannot be reasonably reassigned within the project, then standby payment for the idled equipment will be added to the payment calculations. If labor is idled as a result of the Work required to deal with the obstruction and cannot be reasonably reassigned within the project, then all labor costs resulting from Contractor labor agreements and established Contractor policies will be added to the payment calculations.

The Contractor shall perform the amount of obstruction Work estimated by the Contracting Agency within the original time of the Contract. The Engineer will consider a time adjustment and additional compensation for costs related to the extended duration of the shaft construction operations, provided:

1. The dollar amount estimated by the Contracting Agency has been exceeded, and

2. The Contractor shows that the obstruction removal Work represents a delay to the completion of the project based on the current progress schedule provided in accordance with Section 1-08.3.

7-02.AP7

Section 7-02, Culverts
January 3, 2017

7-02.2 Materials

The following three new items are inserted after the item “Aggregate for Portland Cement Concrete:

Gravel Backfill for Pipe Zone Bedding 9-03.12(3)

Butyl Rubber Sealant	9-04.11
External Sealing Band	9-04.12

The last paragraph is deleted.

7-02.3(6) Precast Reinf. Conc. Three Sided Structures, Box Culverts and Split Box Culverts

This section is supplemented with the following new paragraph:

When the Plans include a complete set of design details for a Structure (defining panel shapes and dimensions, concrete strength requirements, and steel reinforcing bar, joint, and connection details), the design and load rating preparation and calculation submittal requirements of Sections 7-02.3(6)A1 and 7-02.3(6)A2 do not apply for the components shown in the Plans, but all other requirements of this Section remain in effect. The Contractor may propose alternate concrete culvert designs, accommodating the same rise, span, and length as shown in the Plans, to replace the Structure details shown in the Plans. If an alternate concrete culvert design is proposed, all of the requirements of this Section, including design and load rating preparation and calculation submittal, apply.

7-02.3(6)A General

This section is supplemented with the following two new paragraphs:

Tolerances for PRCTSS shall be as follows:

1. Internal Dimensions – The internal dimension shall not vary more than 1 percent or 2 inches, whichever is less, from the Plan dimensions. The haunch dimensions shall not vary more than $\frac{3}{4}$ inch from the Plan dimensions.

2. Slab and Wall Thickness – The slab and wall thickness shall not be less than that shown in the Plans by more than 5 percent or ½ inch, whichever is greater. A thickness more than that required in the Plans will not be a cause for rejection if proper joining is not affected.

3. Length of Opposite Surfaces – Variations in lengths of two opposite surfaces of the three-sided section shall not be more than $\frac{3}{4}$ inch unless beveled sections are being used to accommodate a curve in the alignment.

4. Reinforcing steel placement shall meet the tolerances specified in Section 6-02.3(24)C.

Tolerances for PRCBC and PRCSBC shall be as follows:

1. Internal Dimensions – The internal dimensions shall not vary more than 1 percent from the Plan dimensions. If haunches are used, the haunch dimensions shall not vary more than ¼ inch from the Plan dimensions.

2. Slab and Wall Thickness – The slab and wall thickness shall not be less than that shown in the Plans by more than 5 percent or $\frac{3}{16}$ inch, whichever is greater. A thickness more than that required in the Plans will not be a cause for rejection.

3. Length of Opposite Box Segments – Variations in lengths of two opposite surfaces of the box segments shall not be more than $\frac{1}{8}$ inch per foot of internal span, with a maximum of $\frac{5}{8}$ inch for all sizes through 7 feet internal span, and a maximum of ¾ inch for internal spans greater than 7 feet, except where beveled sections are being used to accommodate a curve in the alignment.

4. Length of Box Segments – The underrun in length of a segment shall not be more than $\frac{1}{8}$ inch per foot of length with a maximum of $\frac{1}{2}$ inch in any box segment.

5. Length of Legs and Slabs – The variation in length of the legs shall not be more than $\frac{1}{8}$ inch per foot of the rise of the leg per leg with a maximum of $\frac{5}{8}$ inches. The differential length between opposing legs of the same segment shall not be more than $\frac{1}{2}$ inch. Length of independent top slab spans shall not vary by more than $\frac{1}{8}$ inch per foot of span of the top slab, with a maximum of $\frac{5}{8}$ inches.

6. Reinforcing steel placement shall meet the tolerances specified in Section 6-02.3(24)C.

This section is supplemented with the following new subsection:

7-02.3(6)A5 Wingwalls and Retaining Walls

Wingwalls and retaining walls (including cutoff walls and headwalls) shall be constructed in accordance with the Contractor's design and Working Drawing submittal or when the Plans include a complete set of design details for a wall (defining panel shapes and dimensions, concrete strength requirements, and steel reinforcing bar, joint, and connection details),the details shown in the Plans.

Precast concrete construction shall conform to Sections 6-02.3(28) and 6-11.3(3).

Culvert bedding material shall be furnished, placed, and compacted in accordance with Section 7-02.3(6)A4.

7-02.3(6)A1 Design Criteria

The first sentence of the last paragraph is revised to read:

Whenever the minimum finished backfill or surfacing depth above the top of the Structure is less than 1'-0" (except when the top of the Structure is directly exposed to vehicular traffic), either all steel reinforcing bars in the span unit shall be epoxy-coated with 2" minimum concrete cover from the face of concrete to the face of the top mat of steel reinforcing bars, or the minimum concrete cover shall be 2½".

The last sentence of the last paragraph is revised to read:

Concrete cover from the face of any concrete surface to the face of any steel reinforcement shall be 1-inch minimum end clearance at all joints, and 2-inches minimum at all other locations.

7-02.3(6)A2 Submittals

The first paragraph is revised to read:

The Contractor shall submit shop drawings of the precast Structures. Fabrication shop drawings replicating complete design details when shown in the Plans shall be Type 2 Working Drawings. Submittals completing the design based on the schematic geometric requirements shown in the Plans, or proposing a Contractor designed alternative concrete culvert Structure shall be Type 2E Working Drawings with supporting design calculations.

The last paragraph is revised to read:

For precast Structures with a span length greater than 20-feet (as defined in Section 7-02.3(6)A1), except when the depth of fill above the top of culvert exceeds the Structure span length, a Type 2E Working Drawing shall be submitted consisting of a load rating report prepared in accordance with the AASHTO Manual for Bridge Evaluation and WSDOT Bridge Design Manual LRFD M 23-50 Chapter 13. Soil pressures used shall include effects from the backfill material and compaction methods, and shall be in accordance with the WSDOT Geotechnical Design Manual M 46-03 and the geotechnical report prepared for the project.

7-02.3(6)A3 Casting

This section is revised to read:

Concrete shall conform to Section 6-02.3(28)B, with a 28-day compressive strength as specified in the Plans or the Working Drawings submittal.

7-02.3(6)A4 Excavation and Bedding Preparation

The last paragraph is revised to read:

The upper layer of bedding course shall be a 6-inch minimum thickness layer of culvert bedding material, defined as granular material either conforming to Section 9-03.12(3) or to AASHTO Grading No. 57 as specified in Section 9-03.1(4)C. The plan limits of the culvert bedding material shall extend 1-foot beyond the plan limits of the culvert or the Structure footing as applicable. The culvert bedding material shall be compacted in accordance with the Section 2-09.3(1)E requirements for gravel backfill for drains. After compaction, the culvert bedding material shall be screeded transversely to the specified line and grade. Voids in the screeded culvert bedding material shall be filled and then rescreeded prior to erecting the precast Structure.

7-02.3(6)B3 Erection

The last paragraph is revised to read:

Adjacent precast sections shall be connected by welding the weld-tie anchors in accordance with Section 6-03.3(25). Welding ground shall be attached directly to the steel plates being welded when welding the weld-ties. The weld-tie anchor spacing shall not exceed 6'-0". After connecting the weld-tie anchors, the Contractor shall paint the exposed metal surfaces with one coat of field primer conforming to Section 9-08.1(2)F. Keyways shall be filled with grout conforming to Section 9-20.3(2).

7-02.3(6)C1 Casting

This section is revised to read:

PRCSBC shall consist of lid elements and "U" shaped base elements. The vertical legs of the "U" shaped base elements shall be full height matching the rise of the culvert, except as otherwise specified for culvert spans greater than 20-feet. For PRCSBC spans greater than 20-feet (as defined in Section 7-02.3(6)A1), the lid elements may include vertical legs of a maximum length of 4-feet.

All vertical and horizontal joints of PRCBC and PRCSBC elements shall be tongue and groove type joints, except PRCBC and PRCSBC of 20-foot span or less may have keyway joints connected by weld-tie anchors in accordance with Section 6-02.3(25)O. The weld-tie anchor spacing shall not exceed 6'-0". There shall be at least two galvanized steel tie plates across each top unit tongue and groove joint and each tongue and groove joint between upper and lower units, unless otherwise shown in the Plans or required by the seismic designed completed in accordance with Section 7-02.3(6)A1.

7-02.3(6)C3 Erection

This section is revised to read:

PRCBC and PRCSBC shall be erected and backfilled in accordance with the erection sequence specified in the Working Drawing submittal, and the construction equipment restrictions specified in Section 6-02.3(25)O.

The Contractor shall install a continuous strip of butyl rubber sealant within all tongue and groove joints prior to connecting the precast elements together. The butyl rubber sealant shall have a minimum cross section of ½-inch by 1½-inch, unless otherwise shown in the Plans.

After connecting the joints with weld-tie anchors, the Contractor shall paint the exposed metal surfaces with one coat of field primer conforming to Section 9-08.1(2)F. Keyways shall be filled with grout conforming to Section 9-20.3(2).

The Contractor shall wrap all exterior joints along the top and sides of the PRCBC and PRCSBC with a 12-inch wide strip of external sealing band centered about the joint and adhesively bonded to the concrete surface.

Backfill beside the PRCBC and PRCSBC shall be brought up in sequential layers, compacted concurrently. The difference in backfill height on opposing sides of the Structure shall not exceed 2-feet.

7-02.4 Measurement

This section is supplemented with the following:

Culvert bedding material will be measured by the cubic yard of material placed.

7-02.5 Payment

This section is supplemented with the following:

"Culvert Bedding Material", per cubic yard.

7-08.AP7

Section 7-08, General Pipe Installation Requirements
January 3, 2017

7-08.3(1)A Trenches

The second sentence of the last paragraph is revised to read:

> The embankment material shall be compacted to 95 percent of maximum density and the moisture content at the time of compaction shall be between optimum and 3 percentage points below optimum as determined by the Compaction Control Tests specified in Section 2-03.3(14)D.

7-09.AP7

Section 7-09, Water Mains
April 3, 2017

7-09.3(24)D Dry Calcium Hypochlorite

The second paragraph is revised to read:

> The number of grams of 70 percent test calcium hypochlorite required for a 20-foot length of pipe equals $0.238 \times d^2$, in which "d" is the diameter in inches.

8-01.AP8

Section 8-01, Erosion Control and Water Pollution Control
August 1, 2016

8-01.2 Materials

This section is supplemented with the following new paragraph:

> Recycled concrete, in any form, shall not be used for any Work defined in Section 8-01.

8-01.3(7) Stabilized Construction Entrance

The last sentence of the first paragraph is revised to read:

> Material used for stabilized construction entrance shall be free of extraneous materials that may cause or contribute to track out.

8-01.3(8) Street Cleaning

This section is revised to read:

> Self-propelled street sweepers shall be used to remove and collect sediment and other debris from the Roadway, whenever required by the Engineer. The street sweeper shall effectively collect these materials and prevent them from being washed or blown off the Roadway or into waters of the State. Street sweepers shall not generate fugitive dust and shall be designed and operated in compliance with applicable air quality standards.
>
> Material collected by the street sweeper shall be disposed of in accordance with Section 2-03.3(7)C.
>
> Street washing with water will require the concurrence of the Engineer.

8-09.AP8

Section 8-09, Raised Pavement Markers
January 3, 2017

8-09.5 Payment

In the last paragraph, “flaggers and spotters” is revised to read “flaggers”.

8-10.AP8

Section 8-10, Guide Posts
January 4, 2016

8-10.3 Construction Requirements

The last sentence of the second paragraph is deleted.

8-11.AP8

Section 8-11, Guardrail
January 17, 2017

8-11.3(1)C Terminal and Anchor Installation

This section is supplemented with the following new paragraph:

> Beam Guardrail Non-flared Terminals for Type 1 guardrail shall meet the crash test and evaluation criteria of NCHRP 350 or the Manual for Assessing Safety Hardware (MASH). Beam Guardrail Non-flared Terminals for Type 31 guardrail shall meet the crash test and evaluation criteria of MASH.

8-11.3(1)F Removing and Resetting Beam Guardrail

The last sentence of the first paragraph is deleted.

8-11.5 Payment

The paragraph following the Bid item “Removing and Resetting Beam Guardrail”, per linear foot is revised to read:

> The unit Contract price per linear foot for “Removing and Resetting Beam Guardrail” shall be full payment for all costs to perform the Work as described in Section 8-11.3(1)F, except for replacement posts and blocks.

The paragraph following the Bid item “Raising Existing Beam Guardrail”, per linear foot is revised to read:

> The unit Contract price per linear foot for “Raising Existing Beam Guardrail” shall be full payment for all costs to perform the Work as described in Section 8-11.3(1)E, except for replacement posts and blocks.

8-20.AP8

Section 8-20, Illumination, Traffic Signal Systems, Intelligent Transportation Systems, and Electrical
January 3, 2017

8-20.1(1) Regulations and Code

The second paragraph is revised to read:

> Wherever reference is made in these Specifications or in the Special Provisions to the Code, the rules, or the standards mentioned above, the reference shall be construed to mean the code, rule, or standard that is in effect on the Bid advertisement date.

8-20.3(5)A General

The last paragraph is revised to read:

> Immediately after the sizing mandrel has been pulled through, install an equipment grounding conductor if applicable (see Section 8-20.3(9)) and any new or existing wire or cable as specified in the Plans. Where conduit is installed for future use, install a 200-pound minimum tensile strength pull string with the equipment grounding conductor. The pull string shall be attached to duct plugs or caps at both ends of the conduit.

8-20.3(5)A1 Fiber Optic Conduit

The last paragraph is deleted.

8-20.3(5)B Conduit Type

The second and third paragraphs are deleted and replaced with the following new paragraph:

> PVC and HDPE conduits shall be Schedule 80 unless installed as innerduct.

8-20.3(5)D Conduit Placement

Item number 2 is revised to read:

> 2. 24-inches below the top of the untreated surfacing on a Roadbed.

8-20.3(9) Bonding, Grounding

The following two new paragraphs are inserted after the first paragraph:

> Install an equipment grounding conductor in all new conduit, whether or not the equipment grounding conductor is called for in the wire schedule.
>
> For each new conduit with innerduct install an equipment grounding conductor in only one of the innerducts unless otherwise required by the NEC or the Plans.

The fourth paragraph (after the preceding Amendments are applied) is revised to read:

> Bonding jumpers and equipment grounding conductors meeting the requirements of Section 9-29.3(2)A3 shall be minimum #8 AWG, installed in accordance with the NEC. Where existing conduits are used for the installation of new circuits, an equipment grounding conductor shall be installed unless an existing equipment ground conductor, which is appropriate for the largest circuit, is already present in the existing raceway. The

equipment ground conductor between the isolation switch and the sign lighter fixtures shall be minimum #14 AWG stranded copper conductor. Where parallel circuits are enclosed in a common conduit, the equipment-grounding conductor shall be sized by the largest overcurrent device serving any circuit contained within the conduit.

The second sentence of the fifth paragraph (after the preceding Amendments are applied) is revised to read:

A non-insulated stranded copper conductor, minimum #8 AWG with a full circle crimp on connector (crimped with a manufacturer recommended crimper) shall be connected to the junction box frame or frame bonding stud, the other end shall be crimped to the equipment bonding conductor, using a “C” type crimp connector.

The last two sentences of the sixth paragraph (after the preceding Amendments are applied) are revised to read:

For light standards, signal standards, cantilever and sign bridge Structures the supplemental grounding conductor shall be #4 AWG non-insulated stranded copper conductor. For steel sign posts which support signs with sign lighting or flashing beacons the supplemental grounding conductor shall be #6 AWG non insulated stranded copper conductor.

The fourth to last paragraph is revised to read:

Install a two grounding electrode system at each service entrance point, at each electrical service installation and at each separately derived power source. The service entrance grounding electrode system shall conform to the “Service Ground” detail in the Standard Plans. If soil conditions make vertical grounding electrode installation impossible an alternate installation procedure as described in the NEC may be used. Maintain a minimum of 6 feet of separation between any two grounding electrodes within the grounding system. Grounding electrodes shall be bonded copper, ferrous core materials and shall be solid rods not less than 10 feet in length if they are ½ inch in diameter or not less than 8 feet in length if they are ⅝ inch or larger in diameter.

8-20.3(13)A Light Standards

The first sentence in the second to last paragraph is revised to read:

All new and relocated metal light standards shall be numbered for identification using painted 4 inch block gothic letters (similar to series C highway lettering) and numbers installed 3 feet above the base facing the Traveled Way.

The numbered list in the second to last paragraph is deleted and replaced with the following:

NN
CC-SSSS
VVV

Where:
NN –Is the pole number as identified in the Plans. May be one or more characters.
CC –Is the circuit letter as identified in the Plans. May be one or more characters.

SSSS – Is he service cabinet number as identified in the Plans. Do not include the two or three letter prefix. Up to four digits - do not include leading zeros.

VVV –Is the operating voltage of the luminaire. Always three digits.

8-20.3(13)C Luminaires

The first paragraph is revised to read:

The Contractor shall mark the installation date on the inside of the luminaire ballast or driver housing using a permanent marking pen.

8-22.AP8

Section 8-22, Pavement Marking
January 4, 2016

8-22.4 Measurement

The first two sentences of the fourth paragraph are revised to read:

The measurement for “Painted Wide Lane Line”, “Plastic Wide Lane Line”, “Profiled Plastic Wide Lane Line”, “Painted Barrier Center Line”, “Plastic Barrier Center Line”, “Painted Stop Line”, “Plastic Stop Line”, “Painted Wide Dotted Entry Line”, or “Plastic Wide Dotted Entry Line” will be based on the total length of each painted, plastic or profiled plastic line installed. No deduction will be made for the unmarked area when the marking includes a broken line such as, wide broken lane line, drop lane line, wide dotted lane line or wide dotted entry line.

8-22.5 Payment

The following two new Bid items are inserted after the Bid item “Plastic Crosshatch Marking”, per linear foot:

“Painted Wide Dotted Entry Line”, per linear foot.

“Plastic Wide Dotted Entry Line”, per linear foot.

9-01.AP9

Section 9-01, Portland Cement
January 3, 2017

This section’s title is revised to read:

Cement

9-01.1 Types of Cement

This section is revised to read:

Cement shall be classified as portland cement, blended hydraulic cement, or rapid hardening hydraulic cement.

9-01.2(2) Vacant

This section, including title, is revised to read:

9-01.2(2) Rapid Hardening Hydraulic Cement

Rapid hardening hydraulic cement shall meet the requirements of ASTM C 1600.

9-01.2(3) Low Alkali Cement

This section is renumbered as follows:

9-01.2(1)A Low Alkali Cement

9-01.2(4) Blended Hydraulic Cement

This section is renumbered as follows:

9-01.2(1)B Blended Hydraulic Cement

In the first paragraph, the last two sentences of item number 3 are revised to read:

Separate testing of each source of fly ash at each proposed replacement level shall be conducted in accordance with ASTM C1012 at the storage temperature prescribed in Section 9.3 of the test procedure. Expansion at 180 days shall be 0.10 percent or less.

In the first paragraph, the last two sentences of item number 4 are revised to read:

Separate testing of each source of slag at each proposed replacement level shall be conducted in accordance with ASTM C1012 at the storage temperature prescribed in Section 9.3 of the test procedure. Expansion at 180 days shall be 0.10 percent or less.

In the first paragraph, the last two sentences of item number 5 are revised to read:

Separate testing of each source of fly ash or slag at each proposed replacement level shall be conducted in accordance with ASTM C1012 at the storage temperature prescribed in Section 9.3 of the test procedure. Expansion at 180 days shall be 0.10 percent or less.

9-01.3 Tests and Acceptance

The second paragraph is revised to read:

Cement producers/suppliers that certify portland cement or blended hydraulic cement shall participate in the Cement Acceptance Program as described in WSDOT Standard Practice QC 1. Rapid hardening hydraulic cement producers/suppliers are not required to participate in WSDOT Standard Practice QC 1.

9-03.AP9

Section 9-03, Aggregates
January 3, 2017

9-03.1(1) General Requirements

In this section, each reference to “Section 9-01.2(3)” is revised to read “Section 9-01.2(1)A”.

This first paragraph is supplemented with the following:

Reclaimed aggregate may be used if it complies with the specifications for Portland Cement Concrete. Reclaimed aggregate is aggregate that has been recovered from plastic concrete by washing away the cementitious materials.

9-03.1(2) Fine Aggregate for Portland Cement Concrete

This section is revised to read:

Fine aggregate shall consist of natural sand or manufactured sand, or combinations thereof, accepted by the Engineer, having hard, strong, durable particles free from adherent coating. Fine aggregate shall be washed thoroughly to meet the specifications.

9-03.1(2)A Deleterious Substances

This section is revised to read:

The amount of deleterious substances in the washed aggregate shall be tested in accordance with AASHTO M 6 and not exceed the following values:

Material finer than No. 200 Sieve	2.5 percent by weight
Clay lumps and friable particles	3.0 percent by weight
Coal and lignite	0.25 percent by weight
Particles of specific gravity less than 2.00	1.0 percent by weight.

Organic impurities shall be tested in accordance with AASHTO T 21 by the glass color standard procedure and results darker than organic plate no. 3 shall be rejected. A darker color results from AASHTO T 21 may be used provided that when tested for the effect of organic impurities on strength of mortar, the relative strength at 7 days, calculated in accordance with AASHTO T 71, is not less than 95 percent.

9-03.1(4) Coarse Aggregate for Portland Cement Concrete

This section is revised to read:

Coarse aggregate for concrete shall consist of gravel, crushed gravel, crushed stone, or combinations thereof having hard, strong, durable pieces free from adherent coatings. Coarse aggregate shall be washed to meet the specifications.

9-03.1(4)A Deleterious

This section, including title, is revised to read:

9-03.1(4)A Deleterious Substances

The amount of deleterious substances in the washed aggregate shall be tested in accordance with AASHTO M 80 and not exceed the following values:

Material finer than No. 200	1.0[1] percent by weight
Clay lumps and Friable Particles	2.0 percent by weight
Shale	2.0 percent by weight
Wood waste	0.05 percent by weight
Coal and Lignite	0.5 percent by weight
Sum of Clay Lumps, Friable Particles, and Chert (Less Than 2.40 specific gravity SSD)	3.0 percent by weight

[1]If the material finer than the No. 200 sieve is free of clay and shale, this percentage may be increased to 1.5.

9-03.1(4)C Grading

The following new sentence is inserted at the beginning of the last pargraph:

Where coarse aggregate size 467 is used, the aggregate may be furnished in at least two separate sizes.

9-03.1(5) Combined Aggregate Gradation for Portland Cement Concrete

This section is revised to read:

As an alternative to using the fine aggregate sieve grading requirements in Section 9-03.1(2)B, and coarse aggregate sieve grading requirements in Section 9-03.1(4)C, a combined aggregate gradation conforming to the requirements of Section 9-03.1(5)A may be used.

9-03.1(5)A Deleterious Substances

This section is revised to read:

The amount of deleterious substances in the washed aggregates $\frac{3}{8}$ inch or larger shall not exceed the values specified in Section 9-03.1(4)A and for aggregates smaller than $\frac{3}{8}$ inch they shall not exceed the values specified in Section 9-03.1(2)A.

9-03.1(5)B Grading

The first paragraph is deleted.

9-03.8(2) HMA Test Requirements

In the table in item number 3, the heading “Statistical and Nonstatistical” is revised to read “Statistical”.

9-03.8(7) HMA Tolerances and Adjustments

In the table in item number 1, the column titled “Nonstatistical Evaluation” is deleted.

In the table in item 1, the last column titled “Commercial Evaluation” is revised to read “Visual Evaluation”.

9-03.11(1) Streambed Sediment

The following three new sentences are inserted after the first sentence of the first paragraph:

Alternate gradations may be used if proposed by the Contractor and accepted by the Engineer. The Contractor shall submit a Type 2 Working Drawing consisting of 0.45 power maximum density curve of the proposed gradation. The alternate gradation shall closely follow the maximum density line and have Nominal Aggregate Size of no less than 1½ inches or no greater than 3 inches.

9-03.12(4) Gravel Backfill for Drains

The following new sentence is inserted at the beginning of the second paragraph:

As an alternative, AASHTO grading No. 57 may be used in accordance with Section 9-03.1(4)C.

9-03.12(5) Gravel Backfill for Drywells

The following new sentence is inserted at the beginning of the second paragraph:

As an alternative, AASHTO grading No. 4 may be used in accordance with Section 9-03.1(4)C.

9-03.21(1)B Concrete Rubble

This section, including title, is revised to read:

9-03.21(1)B Recycled Concrete Aggregate

Recycled concrete aggregates are coarse aggregates manufactured from hardened concrete mixtures. Recycled concrete aggregate may be used as coarse aggregate or blended with coarse aggregate for Commercial Concrete. Recycled concrete aggregate shall meet all of the requirements for coarse aggregate contained in Section 9-03.1(4) or 9-03.1(5). In addition to the requirements of Section 9-03.1(4) or 9-03.1(5), recycled concrete shall:

1. Contain an aggregated weight of less than 1 percent of adherent fines, vegetable matter, plastics, plaster, paper, gypsum board, metals, fabrics, wood, tile, glass, asphalt (bituminous) materials, brick, porcelain or other deleterious substance(s) not otherwise noted;
2. Be free of harmful components such as chlorides and reactive materials unless mitigation measures are taken to prevent recurrence in the new concrete;
3. Have an absorption of less than 10 percent when tested in accordance with AASHTO T 85.

Recycled concrete aggregate shall be in a saturated condition prior to mixing.

Recycled concrete aggregate shall not be placed below the ordinary high water mark of any water of the State.

9-03.21(1)D Recycled Steel Furnace Slag

This section title is revised to read:

Steel Slag

9-03.21(1)E Table on Maximum Allowable Percent (By Weight) of Recycled Material

In the Hot Mix Asphalt column, each value of “20” is revised to read “25”.

The last column heading “Steel Furnace Slag” is revised to read “Steel Slag”.

The following new row is inserted after the second row:

Coarse Aggregate for Commercial Concrete	9-03.1(4)	0	100	0	0

9-04.AP9

Section 9-04, Joint and Crack Sealing Materials
January 3, 2017

This section is supplemented with the following two new subsections:

9-04.11 Butyl Rubber Sealant

Butyl rubber sealant shall conform to ASTM C 990.

9-04.12 External Sealing Band

External sealing band shall by Type III B conforming to ASTM C 877.

9-04.1(2) Premolded Joint Filler for Expansion Joints

This section is supplemented with the following:

As an alternative to the above, a semi-rigid, non-extruding, resilient type, closed-cell polypropylene foam, preformed joint filler with the following physical properties as tested to AASHTO T 42 Standard Test Methods may be used.

Closed-Cell Polypropylene Foam Preformed Joint Filler		
Physical Property	**Requirement**	**Test Method**
Water Absorption	< 1.0%	AASHTO T 42
Compression Recovery	> 80%	AASHTO T 42
Extrusion	< 0.1 in.	AASHTO T 42
Density	> 3.5 lbs./cu.ft.	AASHTO T 42
Water Boil (1 hr.)	No expansion	AASHTO T 42
Hydrochloric Acid Boil (1 hr.)	No disintegration	AASHTO T 42
Heat Resistance °F	392°F± 5°F	ASTM D 5249

9-04.2(1) Hot Poured Joint Sealants

This section's content is deleted and replaced with the following new subsections:

9-04.2(1)A Hot Poured Sealant

Hot poured sealant shall be sampled in accordance with ASTM D5167 and tested in accordance with ASTM D5329.

9-04.2(1)A1 Hot Poured Sealant for Cement Concrete Pavement

Hot poured sealant for cement concrete pavement shall meet the requirements of ASTM D6690 Type IV, except for the following:

1. The Cone Penetration at 25°C shall be 130 maximum.

2. The extension for the Bond, non-immersed, shall be 100 percent.

9-04.2(1)A2 Hot Poured Sealant for Bituminous Pavement

Hot poured sealant for bituminous pavement shall meet the requirements of ASTM D6690 Type I or Type II.

9-04.2(1)B Sand Slurry for Bituminous Pavement

Sand slurry is mixture consisting of the following components measured by total weight:

1. Twenty percent CSS-1 emulsified asphalt,

2. Two percent portland cement, and

3. Seventy-eight percent fine aggregate meeting the requirements of 9-03.1(2)B Class 2. Fine aggregate may be damp (no free water).

9-04.2(2) Poured Rubber Joint Sealer

The last paragraph is deleted.

9-04.4(1) Rubber Gaskets for Concrete Pipes and Precast Manholes

"AASHTO M 198" is revised to read "ASTM C 990".

9-04.4(3) Gaskets for Aluminum or Steel Culvert or Storm Sewer Pipe

In the last sentence, "AASHTO M 198" is revised to read "ASTM C 990".

9-06.AP9

Section 9-06, Structural Steel and Related Materials
January 3, 2017

9-06.5(3) High-Strength Bolts

In this section, "ASTM A325" is revised to read "ASTM F3125 Grade A325", "ASTM A490" is revised to read "ASTM F3125 Grade A490", and "ASTM F1852" is revised to read "ASTM F3125 Grade F1852".

In the fifth paragraph, "ASTM-A325" is revised to read "ASTM F3125".

9-06.12 Bronze Castings

In this section, "AASHTO M107" is revised to read "ASTM B22".

9-06.16 Roadside Sign Structures

In the first paragraph, "ASTM A325" is revised to read "ASTM F3125 Grade A325".

9-07.AP9

Section 9-07, Reinforcing Steel
August 1, 2016

9-07.1(1)A Acceptance of Materials

The first sentence of the first paragraph is revised to read:

Reinforcing steel rebar manufacturers shall comply with the National Transportation Product Evaluation Program (NTPEP) Work Plan for Reinforcing Steel (rebar) Manufacturers.

The first sentence of the second paragraph is revised to read:

Steel reinforcing bar manufacturers use either English or a Metric size designation while stamping rebar.

9-07.1(2) Bending

The first two sentences of the first paragraph are deleted and replaced with the following two new sentences:

Steel reinforcing bars shall be cut and bent cold to the shapes shown on the Plans. Fabrication tolerances shall be in accordance with ACI 315.

9-10.AP9

Section 9-10, Piling
August 1, 2016

9-10.3 Cast-In-Place Concrete Piling

This section is revised to read:

Reinforcement for cast-in-place concrete piles shall conform to Section 9-07.2.

9-11.AP9

Section 9-11, Waterproofing
January 3, 2017

This section (and all subsections), including title, is revised to read:

9-11 Waterproof Membrane

9-11.1 Asphalt for Waterproofing

Waterproof membrane shall be a sheet membrane conforming to ASTM D 6153 Type III, the puncture capacity specified below, and either the thin polymer sheet tensile stress or the geotextile and fabric grab tensile strength specified below:

Performance Properties	Test Method	Specification Requirements
Tensile Stress (for Thin Polymer Sheets)	ASTM D 882	75 pounds per inch min.
Grab Tensile Strength (for Geotextiles and Fabrics)	ASTM D 4632 (Woven or Nonwoven)	200 pounds min.
Puncture Capacity (For Thin Polymer Sheets, Geotextiles and Fabrics)	ASTM E 154	200 pounds min.

Waterproofing membrane will be accepted based on a Manufacturer's Certificate of Compliance with each lot of waterproof membrane.

9-11.2 Primer for Waterproof Membrane

The primer for the waterproof membrane shall be appropriate for bonding the sheet membrane to the bridge deck surface and shall be compatible with the membrane in accordance with the waterproof membrane manufacturer's recommendations.

9-16.AP9

Section 9-16, Fence and Guardrail
January 17, 2017

9-16.3(3) Galvanizing

The first three sentences are deleted and replaced with the following single sentence:

W-beam or thrie beam rail elements and terminal sections shall be galvanized in accordance with AASHTO M 180, Class A, Type II.

9-20.AP9

Section 9-20, Concrete Patching Material, Grout, and Mortar
January 3, 2017

This section is supplemented with the following new subsection:

9-20.5 Bridge Deck Repair Material

Bridge deck repair material shall be either an ultra-low viscosity, two-part liquid, polyurethane-hybrid polymer concrete, or a pre-packaged cement based repair mortar, conforming to the following requirements:

1. Minimum compressive strength of 2,500 psi, in accordance with ASTM C 109.

2. Total soluble chloride ion content by mass of product shall conform to the limits specified in Section 6-02.3(2) for reinforced concrete.

3. Permeability of less than 2,000 coulombs at 56-days in accordance with AASHTO T 277.

If pre-packaged deck repair material does not include coarse aggregate, the Contractor shall extend the mix with coarse aggregate as recommended by the manufacturer.

9-23.AP9

Section 9-23, Concrete Curing Materials and Admixtures
January 3, 2017

9-23.9 Fly Ash

The first paragraph is revised to read:

Fly ash shall conform to the requirements of AASHTO M295 Class C or F including supplementary optional chemical requirements as set forth in Table 2.

The last sentence of the last paragraph is revised to read:

The supplementary optional chemical limits in AASHTO M295 Table 2 do not apply to fly ash used in Controlled Density Fill.

9-23.12 Metakaolin

This section, including title, is revised to read:

9-23.12 Natural Pozzolan

Natural Pozzolans shall be either Metakaolin or ground Pumice and shall conform to the requirements of AASHTO M295 Class N, including supplementary optional chemical requirements as set forth in Table 2.

9-28.AP9

Section 9-28, Signing Materials and Fabrication
April 3, 2017

9-28.14(3) Aluminum Structures

This section is revised to read:

Welding of aluminum shall be in accordance with AWS D1.2/D1.2M, latest edition, Structural Welding Code – Aluminum.

Aluminum alloy filler metals utilized on anodized structures shall result in color matching to base metals.

9-29.AP9

Section 9-29, Illumination, Signal, Electrical
January 3, 2017

9-29.2 Junction Boxes, Cable Vaults, and Pull Boxes

This section is supplemented with the following new subsections:

9-29.2(5) Testing Requirements

The Contractor shall provide for testing of junction boxes, cable vaults and pull boxes. Junction boxes, cable vaults and pull boxes shall be tested by an independent materials testing facility, and a test report issued documenting the results of the tests performed.

For each junction box, vault and pull box type, the independent testing laboratory shall meet the requirements of AASHTO R 18 for Qualified Tester and Verified Test Equipment. The test shall be conducted in the presence of a Professional Engineer, licensed under Title 18 RCW, State of Washington, in the branch of Civil or Structural, and each test sheet shall have the Professional Engineer's original signature, date of signature, original seal, and registration number. One copy of the test report shall be furnished to the Contracting Agency certifying that the box and cover meet or exceed the loading requirements for that box type, and shall include the following information:

1. Product identification.
2. Date of testing.
3. Description of testing apparatus and procedure.
4. All load deflection and failure data.
5. Weight of box and cover tested.

6. Upon completion of the required test(s) the box shall be loaded to failure or to the maximum load possible on the testing machine (70,000 pounds minimum).

7. A brief description of type and location of failure or statement that the testing machine reached maximum load without failure of the box.

9-29.2(5)A Standard Duty Boxes and Vaults

Standard Duty Concrete Junction Boxes, Cable Vaults, and Pull Boxes shall be load tested to 22,500 pounds. The test load shall be applied uniformly through a 10 by 10 by 1-inch steel plate centered on the lid. The test load shall be applied and released ten times, and the deflection at the test load and released state shall be recorded for each interval. At each interval the junction box shall be inspected for lid deformation, failure of the lid/frame welds, vertical and horizontal displacement of the lid/frame, cracks, and concrete spalling.

Concrete junction boxes will be considered to have withstood the test if none of the following conditions are exhibited:

1. Permanent deformation of the lid or any impairment to the function of the lid.

2. Vertical or horizontal displacement of the lid frame.

3. Cracks wider than 0.012 inches that extend 12 inches or more.

4. Fracture or cracks passing through the entire thickness of the concrete.

5. Spalling of the concrete.

9-29.2(5)B Retrofit Security Lids for Standard Duty Concrete Junction Boxes

Security lids used to retrofit existing Standard Duty Concrete Junction Boxes shall be tested as follows:

1. The security lid shall be installed on any appropriately sized box that is currently approved on the Qualified Products List.

2. The security lid and box assembly shall be load tested in accordance with Section 9-29.2(5)A. After the ten load cycles but before loading to failure, the security lid shall be fully opened and removed to verify operability.

3. The locking mechanism(s) shall be tested as follows:

    a. The locking mechanism shall be cycled 250 times (locked, then unlocked again) at room temperature (60-80°F). If there is more than one identical locking mechanism, only one needs to be cycled in this manner.

    b. Temperature changes should be limited to no more than 60°F per hour.

    c. The security lid shall be cooled to and held at -30°F for 15 minutes. The locking mechanism shall then be cycled once to verify operation at this temperature.

d. The security lid shall be heated to and held at 120-122°F for 15 minutes. The locking mechanism shall then be cycled once to verify operation at this temperature.

e. The security lid shall be temperature adjusted to and held at 110°F and 95% humidity for 15 minutes. The locking mechanism shall then be cycled once to verify operation at this temperature and humidity.

9-29.2(5)C Standard Duty Non-Concrete Junction Boxes

Non-concrete Junction Boxes shall be tested as defined in the ANSI/SCTE 77 Tier 15 test method using the test load of 22,500 pounds (minimum) in place of the design load during testing. In addition, the Contractor shall provide a Manufacturer Certificate of Compliance for each non-concrete junction box installed.

9-29.2(5)D Heavy-Duty Boxes and Vaults

Heavy-Duty Junction Boxes, Cable Vaults, and Pull Boxes shall be load tested to 46,000 pounds. The test load shall be applied vertically through a 10 by 20 by 1-inch steel plate centered on the lid with an orientation both on the long axis and the short axis of the junction box. The test load shall be applied and released ten times on each axis. The deflection at the test load and released state shall be recorded for each interval. At each interval the test box shall be inspected for lid deformation, failure of the lid or frame welds, vertical and horizontal displacement of the lid frame, cracks, and concrete spalling. After the twentieth loading interval the test shall be terminated with a 60,000 pound load being applied vertically through the steel plate centered on the lid and with the long edge of steel plate orientated parallel to the long axis of the box.

Heavy-Duty Junction Boxes will be considered to have withstood the 46,000 pound test if none of the following conditions are exhibited:

1. Permanent deformation of the lid or any impairment to the function of the lid.

2. Vertical or horizontal displacement of the lid frame.

3. Cracks wider than 0.012 inches that extend 12 inches or more.

4. Fracture or cracks passing through the entire thickness of the concrete.

5. Spalling of the concrete.

Heavy-Duty Junction Boxes will be considered to have withstood the 60,000 pound test if all of the following conditions are exhibited:

1. The lid is operational.

2. The lid is securely fastened.

3. The welds have not failed.

4. Permanent dishing or deformation of the lid is ¼ inch or less.

5. No buckling or collapse of the box.

9-29.2(1) Standard Duty and Heavy Duty Junction Boxes

This section, including title, is revised to read:

9-29.2(1) Junction Boxes

For the purposes of this Specification concrete is defined as portland cement concrete and non-concrete is all others.

The Contractor shall provide shop drawings for all components, hardware, lid, frame, reinforcement, and box dimensions. The shop drawings shall be prepared by (or under the supervision of) a Professional Engineer, licensed under Title 18 RCW, State of Washington, in the branch of Civil or Structural. Each sheet shall carry the following:

1. Professional Engineer's original signature, date of signature, original seal, and registration number. If a complete assembly drawing is included which references additional drawing numbers, including revision numbers for those drawings, then only the complete assembly drawing is required to be stamped.

2. The initials and dates of all participating design professionals.

3. Clear notation of all revisions including identification of who authorized the revision, who made the revision, and the date of the revision.

Design calculations shall carry on the cover page, the Professional Engineer's original signature, date of signature, original seal, and registration number.

For each type of junction box, or whenever there is a change to the junction box design, a proof test, as defined in this Specification, shall be performed and new shop drawings submitted.

9-29.2(1)A Standard Duty Junction Boxes

This section is revised to read:

Standard Duty Junction Boxes are defined as Type 1, 2 and 8 junction boxes and shall have a minimum load rating of 22,500 pounds and be tested in accordance with Section 9-29.2(5). A complete Type 8 Junction Box includes the spread footing shown in the Standard Plans. All Standard Duty Junction Boxes placed in sidewalks, walkways, and shared use paths shall have slip resistant surfaces. Non-slip lids and frames shall be hot dip galvanized in accordance with AASHTO M111.

9-29.2(1)A1 Concrete Junction Boxes

The Standard Duty Concrete Junction Box steel frame, lid support, and lid shall be painted with a black paint containing rust inhibiters or painted with a shop applied, inorganic zinc primer in accordance with Section 6-07.3, or hot-dip galvanized in accordance with AASHTO M 111.

Concrete used in Standard Duty Junction Boxes shall have a minimum compressive strength of 6,000 psi when reinforced with a welded wire hoop, or 4,000 psi when reinforced with welded wire fabric or fiber reinforcement. The frame shall be anchored to the box by welding headed studs ⅜ by 3 inches long, as specified in Section 9-

06.15, to the frame. The wire fabric shall be attached to the studs and frame with standard tie practices. The box shall contain ten studs located near the centerline of the frame and box wall. The studs shall be placed one anchor in each corner, one at the middle of each width and two equally spaced on each length of the box.

Materials for Type 1, 2, and 8 Concrete Junction Boxes shall conform to the following:

Materials	Requirement
Concrete	Section 6-02
Reinforcing Steel	Section 9-07
Fiber Reinforcing	ASTM C1116, Type III
Lid	ASTM A786 diamond plate steel
Slip Resistant Lid	ASTM A36 steel
Frame	ASTM A786 diamond plate steel or ASTM A36 steel
Slip Resistant Frame	ASTM A36 steel
Lid Support	ASTM A36 steel, or ASTM A1011 SS Grade 36 (or higher)
Handle & Handle support	ASTM A36 steel, or ASTM A1011 CS (Any Grade) or SS (Any Grade)
Anchors (studs)	Section 9-06.15
Bolts, Studs, Nuts, Washers	ASTM F593 or A193, Type 304 or 316, or Stainless Steel grade 302, 304, or 316 steel in accordance with approved shop drawing
Locking and Latching Mechanism Hardware and Bolts	In accordance with approved shop drawings

9-29.2(1)A2 Non-Concrete Junction Boxes

Material for the non-concrete junction boxes shall be of a quality that will provide for a similar life expectancy as portland cement concrete in a direct burial application.

Type 1, 2, and 8 non-concrete junction boxes shall have a Design Load of 22,500 pounds and shall be tested in accordance with Section 9-29.2(5). Non-concrete junction boxes shall be gray in color and have an open bottom design with approximately the same inside dimensions, and present a load to the bearing surface that is less than or equal to the loading presented by the concrete junction boxes shown in the Standard Plans. Non-concrete junction box lids shall include a pull slot and embedded 6 by 6 by ¼-inch steel plate, and shall be secured with two ½ inch stainless steel Penta-head bolts recessed into the cover. The tapped holes for the securing bolts shall extend completely through the box to prevent accumulation of debris. Bolts shall conform to ASTM F593, stainless steel.

9-29.2(1)B Heavy-Duty Junction Boxes

The first paragraph is revised to read:

Heavy-Duty Junction Boxes are defined as Type 4, 5, and 6 junction boxes and shall be concrete and have a minimum vertical load rating of 46,000 pounds without permanent deformation and 60,000 pounds without failure when tested in accordance with Section 9-29.2(5).

9-29.2(1)C Testing Requirements

This section is deleted in its entirety.

9-29.2(2) Small Cable Vaults, Standard Duty Cable Vaults, Standard Duty Pull Boxes, and Heavy Duty Pull Boxes

This section, including title, is revised to read:

9-29.2(2) Cable Vaults and Pull Boxes

Cable Vaults and Pull Boxes shall be constructed as a concrete box and as a concrete lid. The lids for Cable Vaults and Pull Boxes shall be interchangeable and both shall fit the same box as shown in the Standard Plans.

The Contractor shall provide shop drawings for all components, including concrete box, Cast Iron Ring, Ductile Iron Lid, Steel Rings, and Lid. In addition, the shop drawings shall show placement of reinforcing steel, knock outs, and any other appurtenances. The shop drawing shall be prepared by or under the direct supervision of a Professional Engineer, licensed under Title 18 RCW, State of Washington, in the branch of Civil or Structural. Each sheet shall carry the following:

1. Professional Engineer's original signature, date of signature, original seal, and registration number. If a complete assembly drawing is included which references additional drawing numbers, including revision numbers for those drawings, then only the complete assembly drawing is required to be stamped.

2. The initials and dates of all participating design professionals.

3. Clear notation of all revisions including identification of who authorized the revision, who made the revision, and the date of the revision.

Design calculations shall carry on the cover page, the Professional Engineer's original signature, date of signature, original seal, and registration number.

For each type of box or whenever there is a change to the Cable Vault or Pull box design, a proof test, as defined in this Specification, shall be performed and new shop drawings submitted.

9-29.2(2)A Small Cable Vaults, Standard Duty Cable Vaults, and Standard Duty Pull Boxes

This section's title is revised to read:

9-29.2(2)A Standard Duty Cable Vaults and Pull Boxes

The first paragraph is revised to read:

Standard Duty Cable Vaults and Pull Boxes shall be concrete and have a minimum load rating of 22,500 pounds and be tested in accordance with Section 9-29.2(5). For the purposes of this Section, Small Cable Vaults are considered a type of Standard Duty Cable Vault.

The first sentence of the second paragraph is revised to read:

Concrete for Standard Duty Cable Vaults and Pull Boxes shall have a minimum compressive strength of 4,000 psi.

The first sentence of the third paragraph is revised to read:

All Standard Duty Cable Vaults and Pull Boxes placed in sidewalks, walkways, and shared-use paths shall have slip-resistant surfaces.

The fourth paragraph (up until the colon) is revised to read:

Materials for Standard Duty Cable Vaults and Pull Boxes shall conform to the following:

9-29.2(2)B Heavy-Duty Cable Vaults and Pull Boxes

The first paragraph is revised to read:

Heavy-Duty Cable Vaults and Pull Boxes shall be constructed of concrete having a minimum compressive strength of 4,000 psi, and have a minimum vertical load rating of 46,000 pounds without permanent deformation and 60,000 pounds without failure when tested in accordance with Section 9-29.2(5).

9-29.2(3) Structure Mounted Junction Boxes

The first and second paragraphs are revised to read:

Surface mounted junction boxes and concrete embedded junction boxes installed in cast-in-place structures shall be stainless steel NEMA 4X.

Concrete embedded junction boxes installed in structures constructed by slip forming shall be stainless steel NEMA 3R and shall be adjustable for depth, with depth adjustment bolts, which are accessible from the front face of the junction box with the lid installed.

9-29.3(1) Fiber Optic Cable

This section is revised to read:

All fiber optic cables shall be single mode fiber optic cables unless otherwise specified in the Contract. All fiber optic cables shall meet the following requirements:

1. Compliance with the current version of ANSI/ICEA S-87-640. A product data specification sheet clearly identifying compliance or a separate letter from manufacturer to state compliance shall be provided.

2. Cables shall be gel free, loose tube, low water peak, and all dielectric with no metallic component.

3. Cables shall not be armored unless specified in the Contract.

4. Cables shall be approved for mid-span entries and be rated by the manufacturer for outside plant (OSP) use, placement in underground ducts, and aerial installations.

5. Fiber counts shall be as specified in the Contract.

6. Fibers and buffer tubes shall be color coded in accordance with the current version of EIA/TIA-598.

7. Fibers shall not have any factory splices.

8. Outer Jacket shall be Type M (Medium Density Polyethylene). Outer jacket shall be free from holes, splits, blisters, or other imperfections and must be smooth and concentric as is consistent with the best commercial practice.

9. A minimum of one (1) rip cord is required for each cable.

10. Cable markings shall meet the following additional requirements:

    a. Color shall be white or silver.

    b. Markings shall be approximately 3 millimeters (118 mils) in height, and dimensioned and spaced to produce good legibility.

    c. Markings shall include the manufacturer's name, year of manufacture, the number of fibers, the words "OPTICAL CABLE", and sequential length marks.

    d. Sequential length markings shall be in meters or feet, spaced at intervals not more than 1 meter or 2 feet apart, respectively.

    e. The actual cable length shall not be shorter than the cable length marking. The actual cable length may be up to 1% longer than the cable length marking.

    f. Cables with initial markings that do not meet these requirements will not be accepted and may not be re-marked.

11. Short term tensile strength shall be a minimum of 600 pounds (1bs). Long term tensile strength shall be a minimum of 180 pounds (1bs). Tensile strength shall be achieved using a fiberglass reinforced plastic (FRP) central member and / or aramid yarns.

12. All cables shall be new and free of material or manufacturing defects and dimensional non-uniformity that would:

    a. Interfere with the cable installation using accepted cable installation practices;

    b. Degrade the transmission performance or environmental resistance after installation;

    c. Inhibit proper connection to interfacing elements;

    d. Otherwise yield an inferior product.

13. The fiber optic cables shall be shipped on reels with a drum diameter at least 20 times the diameter of the cable, in order to prevent damage to the cable. The reels shall be substantial and constructed so as to prevent damage during shipment and handling. Reels shall be labeled with the same information required for the cable markings, with the exception that the total length of cable shall be marked instead of incremental length marks. Reels shall also be labeled with the type of cable.

This section is supplemented with the following new subsection:

9-29.3(1)B Multimode Optical Fibers

Where multimode fiber optic cables are specified in the Contract, the optical fibers shall be one of the following types, as specified in the Contract:

a. Type OM1, meeting the requirements of EIA/TIA 492-AAAA-A or ISO/IEC 11801. The fiber core diameter shall be 62.5 µm.

b. Type OM2, meeting the requirements of EIA/TIA 492-AAAB-A or ISO/IEC 11801. The fiber core diameter shall be 50 µm.

All multimode optical fibers shall have a maximum attenuation of 3.0 dB/km at 850nm and 1.0 dB/km at 1300nm. Completed cable assemblies shall be rated for 1000BaseLX Ethernet communications.

9-29.3(1)A Singlemode Fiber Optic Cable

This section is revised to read:

Single-Mode optical fibers shall be EIA/TIA 492-CAAB or ISO/IEC 11801 Type OS2, low water peak zero dispersion fibers, meeting the requirements of ITU-T G.652.D.

9-29.6 Light and Signal Standards

The third paragraph is revised to read:

Light standard, signal standards, slip base hardware and foundation hardware shall be hot dip galvanized in accordance with AASHTO M 111 and AASHTO M 232. Where colored standards are required, standards shall be powder-coated after galvanizing in accordance with Section 6-07.3(11). The standard color shall be as specified in the Contract.

9-29.6(1) Steel Light and Signal Standards

In the first paragraph, “ASTM A325” is revised to read “ASTM F3125 Grade A325”.

9-29.6(2) Slip Base Hardware

In this section, “ASTM A325” is revised to read “ASTM F3125 Grade A325”.

9-29.7(2) Fused Quick-Disconnect Kits

The table is supplemented with the following new row:

LED*	10A	10A	20A

The following footnote is inserted after the table:

* Applies to all LED luminaires, regardless of wattage. Fuses for LED luminaires shall be slow blow.

9-29.10 Luminaires

The first sentence of the third paragraph is revised to read:

All luminaires shall be provided with markers for positive identification of light source type and wattage in accordance with ANSI C136.15-2011, with the exception that LED luminaires shall be labeled with the wattage of their conventional luminaire equivalents – the text "LED" is optional.

The table in the fourth paragraph is revised to read:

Conventional Lamp Wattage	Conventional Wattage Legend	Equivalent LED Legend
70	7	7E
100	10	10E
150	15	15E
175	17	17E
200	20	20E
250	25	25E
310	31	31E
400	40	40E
700	70	70E
750	75	75E
1,000	X1	X1E

9-29.25 Amplifier, Transformer, and Terminal Cabinets

Item 2C is revised to read:

c. Transformer up to 12.5 KVA20″48″24″
Transformer 12.6 to 35 KVA30″60″32″

The following new sentence is inserted before the last sentence of item number 10:

There shall be an isolation breaker on the input (line) side of the transformer, and a breaker array on the output (load) side.

9-35.AP9

Section 9-35, Temporary Traffic Control Materials
August 1, 2016

9-35.12 Transportable Attenuator

The second sentence of the first paragraph is revised to read:

The transportable attenuator shall be mounted on, or attached to, a host vehicle that complies with the manufacturer's recommended weight range.

GENERAL SPECIAL PROVISIONS

WASHINGTON STATE DEPARTMENT OF ECOLOGY STORMWATER GRANT PROGRAMS SPECIFICATIONS INSERT

1

WASHINGTON STATE DEPARTMENT OF ECOLOGY

STORMWATER FACILITY

SPECIFICATIONS INSERT

General

Partial funding of this project is being provided by the Washington State Department of Ecology's (Ecology) Stormwater Grant Program.

Compliance with State and Local Laws

The construction of the project, including all subcontracted work, shall conform to the applicable requirements of state and local laws and ordinances.

State Interest Exclusion

It is anticipated that this project will be funded in part by the Washington State Department of Ecology. Neither the State of Washington nor any of its departments or employees are, or shall be, a party to this contract or any subcontract.

Third Party Beneficiary

Partial funding of this project is being provided through the Washington State Department of Ecology Stormwater Grant Program. All parties agree that the State of Washington shall be, and is hereby, named as an express third-party beneficiary of this contract, with full rights as such.

Access to the construction site and to records

The contractor shall provide for the safe access to the construction site and to the contractor's records by Washington State Department of Ecology personnel.

The Contractor shall maintain accurate records and accounts to facilitate the Owner's audit requirements and shall ensure that all subcontractors maintain auditable records.

These Project records shall be separate and distinct from the Contractor's other records and accounts.

All such records shall be available to the Owner and to Washington State Department of Ecology personnel for examination. All records pertinent to this project shall be retained by the Contractor for a period of three (3) years after the final audit.

Protection of the Environment

No construction related activity shall contribute to the degradation of the environment, allow material to enter surface or ground waters, or allow particulate emissions to the atmosphere, which exceed state or federal standards. Any actions that potentially allow a discharge to state waters must have prior approval of the Washington State Department of Ecology.

Inadvertent Discovery of Archeological Resources

The contractor shall obtain a copy of the Inadvertent Discovery Plan from the Project Owner. The contractor shall keep a copy of the inadvertent discovery plan for the project on the work site at all times. The contractor shall immediately stop all work if human remains, cultural, or archeological resources are discovered in the course of construction. The contractor shall follow the inadvertent discovery plan in dealing with the human remains, cultural, or archeological resources.

Project Signs

The Contractor shall display Ecology's logo in a manner that informs the public that the project received financial assistance from the Washington State Stormwater Grant Program.

Utilization of Minority and Women Business Enterprises

All bidders are encouraged to utilize certified minority-owned and women-owned businesses to the extent possible in the performance of this contract. All prospective bidders or persons submitting qualifications should take the following steps, when possible.

1. Include qualified minority and women's businesses on solicitation lists.
2. Assure that qualified minority and women's businesses are solicited whenever they are potential sources of services or supplies.
3. Divide the total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by qualified minority and women's businesses.
4. Establish delivery schedules, where work requirements permit, which will encourage participation of qualified minority and women's businesses.
5. Use the services and assistance of the State Office of Minority and Women's Business Enterprises (OMWBE) and the Office of Minority Business Enterprises of the U.S. Department of Commerce, as appropriate.

All prospective bidders must provide a list of the MBE/WBE subcontractors they intend to use during the project. This list must be provided with the bid package.

SPECIAL PROVISIONS

The following Special Provisions are made a part of this contract and supersede any conflicting provisions of the 2016 Standard Specifications for Road, Bridge and Municipal Construction, and the foregoing Amendments to the Standard Specifications.

Several types of Special Provisions are included in this contract; General, Region, Bridges and Structures, and Project Specific. Special Provisions types are differentiated as follows:

(date)	General Special Provision
(******)	Notes a revision to a General Special Provision and also notes a Project Specific Special Provision.
(Regions[1] date)	Region Special Provision
(BSP date)	Bridges and Structures Special Provision

General Special Provisions are similar to Standard Specifications in that they typically apply to many projects, usually in more than one Region. Usually, the only difference from one project to another is the inclusion of variable project data, inserted as a "fill-in".

Region Special Provisions are commonly applicable within the designated Region. Region designations are as follows:

Regions[1]	
ER	Eastern Region
NCR	North Central Region
NWR	Northwest Region
OR	Olympic Region
SCR	South Central Region
SWR	Southwest Region
WSF	Washington State Ferries Division

Bridges and Structures Special Provisions are similar to Standard Specifications in that they typically apply to many projects, usually in more than one Region. Usually, the only difference from one project to another is the inclusion of variable project data, inserted as a "fill-in".

Project Specific Special Provisions normally appear only in the contract for which they were developed.

INTRODUCTION TO THE SPECIAL PROVISIONS

(August 14, 2013 APWA GSP)

The work on this project shall be accomplished in accordance with the *Standard Specifications for Road, Bridge and Municipal Construction*, 2016 edition, as issued by the Washington State Department of Transportation (WSDOT) and the American Public Works Association (APWA), Washington State Chapter (hereafter "Standard Specifications"). The Standard Specifications, as modified or supplemented by the Amendments to the Standard Specifications and these Special Provisions, all of which are made a part of the Contract Documents, shall govern all of the Work.

These Special Provisions are made up of both General Special Provisions (GSPs) from various sources, which may have project-specific fill-ins; and project-specific Special Provisions. Each Provision either supplements, modifies, or replaces the comparable Standard Specification, or is a new Provision. The deletion, amendment, alteration, or addition to any subsection or portion of the Standard Specifications is meant to pertain only to that particular portion of the section, and in no way should it be interpreted that the balance of the section does not apply.

The project-specific Special Provisions are not labeled as such. The GSPs are labeled under the headers of each GSP, with the effective date of the GSP and its source. For example:

(March 8, 2013 APWA GSP)
(April 1, 2013 WSDOT GSP)

Also incorporated into the Contract Documents by reference are:

- *Manual on Uniform Traffic Control Devices for Streets and Highways*, currently adopted edition, with Washington State modifications, if any
- *Standard Plans for Road, Bridge and Municipal Construction*, WSDOT/APWA, current edition

Contractor shall obtain copies of these publications, at Contractor's own expense.

Division 1
General Requirements

DESCRIPTION OF WORK

(March 13, 1995)
This Contract provides for the improvement of *** Third Avenue *** and other work, all in accordance with the attached Contract Plans, these Contract Provisions, and the Standard Specifications.

1-01.3 Definitions

(January 4, 2016 APWA GSP)

Delete the heading **Completion Dates** and the three paragraphs that follow it, and replace them with the following:

Dates

Bid Opening Date
The date on which the Contracting Agency publicly opens and reads the Bids.

Award Date
The date of the formal decision of the Contracting Agency to accept the lowest responsible and responsive Bidder for the Work.

Contract Execution Date
The date the Contracting Agency officially binds the Agency to the Contract.

Notice to Proceed Date
The date stated in the Notice to Proceed on which the Contract time begins.

Substantial Completion Date
The day the Engineer determines the Contracting Agency has full and unrestricted use and benefit of the facilities, both from the operational and safety standpoint, any remaining traffic disruptions will be rare and brief, and only minor incidental work, replacement of temporary substitute facilities, plant establishment periods, or correction or repair remains for the Physical Completion of the total Contract.

Physical Completion Date
The day all of the Work is physically completed on the project. All documentation required by the Contract and required by law does not necessarily need to be furnished by the Contractor by this date.

Completion Date
The day all the Work specified in the Contract is completed and all the obligations of the Contractor under the contract are fulfilled by the Contractor. All documentation required by the Contract and required by law must be furnished by the Contractor before establishment of this date.

Final Acceptance Date
The date on which the Contracting Agency accepts the Work as complete.

Supplement this Section with the following:

All references in the Standard Specifications, Amendments, or WSDOT General Special Provisions, to the terms “Department of Transportation”, “Washington State Transportation

Commission", "Commission", "Secretary of Transportation", "Secretary", "Headquarters", and "State Treasurer" shall be revised to read "Contracting Agency".

All references to the terms "State" or "state" shall be revised to read "Contracting Agency" unless the reference is to an administrative agency of the State of Washington, a State statute or regulation, or the context reasonably indicates otherwise.

All references to "State Materials Laboratory" shall be revised to read "Contracting Agency designated location".

All references to "final contract voucher certification" shall be interpreted to mean the Contracting Agency form(s) by which final payment is authorized, and final completion and acceptance granted.

Additive
A supplemental unit of work or group of bid items, identified separately in the Bid Proposal, which may, at the discretion of the Contracting Agency, be awarded in addition to the base bid.

Alternate
One of two or more units of work or groups of bid items, identified separately in the Bid Proposal, from which the Contracting Agency may make a choice between different methods or material of construction for performing the same work.

Business Day
A business day is any day from Monday through Friday except holidays as listed in Section 1-08.5.

Contract Bond
The definition in the Standard Specifications for "Contract Bond" applies to whatever bond form(s) are required by the Contract Documents, which may be a combination of a Payment Bond and a Performance Bond.

Contract Documents
See definition for "Contract".

Contract Time
The period of time established by the terms and conditions of the Contract within which the Work must be physically completed.

Notice of Award
The written notice from the Contracting Agency to the successful Bidder signifying the Contracting Agency's acceptance of the Bid Proposal.

Notice to Proceed
The written notice from the Contracting Agency or Engineer to the Contractor authorizing and directing the Contractor to proceed with the Work and establishing the date on which the Contract time begins.

Traffic
Both vehicular and non-vehicular traffic, such as pedestrians, bicyclists, wheelchairs, and equestrian traffic.

1-02 BID PROCEDURES AND CONDITIONS

1-02.1 Prequalification of Bidders

Delete this section and replace it with the following:

1-02.1 Qualifications of Bidder
(January 24, 2011 APWA GSP)

Before award of a public works contract, a bidder must meet at least the minimum qualifications of RCW 39.04.350(1) to be considered a responsible bidder and qualified to be awarded a public works project.

1-02.2 Plans and Specifications
(June 27, 2011 APWA GSP)

Delete this section and replace it with the following:

Information as to where Bid Documents can be obtained or reviewed can be found in the Call for Bids (Advertisement for Bids) for the work.

After award of the contract, plans and specifications will be issued to the Contractor at no cost as detailed below:

To Prime Contractor	No. of Sets	Basis of Distribution
Reduced plans (11" x 17")	**4**	Furnished automatically upon award.
Contract Provisions	**2**	Furnished automatically upon award.
Large plans (e.g., 22" x 34")	**2**	Furnished only upon request.

Additional plans and Contract Provisions may be obtained by the Contractor from the source stated in the Call for Bids, at the Contractor's own expense.

Examination of Plans, Specifications and Site of Work

1-02.4(1)General
(August 15, 2016 APWA GSP Option A)

The first sentence of the last paragraph is revised to read:

Any prospective Bidder desiring an explanation or interpretation of the Bid Documents, must request the explanation or interpretation in writing soon enough to allow a written reply to reach all prospective Bidders before the submission of their Bids.

Subsurface Information

Section 1-02.4(2) is supplemented with the following:

(January 2, 2012)
The soils information used for study and design of this project is available for review by the bidder at the following location:

*** Appendix ***

The soils information includes the following:

*** Report dated June 6, 2014 by GeoTest Project No. 14-0121 ***

Preparation of Proposal

The fourth paragraph of Section 1-02.6 is revised to read:

(August 2, 2004)
The fifth and sixth paragraphs of Section 1-02.6 are deleted.

1-02.10 Withdrawing, Revising, or Supplementing Proposal
(July 23, 2015 APWA GSP)

Delete this section, and replace it with the following:

After submitting a physical Bid Proposal to the Contracting Agency, the Bidder may withdraw, revise, or supplement it if:

1. The Bidder submits a written request signed by an authorized person and physically delivers it to the place designated for receipt of Bid Proposals, and
2. The Contracting Agency receives the request before the time set for receipt of Bid Proposals, and
3. The revised or supplemented Bid Proposal (if any) is received by the Contracting Agency before the time set for receipt of Bid Proposals.

If the Bidder's request to withdraw, revise, or supplement its Bid Proposal is received before the time set for receipt of Bid Proposals, the Contracting Agency will return the unopened Proposal package to the Bidder. The Bidder must then submit the revised or supplemented package in its entirety. If the Bidder does not submit a revised or supplemented package, then its bid shall be considered withdrawn.

Late revised or supplemented Bid Proposals or late withdrawal requests will be date recorded by the Contracting Agency and returned unopened. Mailed, emailed, or faxed requests to withdraw, revise, or supplement a Bid Proposal are not acceptable

1-02.13 Irregular Proposals

(January 4, 2016 APWA GSP)

Delete this section and replace it with the following:

1. A proposal will be considered irregular and will be rejected if:
   a. The Bidder is not prequalified when so required;
   b. The authorized proposal form furnished by the Contracting Agency is not used or is altered;
   c. The completed proposal form contains any unauthorized additions, deletions, alternate Bids, or conditions;
   d. The Bidder adds provisions reserving the right to reject or accept the award, or enter into the Contract;
   e. A price per unit cannot be determined from the Bid Proposal;
   f. The Proposal form is not properly executed;
   g. The Bidder fails to submit or properly complete a Subcontractor list, if applicable, as required in Section 1-02.6;
   h. The Bidder fails to submit or properly complete a Disadvantaged Business Enterprise Certification, if applicable, as required in Section 1-02.6;
   i. The Bidder fails to submit written confirmation from each DBE firm listed on the Bidder's completed DBE Utilization Certification that they are in agreement with the bidders DBE participation commitment, if applicable, as required in Section 1-02.6, or if the written confirmation that is submitted fails to meet the requirements of the Special Provisions;
   j The Bidder fails to submit DBE Good Faith Effort documentation, if applicable, as required in Section 1-02.6, or if the documentation that is submitted fails to demonstrate that a Good Faith Effort to meet the Condition of Award was made;
   k. The Bid Proposal does not constitute a definite and unqualified offer to meet the material terms of the Bid invitation; or
   l. More than one proposal is submitted for the same project from a Bidder under the same or different names.

2. A Proposal may be considered irregular and may be rejected if:
   a. The Proposal does not include a unit price for every Bid item;
   b. Any of the unit prices are excessively unbalanced (either above or below the amount of a reasonable Bid) to the potential detriment of the Contracting Agency;
   c. Receipt of Addenda is not acknowledged;
   d. A member of a joint venture or partnership and the joint venture or partnership submit Proposals for the same project (in such an instance, both Bids may be rejected); or
   e. If Proposal form entries are not made in ink.

1-02.15 Pre Award Information

(August 14, 2013 APWA GSP)

Revise this section to read:

Before awarding any contract, the Contracting Agency may require one or more of these items or actions of the apparent lowest responsible bidder:

1. A complete statement of the origin, composition, and manufacture of any or all materials to be used,
2. Samples of these materials for quality and fitness tests,
3. A progress schedule (in a form the Contracting Agency requires) showing the order of and time required for the various phases of the work,
4. A breakdown of costs assigned to any bid item,
5. Attendance at a conference with the Engineer or representatives of the Engineer,
6. Obtain, and furnish a copy of, a business license to do business in the city or county where the work is located.

7. Any other information or action taken that is deemed necessary to ensure that the bidder is the lowest responsible bidder.

1-03.4 Contract Bond

(July 23, 2015 APWA GSP)

Delete the first paragraph and replace it with the following:

The successful bidder shall provide executed payment and performance bond(s) for the full contract amount. The bond may be a combined payment and performance bond; or be separate payment and performance bonds. In the case of separate payment and performance bonds, each shall be for the full contract amount. The bond(s) shall:

1. Be on Contracting Agency-furnished form(s);
2. Be signed by an approved surety (or sureties) that:
   a. Is registered with the Washington State Insurance Commissioner, and
   b. Appears on the current Authorized Insurance List in the State of Washington published by the Office of the Insurance Commissioner,
3. Guarantee that the Contractor will perform and comply with all obligations, duties, and conditions under the Contract, including but not limited to the duty and obligation to indemnify, defend, and protect the Contracting Agency against all losses and claims related directly or indirectly from any failure:
   a. Of the Contractor (or any of the employees, subcontractors, or lower tier subcontractors of the Contractor) to faithfully perform and comply with all contract obligations, conditions, and duties, or
   b. Of the Contractor (or the subcontractors or lower tier subcontractors of the Contractor) to pay all laborers, mechanics, subcontractors, lower tier subcontractors, material person, or any other person who provides supplies or provisions for carrying out the work;
4. Be conditioned upon the payment of taxes, increases, and penalties incurred on the project under titles 50, 51, and 82 RCW; and
5. Be accompanied by a power of attorney for the Surety's officer empowered to sign the bond; and

6. Be signed by an officer of the Contractor empowered to sign official statements (sole proprietor or partner). If the Contractor is a corporation, the bond(s) must be signed by the president or vice president, unless accompanied by written proof of the authority of the individual signing the bond(s) to bind the corporation (i.e., corporate resolution, power of attorney, or a letter to such effect signed by the president or vice president).

1-03.7 Judicial Review

(July 23, 2015 APWA GSP)

Revise this section to read:

Any decision made by the Contracting Agency regarding the Award and execution of the Contract or Bid rejection shall be conclusive subject to the scope of judicial review permitted under Washington Law. Such review, if any, shall be timely filed in the Superior Court of the county where the Contracting Agency headquarters is located, provided that where an action is asserted against a county, RCW 36.01.05 shall control venue and jurisdiction.

1-04.2 Coordination of Contract Documents, Plans, Special Provisions, Specifications, and Addenda

(March 13, 2012 APWA GSP)

Revise the second paragraph to read:

Any inconsistency in the parts of the contract shall be resolved by following this order of precedence (e.g., 1 presiding over 2, 2 over 3, 3 over 4, and so forth):

1. Addenda,
2. Proposal Form,
3. Special Provisions,
4. Contract Plans,
5. Amendments to the Standard Specifications,
6. Standard Specifications,
7. Contracting Agency's Standard Plans or Details (if any), and
8. WSDOT Standard Plans for Road, Bridge, and Municipal Construction.

1-05.4 Conformity With and Deviations from Plans and Stakes

Supplement this section with the following:

Roadway and Utility Surveys

(July 23, 2015 APWA GSP, Option 1)

The Engineer shall furnish to the Contractor one time only all principal lines, grades, and measurements the Engineer deems necessary for completion of the work. These shall generally consist of one initial set of:

1. ***Saw cut and demolition limits***
2. Slope stakes for establishing grading;
3. Curb grade stakes;
4. Centerline finish grade stakes for pavement sections wider than 25 feet; and

5. Offset points to establish line and grade for underground utilities such as water, sewers, and storm drains.

On alley construction projects with minor grade changes, the Engineer shall provide only offset hubs on one side of the alley to establish the alignment and grade.

Add the following new section:

1-05.12(1) One-Year Guarantee Period

(March 8, 2013 APWA GSP)

The Contractor shall return to the project and repair or replace all defects in workmanship and material discovered within one year after Final Acceptance of the Work. The Contractor shall start work to remedy any such defects within 7 calendar days of receiving Contracting Agency's written notice of a defect, and shall complete such work within the time stated in the Contracting Agency's notice. In case of an emergency, where damage may result from delay or where loss of services may result, such corrections may be made by the Contracting Agency's own forces or another contractor, in which case the cost of corrections shall be paid by the Contractor. In the event the Contractor does not accomplish corrections within the time specified, the work will be otherwise accomplished and the cost of same shall be paid by the Contractor.

When corrections of defects are made, the Contractor shall then be responsible for correcting all defects in workmanship and materials in the corrected work for one year after acceptance of the corrections by Contracting Agency.

This guarantee is supplemental to and does not limit or affect the requirements that the Contractor's work comply with the requirements of the Contract or any other legal rights or remedies of the Contracting Agency.

1-05.13 Superintendents, Labor and Equipment of Contractor

(August 14, 2013 APWA GSP)

Delete the sixth and seventh paragraphs of this section.

1-05.15 Method of Serving Notices
(March 25, 2009 APWA GSP)

Revise the second paragraph to read:

All correspondence from the contractor shall be directed to the project engineer. All correspondence from the contractor constituting any notification, notice of protest, notice of dispute, or other correspondence constituting notification required to be furnished under the contract, must be in paper format, hand delivered or sent via mail delivery service to the project engineer's office. Electronic copies such as e-mails or electronically delivered copies of correspondence will not constitute such notice and will not comply with the requirements of the contract.

Legal Relations and Responsibilities to the Public

Laws to be Observed

Section 1-07.1 is supplemented with the following:

(April 3, 2006)
Confined Space

Confined spaces are known to exist at the following locations:

*** Storm Drain Catch Basins and Sanitary Sewer Manholes ***

The Contractor shall be fully responsible for the safety and health of all on-site workers and compliant with Washington Administrative Code (WAC 296-809).

The Contractor shall prepare and implement a confined space program for each of the confined spaces identified above. The Contractors Confined Space program shall be sent to the Contracting Agency at least 30 days prior to the Contractor beginning work in or adjacent to the confined space. No work shall be performed in or adjacent to the confined space until the plan is submitted to the Engineer as required. The Contractor shall communicate with the Project Engineer to ensure a coordinated effort for providing and maintaining a safe worksite for both the Contracting Agency's and Contractor's workers when working in or near a confined space.

All costs to prepare and implement the confined space program shall be included in the bid prices for the various items associated with the confined space work.

1-07.2 State Taxes

Delete this section, including its sub-sections, in its entirety and replace it with the following:

1-07.2 State Sales Tax
(June 27, 2011 APWA GSP)

The Washington State Department of Revenue has issued special rules on the State sales tax. Sections 1-07.2(1) through 1-07.2(3) are meant to clarify those rules. The Contractor should contact the Washington State Department of Revenue for answers to questions in this area. The Contracting Agency will not adjust its payment if the Contractor bases a bid on a misunderstood tax liability.

The Contractor shall include all Contractor-paid taxes in the unit bid prices or other contract amounts. In some cases, however, state retail sales tax will not be included. Section 1-07.2(2) describes this exception.

The Contracting Agency will pay the retained percentage (or release the Contract Bond if a FHWA-funded Project) only if the Contractor has obtained from the Washington State Department of Revenue a certificate showing that all contract-related taxes have been paid (RCW 60.28.051). The Contracting Agency may deduct from its payments to the Contractor any amount the Contractor may owe the Washington State Department of Revenue, whether the amount owed relates to this contract or not. Any amount so deducted will be paid into the proper State fund.

1-07.2(1) State Sales Tax — Rule 171

WAC 458-20-171, and its related rules, apply to building, repairing, or improving streets, roads, etc., which are owned by a municipal corporation, or political subdivision of the state, or by the United States, and which are used primarily for foot or vehicular traffic. This includes storm or combined sewer systems within and included as a part of the street or road drainage system and power lines when such are part of the roadway lighting system. For work performed in such cases, the Contractor shall include Washington State Retail Sales Taxes in the various unit bid item prices, or other contract amounts, including those that the Contractor pays on the purchase of the materials, equipment, or supplies used or consumed in doing the work.

1-07.2(2) State Sales Tax — Rule 170

WAC 458-20-170, and its related rules, apply to the constructing and repairing of new or existing buildings, or other structures, upon real property. This includes, but is not limited to, the construction of streets, roads, highways, etc., owned by the state of Washington; water mains and their appurtenances; sanitary sewers and sewage disposal systems unless such sewers and disposal systems are within, and a part of, a street or road drainage system; telephone, telegraph, electrical power distribution lines, or other conduits or lines in or above streets or roads, unless such power lines become a part of a street or road lighting system; and installing or attaching of any article of tangible personal property in or to real property, whether or not such personal property becomes a part of the realty by virtue of installation.

For work performed in such cases, the Contractor shall collect from the Contracting Agency, retail sales tax on the full contract price. The Contracting Agency will automatically add this sales tax to each payment to the Contractor. For this reason, the Contractor shall not include the retail sales tax in the unit bid item prices, or in any other contract amount subject to Rule 170, with the following exception.

Exception: The Contracting Agency will not add in sales tax for a payment the Contractor or a subcontractor makes on the purchase or rental of tools, machinery, equipment, or

consumable supplies not integrated into the project. Such sales taxes shall be included in the unit bid item prices or in any other contract amount.

1-07.2(3) Services

The Contractor shall not collect retail sales tax from the Contracting Agency on any contract wholly for professional or other services (as defined in Washington State Department of Revenue Rules 138 and 244).

Protection and Restoration of Property

Vegetation Protection and Restoration

Section 1-07.16(2) is supplemented with the following:

(August 2, 2010)
Vegetation and soil protection zones for trees shall extend out from the trunk to a distance of 1 foot radius for each inch of trunk diameter at breast height.

Vegetation and soil protection zones for shrubs shall extend out from the stems at ground level to twice the radius of the shrub.

Vegetation and soil protection zones for herbaceous vegetation shall extend to encompass the diameter of the plant as measured from the outer edge of the plant.

Archaeological and Historical Objects

Section 1-07.16(4) is supplemented with the following:

******
The Contractor must maintain the City provided Inadvertent Discovery Plan (IDP) on-site at all times for the life of the project. Contractor shall comply with the IDP and in the event of discovered resources, payment for work directed by the City and not covered elsewhere in the Bid Items shall be paid as Force Account under Bid Item A29 Public Works Improvements and Unanticipated Site Items.
******

Utilities and Similar Facilities

Section 1-07.17 is supplemented with the following:

(April 2, 2007)
Locations and dimensions shown in the Plans for existing facilities are in accordance with available information obtained without uncovering, measuring, or other verification.

The following addresses and telephone numbers of utility companies known or suspected of having facilities within the project limits are supplied for the Contractor's convenience:

***

BLACK ROCK CABLE
VINCE ZASTOUPIL
360.734.7930
VINCEZ@BLACKROCKCABLE.COM

CASCADE NATURAL GAS
BRANDON HAUGNESS
360.733.5986
BRANDON.HAUGNESS@CNGC.COM

COMCAST
BILL INAMA
360.527.8243
BILL.INAMA@CABLE.COMCAST.COM

FRONTIER COMMUNICATIONS
BARB ROBINSON
360.757.7624
B.ROBINSON@FTR.COM

PUGET SOUND ENERGY
JANE MAJOR
360.766.5571
JANE.MAJOR@PSE.COM

***

(January 5, 2004)
Item number 1 in the first paragraph of Section 1-07.18 is deleted.

Item No. 2 of the first paragraph of Section 1-07.18 is revised to read:

(January 3, 2011)

2. Commercial General Liability (CGL) Insurance written under ISO Form CG0001 or its equivalent with minimum limits of $1,000,000 per occurrence and in the aggregate for each one year policy period. Products and completed operations coverage shall be provided for a period of three years following Substantial Completion of the work.

Public Convenience and Safety

Construction Under Traffic

Section 1-07.23(1) is supplemented with the following:

(January 2, 2012)
Work Zone Clear Zone

The Work Zone Clear Zone (WZCZ) applies during working and nonworking hours. The WZCZ applies only to temporary roadside objects introduced by the Contractor's operations and does not apply to preexisting conditions or permanent Work. Those work operations that are actively in progress shall be in accordance with adopted and approved Traffic Control Plans, and other contract requirements.

During nonworking hours equipment or materials shall not be within the WZCZ unless they are protected by permanent guardrail or temporary concrete barrier. The use of temporary concrete barrier shall be permitted only if the Engineer approves the installation and location.

During actual hours of work, unless protected as described above, only materials absolutely necessary to construction shall be within the WZCZ and only construction vehicles absolutely necessary to construction shall be allowed within the WZCZ or allowed to stop or park on the shoulder of the roadway.

The Contractor's nonessential vehicles and employees private vehicles shall not be permitted to park within the WZCZ at any time unless protected as described above.

Deviation from the above requirements shall not occur unless the Contractor has requested the deviation in writing and the Engineer has provided written approval.

Minimum WZCZ distances are measured from the edge of traveled way and will be determined as follows:

Regulatory Posted Speed	Distance From Traveled Way (Feet)
35 mph or less	10 *
40 mph	15
45 to 55 mph	20
60 mph or greater	30

* or 2-feet beyond the outside edge of sidewalk

Minimum Work Zone Clear Zone Distance

1-07.24 Rights of Way

(July 23, 2015 APWA GSP)

Delete this section and replace it with the following:

Street Right of Way lines, limits of easements, and limits of construction permits are indicated in the Plans. The Contractor’s construction activities shall be confined within these limits, unless arrangements for use of private property are made.

Generally, the Contracting Agency will have obtained, prior to bid opening, all rights of way and easements, both permanent and temporary, necessary for carrying out the work. Exceptions to this are noted in the Bid Documents or will be brought to the Contractor’s attention by a duly issued Addendum.

Whenever any of the work is accomplished on or through property other than public Right of Way, the Contractor shall meet and fulfill all covenants and stipulations of any easement agreement obtained by the Contracting Agency from the owner of the private property. Copies of the easement agreements may be included in the Contract Provisions or made

available to the Contractor as soon as practical after they have been obtained by the Engineer.

Whenever easements or rights of entry have not been acquired prior to advertising, these areas are so noted in the Plans. The Contractor shall not proceed with any portion of the work in areas where right of way, easements or rights of entry have not been acquired until the Engineer certifies to the Contractor that the right of way or easement is available or that the right of entry has been received. If the Contractor is delayed due to acts of omission on the part of the Contracting Agency in obtaining easements, rights of entry or right of way, the Contractor will be entitled to an extension of time. The Contractor agrees that such delay shall not be a breach of contract.

Each property owner shall be given 48 hours notice prior to entry by the Contractor. This includes entry onto easements and private property where private improvements must be adjusted.

The Contractor shall be responsible for providing, without expense or liability to the Contracting Agency, any additional land and access thereto that the Contractor may desire for temporary construction facilities, storage of materials, or other Contractor needs. However, before using any private property, whether adjoining the work or not, the Contractor shall file with the Engineer a written permission of the private property owner, and, upon vacating the premises, a written release from the property owner of each property disturbed or otherwise interfered with by reasons of construction pursued under this contract. The statement shall be signed by the private property owner, or proper authority acting for the owner of the private property affected, stating that permission has been granted to use the property and all necessary permits have been obtained or, in the case of a release, that the restoration of the property has been satisfactorily accomplished. The statement shall include the parcel number, address, and date of signature. Written releases must be filed with the Engineer before the Completion Date will be established.

1-08 PROSECUTION AND PROGRESS

Add the following new section:

1-08.0 Preliminary Matters

(May 25, 2006 APWA GSP)

Add the following new section:

1-08.0(2) Hours of Work

(December 8, 2014 APWA GSP)

Except in the case of emergency or unless otherwise approved by the Engineer, the normal working hours for the Contract shall be any consecutive 8-hour period between 7:00 a.m. and 6:00 p.m. Monday through Friday, exclusive of a lunch break. If the Contractor desires different than the normal working hours stated above, the request must be submitted in writing prior to the preconstruction conference, subject to the provisions below. The working hours for the Contract shall be established at or prior to the preconstruction conference.

All working hours and days are also subject to local permit and ordinance conditions (such as noise ordinances).

If the Contractor wishes to deviate from the established working hours, the Contractor shall submit a written request to the Engineer for consideration. This request shall state what hours are being requested, and why. Requests shall be submitted for review no later than 7 days prior to the day(s) the Contractor is requesting to change the hours.

If the Contracting Agency approves such a deviation, such approval may be subject to certain other conditions, which will be detailed in writing. For example:

1. On non-Federal aid projects, requiring the Contractor to reimburse the Contracting Agency for the costs in excess of straight-time costs for Contracting Agency representatives who worked during such times. (The Engineer may require designated representatives to be present during the work. Representatives who may be deemed necessary by the Engineer include, but are not limited to: survey crews; personnel from the Contracting Agency's material testing lab; inspectors; and other Contracting Agency employees or third party consultants when, in the opinion of the Engineer, such work necessitates their presence.)
2. Considering the work performed on Saturdays, Sundays, and holidays as working days with regard to the contract time.
3. Considering multiple work shifts as multiple working days with respect to contract time even though the multiple shifts occur in a single 24-hour period.
4. If a 4-10 work schedule is requested and approved the non working day for the week will be charged as a working day.
5. If Davis Bacon wage rates apply to this Contract, all requirements must be met and recorded properly on certified payroll

1-08.1 Subcontracting
(August 24, 2016 APWA GSP)

Delete the eighth paragraph and replace it with the following:

On all projects funded with federal assistance the Contractor shall submit "Monthly Report of Amounts Credited as DBE Participation" (form 422-103 EF) on a monthly basis, in which DBE Work is accomplished, for every month in which the Contract is active or upon completion of the project, as appropriate. The monthly reports are due on the 20th of the month following the end of the previous month.

1-08.4 Prosecution of Work

Delete this section and replace it with the following:

1-08.4 Notice to Proceed and Prosecution of Work
(July 23, 2015 APWA GSP)

Notice to Proceed will be given after the contract has been executed and the contract bond and evidence of insurance have been approved and filed by the Contracting Agency. The

Contractor shall not commence with the work until the Notice to Proceed has been given by the Engineer. The Contractor shall commence construction activities on the project site within ten days of the Notice to Proceed Date, unless otherwise approved in writing. The Contractor shall diligently pursue the work to the physical completion date within the time specified in the contract. Voluntary shutdown or slowing of operations by the Contractor shall not relieve the Contractor of the responsibility to complete the work within the time(s) specified in the contract.

When shown in the Plans, the first order of work shall be the installation of high visibility fencing to delineate all areas for protection or restoration, as described in the Contract. Installation of high visibility fencing adjacent to the roadway shall occur after the placement of all necessary signs and traffic control devices in accordance with 1-10.1(2). Upon construction of the fencing, the Contractor shall request the Engineer to inspect the fence. No other work shall be performed on the site until the Contracting Agency has accepted the installation of high visibility fencing, as described in the Contract.

1-08.5 Time for Completion

(September 12, 2016 APWA GSP, Option A)

******

Supplement this section with the following:

All aspects of the work shall be substantially complete within Fifty (50) working days of the Notice to Proceed.

******

Revise the third and fourth paragraphs to read:

Contract time shall begin on the first working day following the Notice to Proceed Date.

Each working day shall be charged to the contract as it occurs, until the contract work is physically complete. If substantial completion has been granted and all the authorized working days have been used, charging of working days will cease. Each week the Engineer will provide the Contractor a statement that shows the number of working days: (1) charged to the contract the week before; (2) specified for the physical completion of the contract; and (3) remaining for the physical completion of the contract. The statement will also show the nonworking days and any partial or whole day the Engineer declares as unworkable. Within 10 calendar days after the date of each statement, the Contractor shall file a written protest of any alleged discrepancies in it. To be considered by the Engineer, the protest shall be in sufficient detail to enable the Engineer to ascertain the basis and amount of time disputed. By not filing such detailed protest in that period, the Contractor shall be deemed as having accepted the statement as correct. If the Contractor is approved to work 10 hours a day and 4 days a week (a 4-10 schedule) and the fifth day of the week in which a 4-10 shift is worked would ordinarily be charged as a working day then the fifth day of that week will be charged as a working day whether or not the Contractor works on that day.

Revise the sixth paragraph to read:

The Engineer will give the Contractor written notice of the completion date of the contract after all the Contractor's obligations under the contract have been performed by the

Contractor. The following events must occur before the Completion Date can be established:

1. The physical work on the project must be complete; and
2. The Contractor must furnish all documentation required by the contract and required by law, to allow the Contracting Agency to process final acceptance of the contract. The following documents must be received by the Project Engineer prior to establishing a completion date:
   a. Certified Payrolls (per Section 1-07.9(5)).
   b. Material Acceptance Certification Documents
   c. Monthly Reports of Amounts Credited as DBE Participation, as required by the Contract Provisions.
   d. Final Contract Voucher Certification
   e. Copies of the approved "Affidavit of Prevailing Wages Paid" for the Contractor and all Subcontractors

f. Property owner releases per Section 1-07.24

1-08.9 Liquidated Damages

(August 14, 2013 APWA GSP)

Revise the fourth paragraph to read:

When the Contract Work has progressed to Substantial Completion as defined in the Contract, the Engineer may determine that the work is Substantially Complete. The Engineer will notify the Contractor in writing of the Substantial Completion Date. For overruns in Contract time occurring after the date so established, the formula for liquidated damages shown above will not apply. For overruns in Contract time occurring after the Substantial Completion Date, liquidated damages shall be assessed on the basis of direct engineering and related costs assignable to the project until the actual Physical Completion Date of all the Contract Work. The Contractor shall complete the remaining Work as promptly as possible. Upon request by the Project Engineer, the Contractor shall furnish a written schedule for completing the physical Work on the Contract.

1-09.2(1) General Requirements for Weighing Equipment

(July 23, 2015 APWA GSP, Option 2)

Revise item 4 of the fifth paragraph to read:

4. Test results and scale weight records for each day's hauling operations are provided to the Engineer daily. Reporting shall utilize WSDOT form 422-027, Scaleman's Daily Report, unless the printed ticket contains the same information that is on the Scaleman's Daily Report Form. The scale operator must provide AM and/or PM tare weights for each truck on the printed ticket.

1-09.11(3) Time Limitation and Jurisdiction

(July 23, 2015 APWA GSP)

Revise this section to read*:*

For the convenience of the parties to the Contract it is mutually agreed by the parties that any claims or causes of action which the Contractor has against the Contracting Agency arising from the Contract shall be brought within 180 calendar days from the date of final acceptance (Section 1-05.12) of the Contract by the Contracting Agency; and it is further agreed that any such claims or causes of action shall be brought only in the Superior Court of the county where the Contracting Agency headquarters is located, provided that where an action is asserted against a county, RCW 36.01.05 shall control venue and jurisdiction. The parties understand and agree that the Contractor's failure to bring suit within the time period provided, shall be a complete bar to any such claims or causes of action. It is further mutually agreed by the parties that when any claims or causes of action which the Contractor asserts against the Contracting Agency arising from the Contract are filed with the Contracting Agency or initiated in court, the Contractor shall permit the Contracting Agency to have timely access to any records deemed necessary by the Contracting Agency to assist in evaluating the claims or action.

1-09.13(3)A Administration of Arbitration
(July 23, 2015 APWA GSP)

Revise the third paragraph to read:

The Contracting Agency and the Contractor mutually agree to be bound by the decision of the arbitrator, and judgment upon the award rendered by the arbitrator may be entered in the Superior Court of the county in which the Contracting Agency's headquarters is located, provided that where claims subject to arbitration are asserted against a county, RCW 36.01.05 shall control venue and jurisdiction of the Superior Court. The decision of the arbitrator and the specific basis for the decision shall be in writing. The arbitrator shall use the Contract as a basis for decisions.

Temporary Traffic Control

Traffic Control Management

General

Section 1-10.2(1) is supplemented with the following:

(January 3, 2017)
Only training with WSDOT TCS card and WSDOT training curriculum is recognized in the State of Washington. The Traffic Control Supervisor shall be certified by one of the following:

The Northwest Laborers-Employers Training Trust
27055 Ohio Ave.
Kingston, WA 98346
(360) 297-3035

Evergreen Safety Council
12545 135th Ave. NE
Kirkland, WA 98034-8709
1-800-521-0778

The American Traffic Safety Services Association
15 Riverside Parkway, Suite 100
Fredericksburg, Virginia 22406-1022
Training Dept. Toll Free (877) 642-4637
Phone: (540) 368-1701

Measurement

Lump Sum Bid for Project (No Unit Items)

Section 1-10.4(1) is supplemented with the following:

(August 2, 2004)
The proposal contains the item “Project Temporary Traffic Control”, lump sum. The provisions of Section 1-10.4(1) shall apply.

Division 2
Earthwork

Removal of Structures and Obstructions

Description

Section 2-02.1 is supplemented with the following:

(March 13, 1995)
This work shall consist of removing miscellaneous traffic items.

(March 13, 1995)
This work shall consist of removing, handling, and disposing of asbestos in the following areas:

*** Water main as shown on the Plans ***

Construction Requirements

Section 2-02.3 is supplemented with the following:

(September 30, 1996)
Asbestos Handling And Disposal
Prior to and during the performance of any contract work, the Contractor shall verify that no asbestos containing materials are involved or will be disturbed. When asbestos is encountered, the Contractor shall be responsible for obtaining all permits from, and provide notification to, the Washington State Department of Labor and Industries, the U.S. EPA, the local air pollution control agency, and other permitting and regulatory agencies with jurisdiction over the work involving asbestos as the law requires.

Prior to commencing asbestos related work, the Contractor shall provide the Engineer with written verification of approvals and notifications that have been given and/or obtained from the required jurisdictional agencies, and the Contractor's schedule for all work involving asbestos removal. The schedule shall include the sequencing and scheduling of asbestos related work, and coordination with subcontractors. The Contractor shall notify the Engineer when all approvals have been received and notifications have been made, as required by the agencies involved.

The Contractor shall ensure the safety of all workers, visitors to the site, and the general public in accordance with all applicable laws, rules, and regulations.

The Contractor shall designate a Washington State Certified Asbestos Supervisor (CAS) to personally supervise the asbestos removal and to ensure that the handling and removal of asbestos is accomplished by certified asbestos workers, pursuant to Washington State Department of Labor and Industries standards. The Contractor shall ensure that the removal and disposal of asbestos meets the requirements of EPA regulations 40 CFR Part 61, local health department regulations, and all other applicable regulations.

Removal of Pavement, Sidewalks, Curbs, and Gutters

Section 2-02.3(3) is supplemented with the following:

(September 8, 1997)
The approximate thickness of the *** asphalt and/or concrete *** pavement is *** indicated in the project geotechnical report ***.

Payment

Section 2-02.5 is revised by the following:

(June 26, 2000)
Payment will be made in accordance with Section 1-04.1, for the following bid item when it is included in the proposal.

All costs for the removal of structures and obstructions shall be included in *** Demolition ***.

Payment

Section 2-02.5 is supplemented with the following:

******
"REMOVE AND DISPOSE OF AC WATER MAIN ", lump sum.
******

(September 30, 1996)
Payment for asbestos removal, handling, disposal, cost of permits, and all other work will be *** Included in item “REMOVE AND DISPOSE OF AC WATER MAIN” ***

Roadway Excavation and Embankment

Measurement

Section 2-03.4 is supplemented with the following:

(March 13, 1995)
Only one determination of the original ground elevation will be made on this project. Measurement for roadway excavation and embankment will be based on the original ground elevations recorded previous to the award of this contract. Control stakes will be set during construction to provide the Contractor with all essential information for the construction of excavation and embankments.

If discrepancies are discovered in the ground elevations which will materially affect the quantities of earthwork, the original computations of earthwork quantities will be adjusted accordingly.

Earthwork quantities will be computed, either manually or by means of electronic data processing equipment, by use of the average end area method or by the finite element analysis method utilizing digital terrain modeling techniques.

Copies of the ground cross-section notes will be available for the bidder's inspection, before the opening of bids, at the Project Engineer's office and at the Region office.

Upon award of the contract, copies of the original ground cross-sections will be furnished to the successful bidder on request to the Project Engineer.

Payment

Section 2-03.5 is supplemented with the following:

(March 13, 1995)
All costs in connection with the preparation of waste sites and waste deposits shall be included in the *** ROADWAY EXCAVATION & EMBANKMENT INCL HAUL item ***.

Division 5
Surface Treatments and Pavements

Hot Mix Asphalt

Preparation of Aggregates

5-04.3(7)A2 Statistical or Nonstatistical Evaluation

Delete this section and replace it with the following:

5-04.3(7)A2 Nonstatistical Evaluation
(January 16, 2014 APWA GSP)

Mix designs for HMA accepted by Nonstatistical evaluation shall;

- Be submitted to the Project Engineer on WSDOT Form 350-042
- Have the aggregate structure and asphalt binder content determined in accordance with WSDOT Standard Operating Procedure 732 and meet the requirements of Sections 9-03.8(2) and 9-03.8(6).
- Have anti-strip requirements, if any, for the proposed mix design determined in accordance with WSDOT Test Method T 718 or based on historic anti-strip and aggregate source compatibility from WSDOT lab testing. Anti-strip evaluation of HMA mix designs utilized that include RAP will be completed without the inclusion of the RAP.

At or prior to the preconstruction meeting, the contractor shall provide one of the following mix design verification certifications for Contracting Agency review;

- The proposed mix design indicated on a WSDOT mix design/anti-strip report that is within one year of the approval date
- The proposed HMA mix design submittal (Form 350-042) with the seal and certification (stamp & signature) of a valid licensed Washington State Professional Engineer.
- The proposed mix design by a qualified City or County laboratory mix design report that is within one year of the approval date.

The mix design will be performed by a lab accredited by a national authority such as Laboratory Accreditation Bureau, L-A-B for Construction Materials Testing, The Construction Materials Engineering Council (CMEC's) ISO 17025 or AASHTO Accreditation Program (AAP) and shall supply evidence of participation in the AASHTO Material Reference Laboratory (AMRL) program.

At the discretion of the Engineer, agencies may accept mix designs verified beyond the one year verification period with a certification from the Contractor that the materials and sources are the same as those shown on the original mix design.

Surface Smoothness

The second sentence of Section 5-04.3(13) is revised to read:

(January 5, 2004)

The completed surface of the wearing course shall not vary more than 1/4 inch from the lower edge of a 10-foot straightedge placed on the surface parallel to centerline.

Division 8
Miscellaneous Construction

Erosion Control and Water Pollution Control

Construction Requirements

Water Management

Section 8-01.3(1)C is supplemented with the following:

(August 6, 2012)
Off-site Stormwater
Stormwater is known to enter the project site at the following locations:

*** Intersection of Third Ave and Main St. and Intersection of Third Ave and Alder St. ***

8-14 Cement Concrete Sidewalks

Description

Section 8-14.1 is revised to read:

(April 3, 2017)
This Work consists of constructing cement concrete sidewalks, curb ramps, bus stop shelter foundations, masonry sidewalks, and ramp grinding in accordance with details shown in the Plans, Standard Plans, these Specifications, and in conformity to the lines and grades shown in the Plans, Standard Plans, and as established by the Engineer.

Construction Requirements

Section 8-14.3 is supplemented with the following:

(April 3, 2017)
Layout and Conformance to Grades
The Contractor shall meet the requirements depicted in the Contract documents. Using the information provided in the Contract documents, the Contractor shall lay out, grade, and form each new curb ramp, sidewalk, and curb and gutter.

Illumination, Traffic Signal Systems, Intelligent Transportation Systems, and Electrical

Construction Requirements

8-20.3(14) Signal systems

Induction Loop Vehicle Detectors

Section 8-20.3(14)C is supplemented with the following:

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The intention of this specification is to describe a detection system consisting of an induction loop embedded in the roadway surface with a lead-in cable connected to a detector amplifier which shall detect the presence or passage of vehicles over the induction loop.

Type I and II induction loops shall be in accordance with the plans. The induction loops shall be #12 USE and shall be a minimum of 3 inches below the final roadway surface. Lead-in from loop to junction box shall be twisted at least 2 turns/foot.

After the lead-in and loop sawcuts are completed, the slot shall be thoroughly blown out with 100 psi air pressure so that no rocks and debris remain in the sawcut. If traffic is allowed to travel over the sawcuts before they are sealed, they shall be blown out again before placement of the wire and sealing. The sawcut shall be sealed with Craftco detector-loop sealant, Preco sealant, 3M sealant, or prior approved equal.

The conductors that form the induction loop and terminate in the lead-in junction box shall be joined to the cable as follows:

Detector lead-ins shall be spliced at the junction box nearest to the induction loop. Sufficient cable length shall always be provided to permit the preparation of wire splices 2 to 4 feet above ground.

The conductors and detector lead-in shall be twisted together than soldered, conforming to the wiring diagram for loop identification. The soldered connections shall then be trimmed and taped, assuring good electrical insulation of the loop pair. Pigtail splices are permissible.

Each loop pair shall then be sealed in an epoxy resin, Scotchcast size "G" (Sealing Pack #3570) or approved equal, assuring a good seal on the splice and insulated sheaths of the conductors.

Overlap splices, parallel splices, "Y" or "T" splice kits shall not be allowed.

Loops shall be installed and tested as per Section 8-20.3 (14) of the Standard Specifications. Documentation of testing shall be submitted to the Engineer.

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Permanent Signing

Materials

Roadside Sign Structures

Section 9-06.16 is supplemented with the following:

(January 3, 2011)
Perforated Steel Square Sign Post System

Where noted in the Plans, steel sign post systems shall be square, pre-punched galvanized steel tubing, that are NCHRP 350 Test Level 3 Certified and FHWA approved. The steel sign post system shall include all anchor sleeves, and other hardware required for a complete sign installation.

System Acceptance

Systems listed in the current QPL will be accepted per the QPL approval code. Systems not listed in the QPL will be accepted based on a Supplier's Certificate of Compliance. The Supplier's Certificate of Compliance will be a contract specific letter from the supplier stating the system is NCHRP 350 Test Level 3 compliant.

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PERVIOUS PORTLAND CEMENT CONCRETE PAVEMENT

(*City of Ferndale Special Provisions*)

PART 1 GENERAL

1.1 SUMMARY

A. Section includes but is not limited to:

1. Pervious cement concrete and sand filter drain.

1.2 REFERENCES

A. Reference Standards:

1. ASTM American Society of Testing & Materials, current edition.

2. AASHTO American Association of State Highway and Transportation Officials, current edition

3. ASTM C 29 "Test for Unit Weight and Voids in Aggregate" ASTM C 33 "Specification for Concrete Aggregates."

4. ASTM C 42 "Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete

5. ASTM C 117 “Test Method for Material Finer than 75 mm (No. 200) Sieve in Mineral Aggregates by Washing.”

6. ASTM C 138 “Test Method for Unit Weight, Yield, and Air Content (Gravimeteric) of Concrete”

7. ASTM C 140 “Methods of Sampling and Testing Concrete Masonry Units”

8. ASTM C 150 “Specifications for Portland Cement” (Types I or II only). ASTM C 172 “Practice for Sampling Fresh Concrete.”

9. ASTM C 494 “Specification for Chemical Admixtures for Concrete” ASTM C 1077 “Practice for Laboratories Testing Concrete and concrete Aggregates for use in Construction and Criteria Laboratory Evaluation”

10. ASTM, D 2434-68 "Standard test method for permeability of granular soils (Constant head)"

11. ASTM D-1188 “Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Paraffin Coated Samples”.

1.3 SUBMITTALS

B. Submit for review and approval by the Engineer the following prior to placement:

12. Submit certificates, signed by the materials producer and the paving subcontractor, stating that materials meet or exceed the specified requirements.

13. Submit samples of coarse aggregates and filter fabric for review and approval by the Owner’s Representative.

14. The mixing plant shall submit a current mix design with aggregate, cement, water, and admixture proportions for approval. In addition the mixing plant shall submit any available past compressive strength test data.

15. Concrete supplier’s instructions, criteria and requirements for installation of pervious concrete pavement. pervious

16. The supplier(s) from which the pervious concrete pavement materials are to be obtained, along with certificates, signed by the materials producer and the paving subcontractor, stating that materials meet or exceed the specified requirements.

17. Repair, removal and replacement procedures to correct for work that does not meet criteria for pervious concrete pavement.

18. Certification of the Installers’ qualifications as specified in Paragraph 1.5 of this Section.

1.4 NOTIFICATIONS

C. Notify Owner's Representative at least two working days prior to aggregate discharge subbase and pervious paving work, including subgrade preparation. Hold a preconstruction meeting with the Owner's Representative at least one week prior to the initiation of pervious paving work, including subgrade preparation.

1.5 QUALIFICATIONS

D. Pervious Portland Cement Concrete Pavement installer shall meet the following criteria:

19. Successful completion of the National Ready Mix Concrete Association (NRMCA) Pervious Concrete "Technician" Certification written exam and NRMCA "mock-up" performance exam:

    a. A minimum of three crew members per installation crew employed by the Contractor shall pass NRMCA Pervious Concrete "Technician" Certification written exam, including successful installation of the NRMCA "mock-up" performance exam placement.

    b. Contractor shall submit documentation verifying successful completion of the written exam and mock-up required for NRMCA pervious "Technician" certification.

    c. A minimum of 3 crew members who have completed requirements noted above (in subparagraphs a and b) must be on site, working as members of each pervious cement concrete placement crew, during all pervious cement concrete placements.

    d. The pervious cement concrete test panel installed at the project site may be utilized as the "mock up" placement required for NRMCA "mock-up" performance exam. If the "mock up" placement installed for NRMCA certification does not meet the project specifications, the "mock up" placement shall be removed at the Contractor's expense and new pervious cement concrete test panel(s) shall be installed, tested and submitted for review.

    e. NRMCA Pervious Concrete "Technician" course for the written exam and mock-up performance exam may be obtained by contacting the Washington Aggregates & Concrete Association, 22223 7th Avenue South, Des Moines, WA, (206) 878-1622. All fees associated with attending the NRMCA course and successfully passing the written exam and mock-up are at the Contractor's expense.

2. Pour Pervious Portland Cement Concrete Pavement Test Panel in isolated location on site in an area not for permanent placement. The test panel shall meet the specifications noted in Paragraph 3.3 and 2.1 of this Section. Contractor shall remove and dispose of off-site, non-conforming test panel(s). Multiple test panel(s) will be required until the test panel meets the project specifications noted in Paragraph 3.3 and 2.1.

3. The Contractor is responsible for the proper placing equipment to be used for the "mock up" placement for NRMCA exam, Pervious Portland Cement Concrete Pavement Test Panel(s) and pervious Portland cement concrete pavement installations for the project.

1.6 WEATHER LIMITATIONS

A. Do not place Portland cement pervious pavement mixtures when the ambient temperature is below 40 degrees Fahrenheit or lower, or 80 degrees Fahrenheit or higher, unless otherwise permitted in writing by the Owner's Representative.

PART 2 PRODUCTS

2.1 CONCRETE MIX DESIGN

E. Contractor shall furnish a proposed mix design with proportions of material to the Owner's Representative prior to commencement of work. The data shall include shoveled unit weights determined in accordance with ASTM C29 paragraph 11, rodded unit weight.

2.2 MATERIALS

A. Locally available material having a record of satisfactory performance shall be used. Samples of the following materials shall be submitted for the Owner's Representative's approval.

B. Drainage Bed

20. Choker Course: The coarse aggregate for the choker course should comply with WSDOT 9-03.1(4)C, AASHTO Grading No. 57

21. Nonwoven Geotextile: The nonwoven geotextile material shall comply with WSDOT 9-33.2(1), Table 1 – Moderate Survivability, Table 2 - Class B.

22. Sandfilter Layer: Sand for the filter layer shall consist of a medium sand meeting the following size gradation (by weight):

U.S. Sieve Number	Percent Passing
4	95-100
8	70-100
16	40-90
30	25-75
50	2-25
100	<4
200	<2

Be advised that WSDOT 9-03.13 Backfill for Sand Drains does not meet this specification and will <u>not</u> be approved for use. The Contractor must obtain and submit a grain size analysis from the supplier to certify that the sand meets the No. 100 and No. 200 sieve requirements.

23. Underdrains shall be perforated PVC, solvent weld, gravity sewer pipe, (SDR35, ASTM D3034, AASHTO M 278).

C. Portland Cement Pervious Concrete

1. Aggregate: Coarse aggregate shall comply with ASTM C-33 and AASHTO #89.

Aggregate shall meet the following specifications:

a. 3/8” 100%
b. ¼”92-98%
c. #435-55%
d. #82-5%
e. #160-3%
f. #2000-1%

2. Cement: Portland Cement Type I or II conforming to ASTM C 150 or Portland Cement Type IP or IS conforming to ASTM C 595.
3. Aggregate: Use coarse aggregate (3/8 to No.) per ASTM D 448, subject to Engineer’s approval. If other gradation of aggregate is to be used, submit data on proposed material to owner for approval.
4. Admixtures. The following admixtures may be used in accordance with manufacturer’s recommendations, if admixtures are used:
   a. Type D Water Reducing/Retarding – ASTM C 494.
   b. A hydration stabilizer that also meets the requirements of ASTM C 494 Type B Retarding or Type D Water Reducing/Retarding admixtures. This stabilizer suspends cement hydration by forming a protective barrier around the cementitious particles, which delays the particles from achieving initial set.
   c. A latex hardening agent (Eucon SBR) shall be included for all porous concrete placed for 4” sidewalks.
5. Water: Potable shall be used.
6. Proportions:
   a. The total cementitious material shall not be less than 600 lbs. per cu. yd. unless an aqueous based polymer is used, in which case, the total cementitious material shall not be less than 564 lbs. per cu. yd.
   b. Aggregate Content: the volume of aggregate, cement, water, and admixture per cu. yd. shall be equal to 27 cu.ft. when calculated as a function of the unit weight determined in accordance with ASTM C 29 jigging procedure. Fine aggregate should not be used.
   c. The aggregate/cement ratio shall be in the range of 4:1 to 4.5:1, unless otherwise approved by the engineer.
   d. The unit weight of the concrete shall be with in +/- 5 lbs of the design unit weight and with in a range of 105 lbs/cu. ft. to 128 lbs/cu. ft. per ASTM C29, paragraph 12, shoveled unit weight, unless otherwise approved by the engineer.
   e. Mix Water: Mix water shall be such that the cement paste displays a wet metallic sheen without causing the paste to flow from the aggregate. (Mix water yielding a cement paste with a dull-dry appearance has insufficient water for hydration).
   f. The water to cement ratio shall be 0.27 to 0.40. Insufficient water results in inconsistency in the mix and poor bond strength. High water content results in the paste sealing the void system primarily at the bottom and poor surface bond.
7. Voids: 15% minimum to 25% maximum voids. Void structure shall be measured per ASTM D-1188.
8. Field infiltration rate: minimum of 200 in/hr. Field infiltration test shall be conducted

by the special inspector. For field infiltration test, Inspector to place 17.6-inch diameter cylinder over pavement temporarily. Seal bottom edge of cylinder to pavement and then fill cylinder with four (4) gallons of water within two seconds, then measure rate at which water draws down and infiltrates into pavement.

9. Joints:
    a. Transverse contraction joints shall be spaced at fifteen feet on center with depth of 1/4 the thickness of pavement.
    b. Transverse construction joints shall be spaced at contraction joint interval.
    c. Transverse construction joints shall be installed whenever placing is suspended a sufficient length of time that concrete may begin to harden.
    d. Brush, toil or spray a bonding agent suitable for bonding fresh concrete to the existing pavement surface edge in order to assure aggregate bond at construction joints.
    e. Do not use isolation (expansion) joints except when pavement is abutting nonpervious slabs or other adjoining structures.

D. Forms:
    24. Forms shall be made of steel or wood or other material at the option of the Contractor, provided the forms as constructed result in a pavement of specified thickness, cross section, grade and alignment as shown on the Drawings.
    25. Forms shall be clean and free of dirt, rust, debris and hardened concrete.
    26. Forms shall be of sufficient strength and stability and be adequately supported to prevent deflection or movement and result in concrete pavement conforming with the requirements specified.

PART 3 EXECUTION

3.1 GENERAL

A. CONSTRUCTION REQUIREMENTS:
    1. Owner shall be notified at least 48 hours prior to all recharge bed and pervious paving work, including sub-grade preparation.
    2. A pre-paving conference with the Owner's Representative and Engineer shall be held at least two (2) days prior to beginning placing the pervious concrete. The contractor shall have the pervious concrete supplier's QC representative, dispatch and batch plant personnel, project foreman and the pervious concrete installer in attendance at this meeting.

B. SUB-GRADE PREPARATION:
    1. It is essential that the permeability of the underlying native soils be preserved. Therefore, the existing sub-grade under bed areas shall NOT be compacted or subject to excessive construction equipment traffic prior to stone bed placement.
    2. Where erosion of sub-grade has caused accumulation of fine materials and/or surface ponding, this material shall be removed with light equipment and the underlying soils scarified to a minimum depth of 3 inches with a York rake or equivalent and light tractor.

3. Bring sub-grade of stone recharge bed to line, grade, and elevations indicated. Fill and lightly regrade any areas damaged by erosion, ponding, or traffic compaction before the placing of stone.

C. DRAINAGE BED INSTALLATION:

1. Upon completion of excavation work, the Owner's Representative shall be notified and shall inspect at his discretion before proceeding with drainage bed installation.
2. Install coarse aggregate in 6-inch maximum lifts.
   a. Lightly compact each layer with equipment, keeping equipment movement over storage bed sub-grades to a minimum.
   b. Install aggregate to grades indicated on the drawings.
   c. Install perforated underdrain as indicated on the drawings.

D. SANDFILTER INSTALLATION

1. Initial excavation of the drainage bed basin shall be conducted within 1-foot of the finish subgrade. Excavate the drainage bed basin to the final subgrade elevation only after all disturbed areas in the upgradient project drainage area have been stabilized. The final phase of excavation shall remove all accumulation of silt in the drainage bed basin before placing the geotextile layer and sand filter layer. After construction is complete, prevent sediment from entering the pervious concrete area
2. Do not use the drainage bed basin as a temporary sediment trap during construction.
3. Construction Traffic – Only very light-tracked equipment shall be used for grading operations to avoid compaction of the subgrade below the sand filter layer. The use of draglines and trackhoes shall be considered for grading operations. The subgrade below the sand filter layer shall be flagged or marked to keep heavy equipment away.
4. Upon completion of drainage bed, the Owner's Representative shall be notified and shall inspect at his discretion before proceeding with sandfilter installation.
5. Filter fabric, shall be placed immediately after approval of drainage bed preparation. Any accumulation of debris or sediment which has taken place after approval of sub-grade shall be removed prior to installation of filter fabric at no extra cost to the Owner.
6. Place filter fabric in accordance with manufacturer's standards and recommendations.
   a. Adjacent strips of filter fabric shall overlap a minimum of sixteen inches (16").
   b. Secure fabric at least 12" outside of trench and take steps necessary to prevent any runoff or sediment from entering the sandfilter.
7. Install filter sand in 6-inch maximum lifts.
   a. Lightly compact each layer with equipment, keeping equipment movement over storage bed sub-grades to a minimum.
   b. Install sand to grades indicated on the drawings.

E. PORTLAND CEMENT PERVIOUS PAVEMENT CONCRETE MIXING, HAULING AND PLACING:

1. Mix Time: Truck mixers shall be operated at the speed designated as mixing speed by the manufacturer for 75 to 100 revolutions of the drum. Unless the batch plant is more than 30 minutes from the job, mix time of 75-100 revolutions should take place at the batch plant prior to driving to the job.
2. Transportation:
    a. The Portland Cement aggregate mixture may be transported or mixed on site and should be used within one (1) hour of the introduction of mix water, unless otherwise approved by an Owner's Representative.
    b. This time can be increased to 90 minutes when utilizing the hydration stabilizer specified in paragraph 2.02.C.3.b. as long as the temperature of the concrete does not exceed 90 degrees Fahrenheit.
    c. Trucks used to transport porous concrete shall have no more than two (2) consecutive loads of material without hauling conventional concrete or rinsing, unless delivered by dump truck or if a stabilizing hydration agent is used in the pervious concrete mix design or if field experience proves that there is no significant concrete buildup in concrete mixer after delivery.
3. Prior to placing concrete, the sub-base shall be moistened and in a wet condition (no ponding of water).
4. Discharge:
    a. Each mixer truck will be inspected for appearance of concrete uniformity according to paragraphs above.
    b. Water may be added to obtain the required mix consistency. Any water adjustments made at the jobsite shall be made by the certified pervious concrete installer.
    c. A minimum of 60-75 revolutions at the manufacturer's designated mixing speed, minimum of 4 minutes, shall be required following any addition of water to the mix.
    d. Discharge shall be a continuous operation and shall be completed as quickly as possible.
    e. Concrete shall be deposited as close to its final position as practicable and such that fresh concrete enters the mass of previously placed concrete.
    f. The practice of discharging onto sub-grade and pulling or shoveling to final placement is not allowed.
    g. A City Inspector shall be present for the placement of ALL porous concrete. A sample from each truck shall be inspected for approval by a City representative prior to placement.
5. Placing and Finishing Equipment:
    a. All placing and finishing to be done by a NRMCA certified porous concrete contractor.
    b. Unless otherwise approved by the Owner or Owner's Representative in writing, the Contractor shall provide mechanical placing equipment.
    c. The pervious concrete pavement will be placed to the required cross section and shall not deviate more than +/- 3/8 inch in 10 feet from profile grade.
    d. After mechanical or other approved strike-off, a tight radius-edging tool can be used to protect edge.

e. If vibration, internal or surface applied, is used, it shall be shut off immediately when forward progress is halted for any reason.

f. The Contractor will be restricted to pavement placement widths of a maximum of fifteen (15') feet unless the Contractor can demonstrate competence to provide pavement placement widths greater than the maximum specified to the satisfaction of the Owner's Representative.

6. Curing:

a. Curing procedures shall begin within 20 minutes after the final placement operations.

b. The pavement surface shall be covered with a minimum six (6) mil thick polyethylene sheet or other approved covering material.

c. Prior to covering, a fog or light mist shall be sprayed using CONFILM™ hydration stabilizing agent or approved equivalent, with a pump sprayer above the surface when required due to ambient conditions (high temperature, high wind, and low humidity).

d. The cover shall overlap all exposed edges and shall be secured (without using dirt or stone) to prevent dislocation due to winds or adjacent traffic conditions.

e. Cure Time:

f. Portland Cement Type I, II, – 7 days minimum.

g. Plywood minimum 1-inch thick or steel plates may be used to protect driveways

h. No traffic shall be allowed for 14 days

7. Jointing (sidewalks only):

a. Control (contraction) joints shall be installed in the sidewalks at intervals of 5 feet or as indicated by plans. They shall be installed at a depth of 1/4 the thickness of the pavement.

b. These joints can be installed in the plastic concrete or saw cut.

1) If saw cut, the procedure should begin as soon as the pavement has hardened sufficiently to prevent raveling and uncontrolled cracking (normally after curing), minimum of 36 hours after placement.

2) Possible complications from saw cutting include:

a) Removal of plastic to perform saw cutting will cause pervious concrete to hydrate too quickly. If plastic is removed to accommodate saw cutting, re-hydrating of pervious concrete is required.

b) Walking on pervious concrete too early can damage concrete surface

c) Saw cutting pervious concrete will introduce slurry into the pervious concrete possibly rendering those areas impervious.

c. Transverse constructions joints shall be installed whenever placing is suspended a sufficient length of time that concrete may begin to harden.

d. Isolation (expansion) joints will not be used except when pavement is abutting slabs or other adjoining structures.

e. To reduce raveling, if transverse or isolation joints are used, or where pervious concrete meets impervious pavement, extra compaction may be necessary. Using a cumalong as a tamping tool may be sufficient to reduce raveling.

f. Additional installation specifications for the "no fines" concrete provided by the material source and engineer shall be followed strictly.

F. PORTLAND CEMENT PERVIOUS PAVEMENT CONCRETE TESTING, INSPECTION, AND ACCEPTANCE:

1. Laboratory Testing:
   a. An approved laboratory will conduct testing.
   b. The Laboratory shall complete testing within 2-weeks from receiving of cores.
2. Testing and Acceptance:
   a. A minimum of 1 gradation test of the subgrade is required every 5,000 square feet to determine percent passing the No. 200 sieve per ASTM C 117.
   b. A minimum of one test for each day's placement of pervious concrete in accordance with ASTM C 172 and ASTM C 29 to verify unit weight shall be conducted.
      1) Delivered unit weights are to be determined in accordance with ASTM C 29 using a 0.25 cubic foot cylindrical metal measure.
      2) The unit weight of the delivered concrete shall be +/- 5 pcf of the design unit weight. Infiltration rate shall be +/- 15% of accepted core sample.
   c. A minimum of one set of beam samples (4 samples) shall be taken for each day of porous concrete placement activity.
      1) Beams shall be tested per ASTM C-78 for flexural strength.
      2) The flexural strength shall be a minimum of 300 psi at 28 days.
3. Payment for porous concrete shall be at the unit bid price per square yard in place and shall be full compensation for all labor, equipment and material to complete this item as specified.

3.2 QUALITY ASSURANCE

F. Take and test three cores no sooner than 7 calendar days after placing pervious Portland cement concrete. Coordinate core location with the Owner's Representative per the following:

27. Take three sample cores per each day's pour production for each construction crew, which will be considered a set.

28. Label each core sample with a designated tracking number. Include core sample number, date pavement was placed, date core was taken and location (road stationing) where sample was cored.

29. Measure each core for compacted thickness (ASTM C42). Use untrimmed, hardened core samples to measure placement thickness. The average of all production cores (within a set as noted in paragraph 3.4.A.1) shall not be less than the specified thickness with no individual core being more than 1/4 inch less than the specified thickness.

30. Measure each core for void structure per ASTM noted paragraph 2.1.A.4. Each individual core shall be within specified void range.

31. Measure each core for Unit Weight. Trim and measure the cores for unit weight per ASTM D-1188 after thickness determination. Each individual core shall be +/- 5 pcf of the design unit weight for ranges of satisfactory hardened unit weight values.

32. Fill core holes with concrete meeting the pervious mix design. Match adjacent pavement color texture and finish grade.

G. Submit test data of core samples to Owner's Representative for review of thickness, void structure and unit weight. If requirements are not met, then perform additional core sampling and testing as required at no additional cost to the Owner.

H. If test results of core samples for thickness, void structure and unit weight are not met, then field infiltration test shall be conducted at the direction of the Owner's Representative.

I. Contractor to submit batch certification for deliveries in order to verify Paragraph 2.1.A.3.e.

J. If water is added to the mix, then Contractor to conduct unit weight test per ASTM C172 and ASTM C29 using the jiggling procedure noted in ASTM C29 and submit test results to Owner's Representative.

K. The testing of the freshly mixed concrete per ASTM C29 shall be done at a minimum frequency of one test per each day of placement and if more than 100 cy is placed in one day, then perform a minimum of one test per every 100 cy placed in accordance with COS specifications.

L. If any portions of the finished surface appear to be non-pervious by visual inspection and/or do not infiltrate water and/or do not meet specification requirements noted in Paragraph 2.1, then remove and replace, or repair these areas at no additional cost to the Owner.

M. If any one core fails to meet specifications for void structure or unit weight and/or core samples do not meet specifications for compacted thickness, then additional coring will be required by Owner's Representative in the area represented by the failing core(s) at no additional cost to the Owner. Delineation for removal and replacement will be accomplished by a combination of additional coring, visual inspection and/or field infiltration testing by the special inspectors. Repair and/or replace improperly constructed pervious pavement or pavement identified as nonconforming to the specifications as directed by the Owner's Representative and at no additional cost to the Owner.

3.3 CLEANING

N. Leave premises clean and free of residue.

3.4 WORK BY OTHERS

O. The Owner shall have the option to conduct destructive testing on the core samples taken for testing noted in Paragraph 3.4.A. Submit cores including core sample tracking number and core test data results to the Owner's Representative, upon completion of testing noted in Paragraph 3.2.

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Contaminated Soil and Hazardous Material

The Engineer will determine the limits of excavation required. All material that is designated by the Engineer to be removed shall be handled and stored in a manner that prevents the spread of contamination to adjacent soil or water. Separate stockpiles shall be maintained for known hazardous or contaminated material and for suspected hazardous or contaminated material. The Contractor shall transport hazardous or contaminated material and dispose of it at a permitted facility. The Contractor shall provide the Engineer with a copy of the shipping manifest or bill of lading indicating the amount of material hauled to disposal, and bearing the disposal site operator's confirmation for receipt of the material.

****

Contaminated Water

All water that is removed from the areas of contamination, including free water that leaches from contaminated soil stockpiles or water that is suspected of being contaminated, shall be collected, handled and stored in a manner that prevents the spread of contamination to adjacent soil or water. The Contractor shall transport contaminated water and dispose of it at a permitted facility. The Contractor shall provide the Engineer with a copy of the shipping manifest or bill of lading indicating the amount of material hauled to disposal, and bearing the disposal site operator's confirmation for receipt of the material.

END OF SECTION

(April 3, 2017)
Standard Plans

The State of Washington Standard Plans for Road, Bridge and Municipal Construction M21-01 transmitted under Publications Transmittal No. PT 16-048, effective August 1, 2016 is made a part of this contract.

The Standard Plans are revised as follows:

A-30.15
DELETED

A-40.10
Section View, PCCP to HMA Longitudinal Joint, callout, was – "Sawed Groove ~ Width 3/16" (IN) MIN. to 5/16" (IN) MAX. ~ Depth 1" (IN) MIN. ~ see Std. Spec. 5-04.3(12)B" is revised to read; "Sawed Groove ~ Width 3/16" (IN) MIN. to 5/16" (IN) MAX. ~ Depth 1" (IN) MIN. ~ see Std. Spec. Section 5-04.3(12)A2"

A-50.10
Sheet 2 of 2, Plan, with Single Slope Barrier, reference C-14a is revised to C-70.10

A-50.20
Sheet 2 of 2, Plan, with Anchored Barrier, reference C-14a is revised to C-70.10

A-50.30
Sheet 2 of 2, Plan (top), reference C-14a is revised to C-70.10

A-60.30
Note 4, was – "If the ACP and membrane is to be removed from the bridge deck, see GSP 023106 for deck preparation before placing new membrane." Is revised to read; "If the ACP and membrane is to be removed from the bridge deck, see GSP 6-02.3(10)D.OPT6.GB6 for deck preparation before placing new membrane."

B-10.20 and B-10.40
Substitute "step" in lieu of "handhold" on plan

B-15.60
Table, Maximum Knockout Size column, 120" Diam., 42" is revised to read; 96"

B-25.20
Note 4, was – "Bolt-Down capability is required on all frames, grates and covers, unless specified in the Contract. Provide two holes in the Frame that are vertically aligned with the grate slots. The frame shall accept the 5/8" x 11 NC x 2" allen head cap screw by being tapped, or other approved mechanism. The location of bolt-down holes varies among manufacturers. See BOLT-DOWN DETAIL, **Standard Plan B-30.10.** Is revised to read; "Bolt-Down capability is required on all frames, grates and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8" (in) - 11 NC x 2" (in) Allen head cap screw by being tapped, or other approved mechanism. The location of bolt-down holes varies by manufacturer."
See BOLT-DOWN DETAIL, **Standard Plan B-30.10.**

Add Note 7. See Standard Specification Section 8-04 for Curb and Gutter requirements

B-30.70

Note 2, was – “Bolt-Down capability is required on all frames, grates and covers, unless specified otherwise in the Contract. Provide 3 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 5/8” -1 NC x 2” Allen head cap screw by being tapped, or other approved mechanism. Location of bolt down holes varies by manufacturer.” Is revised to read; “Bolt-Down capability is required on all frames, grates and covers, unless specified otherwise in the Contract. Provide 3 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 304 Stainless Steel (S.S.) 5/8” (in) - 11 NC x 2” (in) Allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturer.”

RING PLAN, callout, was – “DRILL AND TAP 5/8” – 11NC HOLE FOR 1 1/2” X 5/8” STAINLESS STEEL SOCKET HEAD CAP SCREW (TYP.)” is revised to read; “SEE NOTE 2”

B-40.40

Note 2, was – “When bolt-down grates are specified in the Contract, provide two slots in the grate that are centered with the holes in the frame. Location of bolt-down slots varies among different manufacturers.” Is revised to read; ”Bolt-down capability is required on all frames, grates, and covers, unless specified otherwise in the Contract. Provide 2 holes in the frame that are vertically aligned with the grate or cover slots. The frame shall accept the 5/8” (in) – 11 NC x 2” (in) Allen head cap screw by being tapped, or other approved mechanism. Location of bolt-down holes varies by manufacturers.”

B-45.20

Grate Support Detail, callout for steel angle, was – “5 ½” x 1” x ¼” STEEL ANGLE” IS REVISED TO READ; “5 ½” x 1 1/2” x ¼” STEEL ANGLE”

B-45.40

Grate Support Detail, callout for steel angle, was – “5 ½” x 1” x ¼” STEEL ANGLE” IS REVISED TO READ; “5 ½” x 1 1/2” x ¼” STEEL ANGLE”

B-55.20

Metal Pipe elevation, title is revised to read; “Metal Pipe and Steel Rib Reinforced Polyethylene Pipe”

B-90.40

Offset & Bend details, add the subtitle, “Plan View” above titles

C-16a

Note 1, reference C-28.40 is revised to C-20.10

C-16b

Note 3, reference C-28.40 is revised to C-20.10

C-22.14

Note 3, formula, was: “Elevation G = (Elevation S – D x (0.1) + 28” is revised to read: “Elevation G = (Elevation S – D x (0.1) + 28/12”

C-22.16
Note 3, formula, was: “Elevation G = (Elevation S – D x (0.1) + 31” is revised to read: “Elevation G = (Elevation S – D x (0.1) + 31/12”

C-22.41
DELETED

D-10.10
Wall Type 1 may be used if no traffic barrier is attached on top of the wall. Walls with traffic barriers attached on top of the wall are considered non-standard and shall be designed in accordance with the current WSDOT Bridge Design Manual (BDM) and the revisions stated in the 11/3/15 Bridge Design memorandum.

D-10.15
Wall Type 2 may be used if no traffic barrier is attached on top of the wall. Walls with traffic barriers attached on top of the wall are considered non-standard and shall be designed in accordance with the current WSDOT BDM and the revisions stated in the 11/3/15 Bridge Design memorandum.

D-10.20
Wall Type 3 may be used in all cases. The last sentence of Note 6 on Wall Type 3 shall be revised to read: The seismic design of these walls has been completed using a site adjusted (effective) peak ground acceleration of 0.32g.

D-10.25
Wall Type 4 may be used in all cases. The last sentence of Note 6 on Wall Type 4 shall be revised to read: The seismic design of these walls has been completed using a site adjusted (effective) peak ground acceleration of 0.32g.

D-10.30
Wall Type 5 may be used in all cases.

D-10.35
Wall Type 6 may be used in all cases.

D-10.40
Wall Type 7 may be used if no traffic barrier is attached on top of the wall. Walls with traffic barriers attached on top of the wall are considered non-standard and shall be designed in accordance with the current WSDOT BDM and the revisions stated in the 11/3/15 Bridge Design memorandum.

D-10.45
Wall Type 8 may be used if no traffic barrier is attached on top of the wall. Walls with traffic barriers attached on top of the wall are considered non-standard and shall be designed in accordance with the current WSDOT BDM and the revisions stated in the revisions stated in the 11/3/15 Bridge Design memorandum.

D-15.10

STD Plans D-15 series “Traffic Barrier Details for Reinforced Concrete Retaining Walls” are withdrawn. Special designs in accordance with the current WSDOT BDM are required in place of these STD Plans.

D-15.20

STD Plans D-15 series “Traffic Barrier Details for Reinforced Concrete Retaining Walls” are withdrawn. Special designs in accordance with the current WSDOT BDM are required in place of these STD Plans.

D-15.30

STD Plans D-15 series “Traffic Barrier Details for Reinforced Concrete Retaining Walls” are withdrawn. Special designs in accordance with the current WSDOT BDM are required in place of these STD Plans.

F-10.12

Section Title, was – “Depressed Curb Section” is revised to read: “Depressed Curb and Gutter Section”

F-10.40

“EXTRUDED CURB AT CUT SLOPE”, Section detail - Deleted

F-10.42

DELETE – “Extruded Curb at Cut Slope” View

G-22.10

Sheet 2, Elevation , Three-Post Installation, Dimension, upper right, was – “.035” is revised to read: “ 0.35X”

G-90.10

TOP VIEW, callout, was – “Vertical Brace ~ W4 x 13 steel (TYP.)(See Note 4)” is revised to read; “Vertical Brace ~ W4 x 13 steel (TYP.)(See Note 3)”

H-70.20

Sheet 2, Spacing Detail, Mailbox Support Type 1, reference to Standard Plan I-70.10 is revised to H-70.10

J-3

DELETED

J-3b

DELETED

J-3C

DELETED

J-10.21

Note 18, was – “When service cabinet is installed within right of way fence, see Standard Plan J-10.22 for details.” Is revised to read; “When service cabinet is installed within right of way fence, or the meter base is mounted on the exterior of the cabinet, see Standard Plan J-10.22 for details.”

J-10.22

Key Note 1, was – “Meter base per serving utility requirements~ as a minimum, the meter base shall be safety socket box with factory-installed test bypass facility that meets the requirements of EUSERC drawing 305.” Is revised to read; “Meter base per serving utility requirements~ as a minimum, the meter base shall be safety socket box with factory-installed test bypass facility that meets the requirements of EUSERC drawing 305. When the utility requires meter base to be mounted on the side or back of the service cabinet, the meter base enclosure shall be fabricated from type 304 stainless steel.”

Key Note 4, “Test with (SPDT Snap Action, Positive close 15 Amp – 120/277 volt “T” rated). Is revised to read: “Test Switch (SPDT snap action, positive close 15 amp – 120/277 volt “T” rated).”

Key Note 14, was – “Hinged dead front with ¼ turn fasteners or slide latch.” Is revised to read; “Hinged dead front with ¼ turn fasteners or slide latch. ~ Dead front panel bolts shall not extend into the vertical limits of the breaker array(s).”

Key Note 15, was – “Cabinet Main Bonding Jumper. Buss shall be 4 lug tinned copper. See Cabinet Main bonding Jumper detail, Standard Plan J-3b.“ is revised to read; “Cabinet Main Bonding Jumper Assembly ~ Buss shall be 4 lug tinned copper ~ See Standard Plan J-10.20 for Cabinet Main Bonding Jumper Assembly details.”

J-20.10

Add Note 5, “5. One accessible pedestrian signal assembly per pedestrian pushbutton post.”

J-20.11

Sheet 2, Foundation Detail, Elevation, callout – “Type 1 Signal Pole” is revised to read: “Type PS or Type 1 Signal Pole”

Sheet 2, Foundation Detail, Elevation, add note below Title, “(Type 1 Signal Pole Shown)”

Add Note 6, “6. One accessible pedestrian signal assembly per pedestrian pushbutton post.”

J-20.26

Add Note 1, “1. One accessible pedestrian pushbutton station per pedestrian pushbutton post.”

J-20.16

View A, callout, was – LOCK NIPPLE, is revised to read; CHASE NIPPLE

J-21.10

Sheet 1 of 2, Elevation view (Round), add dimension depicting the distance from the top of the foundation to find 2 #4 reinforcing bar shown, to read; 3” CLR.. Delete “(TYP.)” from the 2 ½” CLR. dimension, depicting the distance from the bottom of the foundation to find 2 # 4 reinf. Bar.

Sheet 1 of 2, Elevation view (Square), add dimension depicting the distance from the top of the foundation to find 1 #4 reinforcing bar shown, to read; 3” CLR. Delete “(TYP.)” from the 2 ½” CLR. dimension, depicting the distance from the bottom of the foundation to find 1 # 4 reinf. Bar.

Sheet 2 of 2, Elevation view (Round), add dimension depicting the distance from the top of the foundation to find 2 #4 reinforcing bar shown, to read; 3” CLR. Delete “(TYP.)” from the 2 ½” CLR. dimension, depicting the distance from the bottom of the foundation to find 2 # 4 reinf. Bar.

Sheet 2 of 2, Elevation view (Square), add dimension depicting the distance from the top of the foundation to find 1 #4 reinforcing bar shown, to read; 3" CLR. Delete "(TYP.)" from the 2 ½" CLR. dimension, depicting the distance from the bottom of the foundation to find 1 # 4 reinf. Bar.
Detail F, callout, "Heavy Hex Clamping Bolt (TYP.) ~ 3/4" (IN) Diam. Torque Clamping Bolts (see Note 3)" is revised to read; "Heavy Hex Clamping Bolt (TYP.) ~ 3/4" (IN) Diam. Torque Clamping Bolts (see Note 1)"
Detail F, callout, "3/4" (IN) x 2' – 6" Anchor Bolt (TYP.) ~ Four Required (See Note 4)" is revised to read; "3/4" (IN) x 2' – 6" Anchor Bolt (TYP.) ~ Three Required (See Note 2)"

J-21.15
Partial View, callout, was – LOCK NIPPLE ~ 1 ½" DIAM., is revised to read; CHASE NIPPLE ~ 1 ½" (IN) DIAM.

J-21.16
Detail A, callout, was – LOCKNIPPLE, is revised to read; CHASE NIPPLE

J-22.15
Ramp Meter Signal Standard, elevation, dimension 4' - 6" is revised to read; 6'-0"
(2x) Detail A, callout, was – LOCK NIPPLE ~ 1 ½" DIAM. is revised to read; CHASE NIPPLE ~ 1 ½" (IN) DIAM.

J-40.10
Sheet 2 of 2, Detail F, callout, "12 – 13 x 1 ½" S.S. PENTA HEAD BOLT AND 12" S. S. FLAT WASHER" is revised to read; "12 – 13 x 1 ½" S.S. PENTA HEAD BOLT AND 1/2" (IN) S. S. FLAT WASHER"

J-60.14
All references to J-16b (6x) are revised to read; J-60.11

K-80.30
In the NARROW BASE, END view, the reference to Std. Plan C-8e is revised to Std. Plan K-80.35

M-11.10
Layout, dimension (from stop bar to "X"), was – 23' is revised to read; 24'

The following are the Standard Plan numbers applicable at the time this project was advertised. The date shown with each plan number is the publication approval date shown in the lower right-hand corner of that plan. Standard Plans showing different dates shall not be used in this contract.

A-10.10-00.....8/7/07
A-10.20-00.....10/5/07
A-10.30-00.....10/5/07
A-20.10-00.....8/31/07
A-30.10-00.....11/8/07
A-30.30-01.....6/16/11
A-30.35-00.....10/12/07
A-40.00-00.....8/11/09
A-40.10-03.....12/23/14
A-40.15-00.....8/11/09
A-40.20-03.....12/23/14
A-40.50-02.....12/23/14
A-50.10-00…....11/17/08
A-50.20-01…....9/22/09
A-50.30-00…....11/17/08
A-50.40-00…....11/17/08
A-60.10-03.....12/23/14
A-60.20-03.....12/23/14
A-60.30-00.....11/8/07
A-60.40-00.....8/31/07

B-5.20-01.....6/16/11
B-30.50-01.....4/26/12
B-75.20-01.....6/10/08

B-5.40-01.....6/16/11
B-5.60-01.....6/16/11
B-10.20-01.....2/7/12
B-10.40-00.....6/1/06
B-10.60-00.....6/8/06
B-15.20-01.....2/7/12
B-15.40-01.....2/7/12
B-15.60-01.....2/7/12
B-20.20-02.....3/16/12
B-20.40-03.....3/16/12
B-20.60-03.....3/15/12
B-25.20-01.....3/15/12
B-25.60-00.....6/1/06
B-30.10-01.....4/26/12
B-30.20-02.....4/26/12
B-30.30-01.....4/26/12
B-30.40-01.....4/26/12
B-30.70-03.....4/26/12
B-30.80-00.....6/8/06
B-30.90-01.....9/20/07
B-35.20-00.....6/8/06
B-35.40-00.....6/8/06
B-40.20-00.....6/1/06
B-40.40-01.....6/16/10
B-45.20-00.....6/1/06
B-45.40-00.....6/1/06
B-50.20-00.....6/1/06
B-55.20-00.....6/1/06
B-60.20-00.....6/8/06
B-60.40-00.....6/1/06
B-65.20-01.....4/26/12
B-65.40-00.....6/1/06
B-70.20-00.....6/1/06
B-70.60-00.....6/1/06
B-75.50-01.....6/10/08
B-75.60-00.....6/8/06
B-80.20-00.....6/8/06
B-80.40-00.....6/1/06
B-82.20-00.....6/1/06
B-85.10-01.....6/10/08
B-85.20-00.....6/1/06
B-85.30-00.....6/1/06
B-85.40-00.....6/8/06
B-85.50-01.....6/10/08
B-90.10-00.....6/8/06
B-90.20-00.....6/8/06
B-90.30-00.....6/8/06
B-90.40-00.....6/8/06
B-90.50-00.....6/8/06
B-95.20-01.....2/3/09
B-95.40-00.....6/8/06

1

C-1.....7/12/16
C-1a.....7/14/15
C-1b.....7/14/15
C-1c.....7/12/16
C-1d.....10/31/03
C-2.....1/6/00
C-2a.....6/21/06
C-2b.....6/21/06
C-2c.....6/21/06
C-2d.....6/21/06
C-2e.....6/21/06
C-2f.....3/14/97
C-2g.....7/27/01
C-2h.....3/28/97
C-2i.....3/28/97
C-2j.....6/12/98
C-2k.....7/12/16
C-2n.....7/12/16
C-2o.....7/13/01
C-2p.....10/31/03
C-3.....7/2/12
C-3a.....10/4/05
C-3b.....6/27/11
C-3c.....6/27/11
C-4b.....7/15/16
C-4e.....7/15/16
C-4f.....7/2/12
C-16b.....6/3/10
C-6.....7/15/16
C-6a.....10/14/09
C-6c.....7/15/16
C-6d.....7/15/16
C-6f.....7/15/16
C-7.....6/16/11
C-7a.....6/16/11
C-8.....2/10/09
C-8a.....7/25/97
C-8b.....2/29/16
C-8e.....2/21/07
C-8f.....6/30/04
C-10.....7/15/16
C-16a.....6/3/10
C-20.10-03.....7/14/15
C-20.14-03.....6/11/14
C-20.15-02.....6/11/14
C-20.18-02.....6/11/14
C-20.19-02.....6/11/14
C-20.40-05.....7/14/15
C-20.41-01.....7/14/15
C-20.42-05.....7/14/15
C-20.45.01.....7/2/12
C-22.14-04.....7/15/16
C-22.16-05.....7/14/15
C-22.40-05.....7/15/16
C-22.45-02.....7/15/16
C-23.60-03.....6/11/14
C.24.10-01.....6/11/14
C-25.18-05.....7/14/15
C-25.20-06.....7/14/15
C-25.22-05.....7/14/15
C-25.26-03.....7/14/15
C-25.80-04.....7/15/16
C-40.14-02.....7/2/12
C-40.16-02.....7/2/12
C-40.18-02.....7/2/12
C-70.10-01.....6/17/14
C-75.10-01.....6/11/14
C-75.20-01.....6/11/14
C-75.30-01.....6/11/14
C-80.10-01.....6/11/14
C-80.20-01.....6/11/14
C-80.30-01.....6/11/14
C-80.40-01.....6/11/14
C-80.50-00.....4/8/12
C-85.10-00.....4/8/12
C-85.11-00.....4/8/12
C-85.14-01.....6/11/14
C-85.15-01.....6/30/14
C-85.16-01.....6/17/14
C-85-18-01.....6/11/14
C-85.20-01.....6/11/14
C-90.10-00.....7/3/08

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D-2.04-00.....11/10/05
D-2.06-01.....1/6/09
D-2.08-00.....11/10/05
D-2.14-00.....11/10/05
D-2.48-00.....11/10/05
D-2.64-01.....1/6/09
D-2.66-00.....11/10/05
D-2.68-00.....11/10/05
D-3.17-02……5/9/16
D-4.....12/11/98
D-6.....6/19/98
D-10.10-01.....12/2/08

D-2.16-00.....11/10/05
D-2.18-00.....11/10/05
D-2.20-00.....11/10/05
D-2.32-00.....11/10/05
D-2.34-01.....1/6/09
D-2.36-03.....6/11/14
D-2.42-00.....11/10/05
D-2.44-00.....11/10/05
D-2.60-00.....11/10/05
D-2.62-00.....11/10/05
D-2.46-01.....6/11/14
D-2.80-00.....11/10/05
D-2.82-00.....11/10/05
D-2.84-00.....11/10/05
D-2.86-00.....11/10/05
D-2.88-00.....11/10/05
D-2.92-00.....11/10/05
D-3.09-00.....5/17/12
D-3.10-01……5/29/13
D-3.11-03……6/11/14
D-3.15-02……6/10/13
D-3.16-02……5/29/13
D-10.15-01.....12/2/08
D-10.20-00.....7/8/08
D-10.25-00.....7/8/08
D-10.30-00.....7/8/08
D-10.35-00.....7/8/08
D-10.40-01.....12/2/08
D-10.45-01.....12/2/08
D-15.10-01.....12/2/08
D-15.20-03.....5/9/16
D-15.30-01.....12/02/08

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E-1.....2/21/07
E-2.....5/29/98
E-4.....8/27/03
E-4a.....8/27/03

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F-10.12-03.....6/11/14
F-10.16-00.....12/20/06
F-10.18-00.....6/27/11
F-10.40-03.....6/29/16
F-10.42-00.....1/23/07
F-10.62-02.....4/22/14
F-10.64-03.....4/22/14
F-30.10-03.....6/11/14
F-40.12-03.....6/29/16
F-40.14-03.....6/29/16
F-40.15-03.....6/29/16
F-40.16-03.....6/29/16
F-45.10-02.....7/15/16
F-80.10-04.....7/15/16

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G-10.10-00.....9/20/07
G-20.10-02.....6/23/15
G-22.10-03.....7/10/15
G-24.10-00.....11/8/07
G-24.20-01.....2/7/12
G-24.30-01.....2/7/12
G-24.40-06.....2/29/16
G-24.50-03.....6/17/14
G-24.60-04.....6/23/15
G-25.10-04.....6/10/13
G-30.10-04.....6/23/15
G-50.10-02.....6/23/15
G-60.10-03.....6/18/15
G-60.20-02.....6/18/15
G-60.30-02.....6/18/15
G-70.10-03.....6/18/15
G-70.20-03.....2/29/16
G-70.30-03.....2/29/16
G-90.10-02……4/28/16
G-90.11-00……4/28/16
G-90.20-04……4/28/16
G-90.30-03……4/28/16
G-90.40-02……4/28/16
G-95.10-01.....6/2/11
G-95.20-02.....6/2/11
G-95.30-02.....6/2/11

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H-10.10-00.....7/3/08
H-10.15-00.....7/3/08
H-30.10-00.....10/12/07
H-32.10-00.....9/20/07
H-60.10-01.....7/3/08
H-60.20-01.....7/3/08
H-70.10-01.....2/7/12
H-70.20-01.....2/16/12
H-70.30-02.....2/7/12

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I-10.10-01.....8/11/09
I-30.10-02.....3/22/13
I-30.15-02.....3/22/13
I-30.16-00.....3/22/13
I-30.17-00.....3/22/13
I-30.20-00.....9/20/07
I-30.30-01.....6/10/13
I-30.40-01.....6/10/13
I-30.60-00.....5/29/13
I-40.10-00.....9/20/07
I-40.20-00.....9/20/07
I-50.20-01.....6/10/13
I-60.10-01.....6/10/13
I-60.20-01.....6/10/13
I-80.10-02.....7/15/16

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J-10.....7/18/97
J-10.10-03……6/3/15
J-10.15-01.....6/11/14
J-10.16-00……6/3/15
J-10.17-00……6/3/15
J-10.18-00……6/3/15
J-10.20-01……6/1/16
J-10.21-00……6/3/15
J-10.22-00.....5/29/13
J-15.10-01.....6/11/14
J-26.20-00…..6/11/14
J-27.10-01…..7/21/16
J-27.15-00…..3/15/12
J-28.10-01.....5/11/11
J-28.22-00.....8/07/07
J-28.24-01.....6/3/15
J-28.26-01.....12/02/08
J-28.30-03.....6/11/14
J-28.40-02.....6/11/14
J-28.42-01.....6/11/14
J-40.38-01.....5/20/13
J-40.39-00……5/20/13
J-40.40-01……4/28/16
J-50.10-00…….6/3/11
J-50.11-00…….6/3/11
J-50.12-00…….6/3/11
J-50.15-00…….6/3/11
J-50.16-01…….3/22/13
J-50.20-00…….6/3/11
J-50.25-00…….6/3/11

J-15.15-02……7/10/15
J-20.10-03.....6/30/14
J-20.11-02.....6/30/14
J-20.15-03.....6/30/14
J-20.16-02.....6/30/14
J-20.20-02.....5/20/13
J-20.26-01.....7/12/12
J-21.10-04.....6/30/14
J-21.15-01.....6/10/13
J-21.16-01.....6/10/13
J-21.17-01.....6/10/13
J-21.20-01.....6/10/13
J-22.15-02.....7/10/15
J-22.16-03.....7/10/15
J-26.10-03…..7/21/16
J-26.15-01…..5/17/12
J-28.43-00.....6/11/14
J-28.45-03.....7/21/16
J-28.50-03.....7/21/16
J-28.60-02.....7/21/16
J-28.70-02.....6/1/16
J-29.10-01.....7/21/16
J-29.15-01.....7/21/16
J-29.16-02.....7/21/16
J-30.10-00……6/18/15
J-40.05-00……7/21/16
J-40.10-04……4/28/16
J-40.20-03……4/28/16
J-40.30-04……4/28/16
J-40.35-01……5/29/13
J-40.36-01……5/20/13
J-40.37-01……5/20/13
J-50.30-00…….6/3/11
J-60.05-01…….7/21/16
J-60.11-00…....5/20/13
J-60.12-00…....5/20/13
J-60.13-00…....6/16/10
J-60.14-00……6/16/10
J-75.10-02……7/10/15
J-75.20-01……7/10/15
J-75.30-02…….7/10/15
J-75.40-02……6/1/16
J-75.41-01……6/29/16
J-75.45-02……6/1/16
J-90.10-02…….4/28/16
J-90.20-02…….4/28/16
J-90.21-01……4/28/16

1

K-70.20-01.....6/1/16
K-80.10-01.....6/1/16
K-80.20-00.....12/20/06
K-80.30-00.....2/21/07
K-80.35-00.....2/21/07
K-80.37-00.....2/21/07

2

L-10.10-02.....6/21/12
L-20.10-03.....7/14/15
L-30.10-02.....6/11/14
L-40.10-02.....6/21/12
L-40.15-01.....6/16/11
L-40.20-02.....6/21/12
L-70.10-01.....5/21/08
L-70.20-01.....5/21/08

3

M-1.20-03.....6/24/14
M-1.40-02.....6/3/11
M-1.60-02.....6/3/11
M-1.80-03.....6/3/11
M-2.20-03.....7/10/15
M-2.21-00……7/10/15
M-3.10-03.....6/3/11
M-3.20-02.....6/3/11
M-3.30-03.....6/3/11
M-3.40-03.....6/3/11
M-3.50-02.....6/3/11
M-5.10-02.....6/3/11
M-7.50-01.....1/30/07
M-9.50-02.....6/24/14
M-9.60-00…….2/10/09
M-11.10-01.....1/30/07
M-15.10-01.....2/6/07
M-17.10-02.....7/3/08
M-20.10-02.....6/3/11
M-20.20-02.....4/20/15
M-20.30-04.....2/29/16
M-20.40-03.....6/24/14
M-20.50-02.....6/3/11
M-24.20-02.....4/20/15
M-24.40-02.....4/20/15
M-24.50-00.....6/16/11
M-24.60-04.....6/24/14
M-40.10-03.....6/24/14
M-40.20-00...10/12/07
M-40.30-00.....9/20/07
M-40.40-00.....9/20/07
M-40.50-00.....9/20/07
M-40.60-00.....9/20/07
M-60.10-01.....6/3/11
M-60.20-02.....6/27/11
M-65.10-02.....5/11/11
M-80.10-01.....6/3/11
M-80.20-00.....6/10/08
M-80.30-00.....6/10/08

4

PART IV - PLANS

The Drawings listed below are hereby made part of this contract:

- Third Ave Stormwater Improvements (Date: 04-10-2017, 17 Sheets)

APPENDICES

APPENDIX A: State Minimum Hourly Wages

The State of Washington prevailing wage rates applicable for this public works project, which is located in Whatcom County, may be found at the following website address of the Department of Labor and Industries:

https://fortress.wa.gov/lni/wagelookup/prvwagelookup.aspx

Based on the bid submittal deadline for this project, the applicable effective date for prevailing wages for this project is May 23, 2017. A copy of the applicable prevailing wage rates are also available for viewing at the office of the Owner, located at:

City of Ferndale Public Works Department, City Hall, 2095 Main Street, P.O. Box 936, Ferndale, Washington 98248

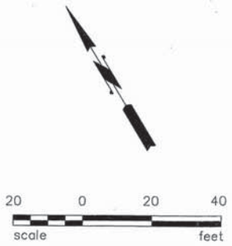
Upon request, the Owner will mail a hard copy of the applicable prevailing wages for this project.

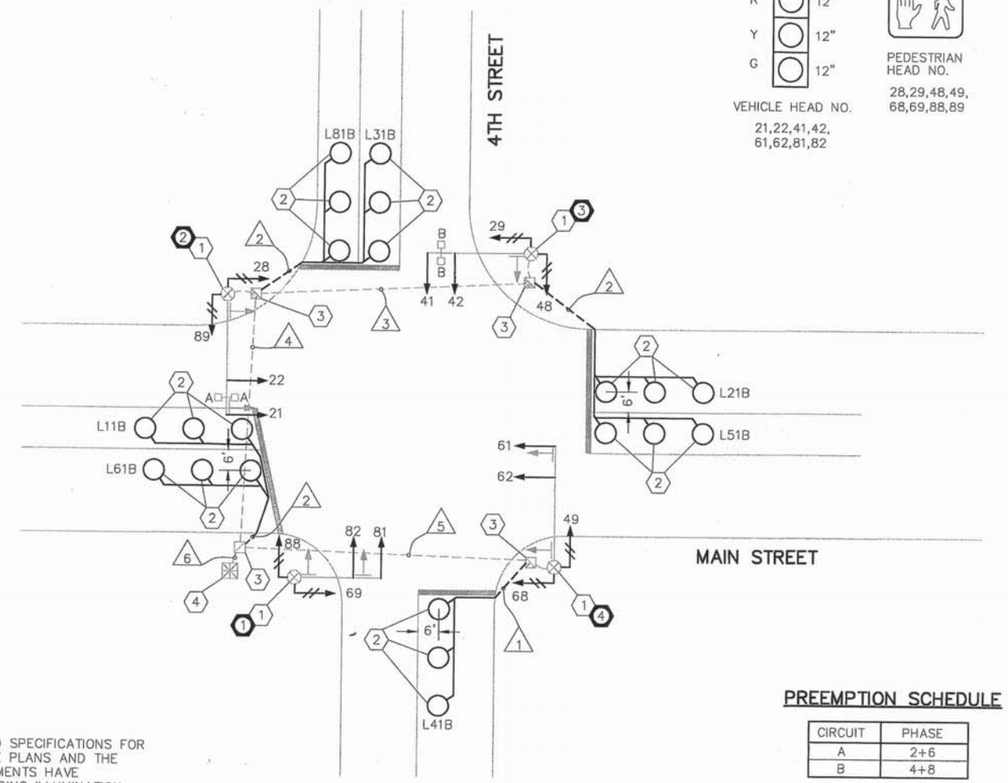
APPENDIX B: Reference Drawings for Traffic Loops and Rite Aid Site

0037.096 S4.09 MZ

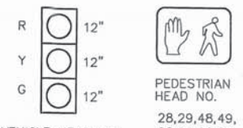
LEGEND

- VEHICLE SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- SIGNAL STANDARD, TYPE II
- TYPE 1 JUNCTION BOX
- TYPE 2 JUNCTION BOX
- TYPE 3 JUNCTION BOX
- PREEMPTION DETECTOR
- CONDUIT
- 6' ROUND TYPE 2 VEHICLE DETECTION LOOP
- CONTROLLER CABINET
- MAST ARM-MOUNTED TRAFFIC SIGN
- CONSTRUCTION NOTE
- SIGNAL STANDARD NO.
- WIRE NOTE





SIGNAL DISPLAY SCHEDULE



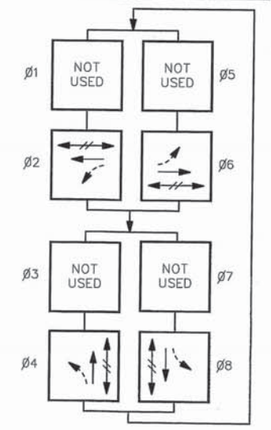
VEHICLE HEAD NO.
21,22,41,42,
61,62,81,82

PEDESTRIAN HEAD NO.
28,29,48,49,
68,69,88,89

DISPLAY NOTES:

1. ALL NEW VEHICLE SIGNAL HEADS SHALL BE CONVENTIONAL HEADS WITH RED AND GREEN LED INDICATIONS AND TUNNEL VISORS. ALL YELLOW INDICATIONS SHALL BE INCANDESCENT. MOUNT HEADS USING EXISTING TYPE M MOUNTS. USE STANDARD PLANS J-6f AND J-6g.
2. ALL NEW PEDESTRIAN SIGNAL HEADS SHALL HAVE LED SYMBOLIC LEGENDS AND '2' CRATE VISORS. ALL NEW PEDESTRIAN SIGNAL HEADS SHALL USE MOUNTING TYPE E AT EXISTING MOUNTING LOCATIONS. USE STANDARD PLAN J-6f.

SIGNAL PHASING DIAGRAM



- PEDESTRIAN MOVEMENT
- PROTECTED VEHICLE MOVEMENT
- PERMISSIVE VEHICLE MOVEMENT

NOTE:
PHASES 2 AND 6 ARE HARDWIRED TOGETHER IN THE CONTROLLER CABINET. PHASES 4 AND 8 ARE ALSO HARDWIRED TOGETHER.

PREEMPTION SCHEDULE

CIRCUIT	PHASE
A	2+6
B	4+8

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2002 WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION, ITS CURRENT AMENDMENTS, THESE PLANS AND THE SPECIAL PROVISIONS. THE CONTRACTOR IS ADVISED THAT THE CURRENT AMENDMENTS HAVE REPLACED SECTIONS 8-20 AND 9-29 OF THE STANDARD SPECIFICATIONS REGARDING ILLUMINATION, TRAFFIC SIGNAL SYSTEMS AND ELECTRICAL IN THEIR ENTIRETY.
2. THE INTERSECTION AND TRAFFIC SIGNAL EQUIPMENT SHOWN ON THIS PLAN SHEET (TS1) ARE NOT SURVEYED LOCATIONS AND ARE CONCEPTUAL IN NATURE. THE CONTRACTOR SHALL VERIFY ACTUAL LOCATIONS IN THE FIELD AS NECESSARY.

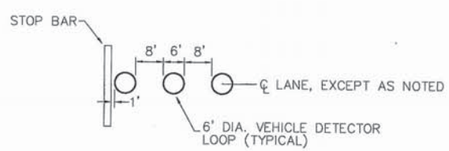
CONSTRUCTION NOTES

(1) DISCONNECT AND REMOVE ALL EXISTING VEHICLE AND PEDESTRIAN SIGNAL HEADS FROM EXISTING SIGNAL STANDARD. INSTALL NEW SIGNAL HEADS USING EXISTING MOUNTINGS. INSTALL TWO PPB-M'S, PERPENDICULAR TO MAIN STREET AND 4TH STREET. USE SPARE CONDUCTORS IN EXISTING 5C CABLES AT EXISTING SIGNAL STANDARD FOR PPB-M CONNECTIONS. USE STANDARD PLAN J-5. DELIVER SALVAGED PEDESTRIAN SIGNAL HEADS TO CITY OF BELLINGHAM SIGNAL SHOPS.

(2) INSTALL 6' ROUND TYPE 2 VEHICLE DETECTOR LOOP. USE LOOP LAYOUT DETAIL ON THIS SHEET.

(3) ROUTE NEW LOOP STUBOUT CONDUIT TO EXISTING JUNCTION BOX OR USE EXISTING SPARE CONDUIT IF IT CAN BE FOUND AND IS UNDAMAGED. EXISTING SPARE CONDUITS ON 4TH STREET ONLY.

(4) ROUTE NEW LOOP LEAD-IN CABLES INTO EXISTING CONTROLLER CABINET. TERMINATE CABLES FOR L31B, L41B AND L81B IN PARALLEL ON PHASE 4 OR 8. TERMINATE CABLES FOR L11B, L21B, L51B AND L61B IN PARALLEL ON PHASE 2 OR 6. INSTALL CANOGO C824 FOUR-CHANNEL DETECTOR AMPLIFIER IN EXISTING RACK. TERMINATE EXISTING SPARE CONDUCTORS FOR PPB CONNECTIONS. COORDINATE WITH STEVE HAUGEN, CITY OF BELLINGHAM, 360-676-6850 FOR CONTROLLER PROGRAMMING REVISIONS.



NOTE: THE THREE LOOPS IN EACH LANE SHALL BE SERIES CONNECTED IN THE JUNCTION BOX

LOOP LAYOUT DETAIL

WIRING SCHEDULE

CONDUIT RUN ⚠	CONDUIT SIZE	NEW CONDUCTORS				REMARKS
		#2	#12 TWISTED PAIRS	2CS	6PR	
1	2"		3			NOTE 1
2	2"		6			NOTE 1
3	EX. 3"			2		NOTE 2
4	EX. 4"			4		NOTE 2
5	EX. 3"			1		NOTE 2
6	EX. 4"					NOTE 2
	EX. 4"					NOTE 2
	EX. 3"			7		NOTE 2

NOTES: 1. EXISTING SPARE CONDUIT(S) MAY BE USED IF LOCATED UNDAMAGED (4TH ST. ONLY).
2. EXISTING CONDUIT AND CONDUCTORS REMAIN.

DRAWN	RMH					
DESIGNED	RMH					
CHECKED	11/20/02 RMH					
PROJ. ENGR.						
DRAWING FILE	TS1.DWG	DATE	REVISION	BY	APP'D	

CITY OF FERNDALE
2095 Main Street
Ferndale, Washington 98248

ROBERT MARTIN HERMAN — STATE OF WASHINGTON — 30730 — REGISTERED PROFESSIONAL ENGINEER — 11-20-02 — EXPIRES 01/31/03

HTE HERMAN TRAFFIC ENGINEERING
15324 Southeast 133rd Court, Renton, Washington 98059
425-277-1740 tel. 425-277-5718 fax hte@attbi.com

MAIN STREET IMPROVEMENTS
CITY OF FERNDALE

MAIN STREET / 4TH STREET
TRAFFIC SIGNAL MODIFICATION PLAN

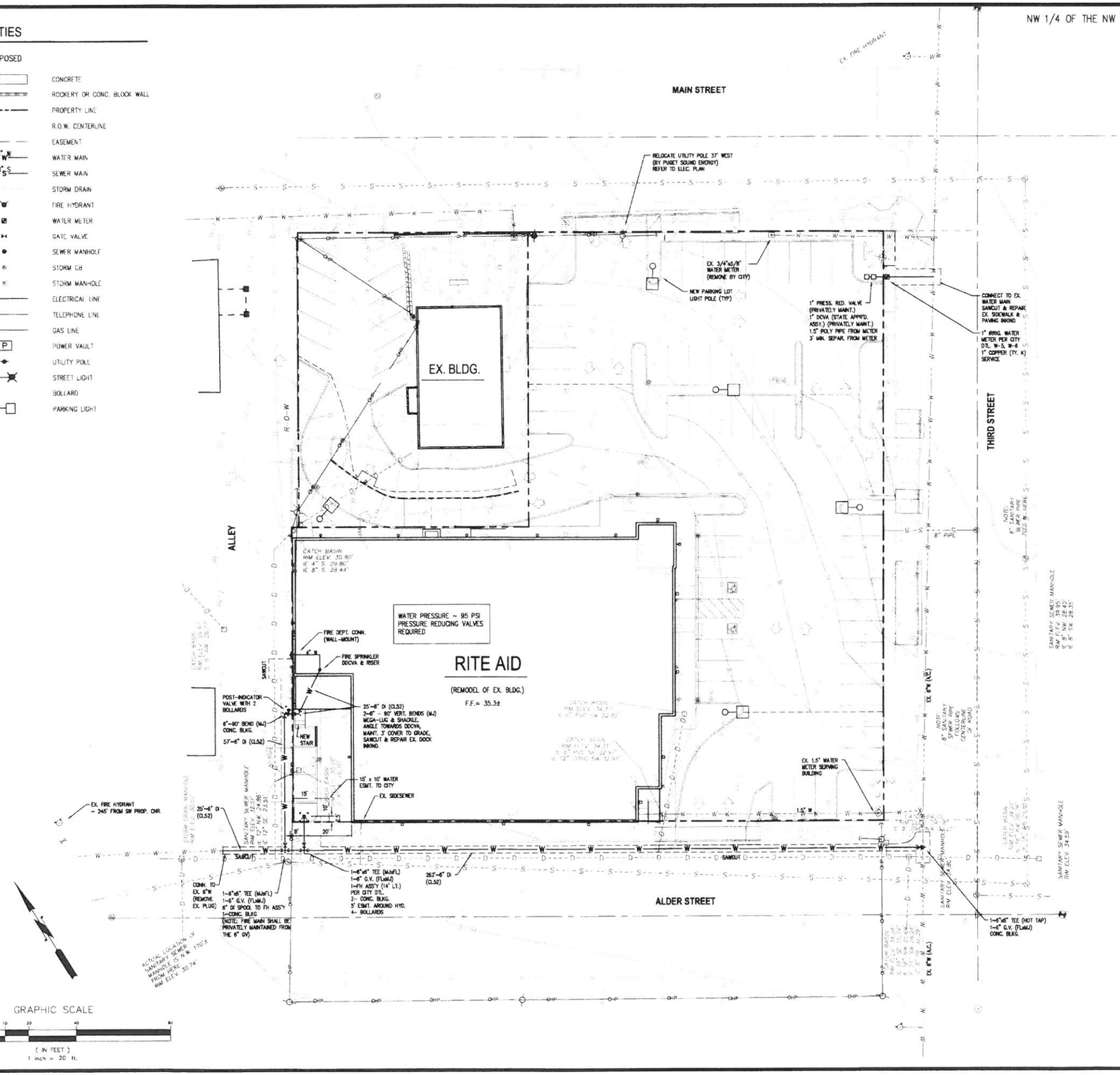
TS1

SHEET OF SHEETS

NW 1/4 OF THE NW 1/4 OF SEC. 29, TWP. 39, RGE. 2E, W.M., WHATCOM COUNTY, WA

LEGEND - UTILITIES

EXISTING	PROPOSED	
		CONCRETE
		ROCKERY OR CONC. BLOCK WALL
		PROPERTY LINE
		R.O.W. CENTERLINE
		EASEMENT
	8"W	WATER MAIN
	8"S	SEWER MAIN
		STORM DRAIN
		FIRE HYDRANT
		WATER METER
		GATE VALVE
		SEWER MANHOLE
		STORM CB
		STORM MANHOLE
		ELECTRICAL LINE
		TELEPHONE LINE
G		GAS LINE
	P	POWER VAULT
		UTILITY POLE
		STREET LIGHT
		BOLLARD
		PARKING LIGHT



DATE	NO.	REVISIONS
6/25/04	---	PERMIT SUBMITAL
7/12/04	1	REVISED PER CITY COMMENTS
8/3/04	2	ADD 6" WATERMAIN LOOP
8/13/04	3	CONSTRUCTION SET
9/24/04	4	REVISED SITE PLAN
10/13/04	5	REVISED SITE PLAN
4/7/05	10	REVISED DRIVE-THRU CURBS
2/22/05	9	FINAL AS-BUILT
2/9/05	8	REVISED DRIVE-THRU
2/7/05	7	REVISED DRIVE-THRU, AS-BUILT STORM/WATER
11/19/04	6	NORTH PARKING SPOT ELEVATIONS

I HEREBY CERTIFY THAT THE IMPROVEMENTS IN RITE AID STORE #6452 HAVE BEEN INSPECTED BY TERRAFORMA DESIGN GROUP, INC. AND CONSTRUCTED IN CONFORMANCE WITH THE PLANS APPROVED BY THE PUBLIC WORKS DIRECTOR FOR SAID DEVELOPMENT AND THE GENERAL SPECIFICATIONS ADOPTED BY THE CITY OF FERNDALE DEPARTMENT OF PUBLIC WORKS.

PEDRO A. DEGUZMAN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 09/17/06 — 4/7/05

APPROVED
APR 21 2005
BY _____
CITY OF FERNDALE

NOTE

THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

4/7/05

PEDRO A. DEGUZMAN — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 09/17/06

TDG # 04009

TERRAFORMA DESIGN GROUP, INC.
CIVIL ENGINEERING & LANDSCAPE ARCHITECTURE
5212 37th Avenue SW Seattle WA 98126
phone 206.923.1096 fax 206.933.9307 email office@terraforma-designgroup.com

00159.003 2.16.06 KR

AS-BUILT

RITE AID #6452
for RITE AID CORPORATION
5655 3RD STREET FERNDALE, WA

UTILITY PLAN

RITE AID CORPORATION
STORE DEVELOPMENT DEPARTMENT
P.O. BOX 3165
HARRISBURG, PA 17105
(717) 761-2633

DRWN BY:	CHK'D BY:
CSM	PAD
DATE: 6/25/04	SCALE: 1"=20'

PROJECT #6452
CV-3

APPENDIX C: INADVERTANT DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

Project: 3rd Avenue – Alder St to Main St, Whatcom COUNTY WASHINGTON

1. INTRODUCTION

The City of Ferndale plans to construct the 3rd Avenue Improvement project. The purpose of this project is to reconstruct the roadway between Alder St to Main St and install new stormwater treatment systems. The following Unanticipated Discovery Plan (UDP) outlines procedures to follow, in accordance with state and federal laws, if archaeological materials or human remains are discovered.

2. RECOGNIZING CULTURAL RESOURCES

A cultural resource discovery could be prehistoric or historic. Examples include:

- An accumulation of shell, burned rocks, or other food related materials
- Bones or small pieces of bone,
- An area of charcoal or very dark stained soil with artifacts,
- Stone tools or waste flakes (i.e. an arrowhead, or stone chips),
- Clusters of tin cans or bottles, logging or agricultural equipment that appears to be older than 50 years,
- Buried railroad tracks, decking, or other industrial materials.

When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

STEP 1: STOP WORK. If any City of Ferndale employee, contractor or subcontractor believes that he or she has uncovered any cultural resource at any point in the project, all work adjacent to the discovery must stop. The discovery location should not be left unsecured at any time.

STEP 2: NOTIFY MONITOR. If there is an archaeological monitor for the project, notify that person. If there is a monitoring plan in place, the monitor will follow its provisions.

STEP 3: NOTIFY PROJECT MANAGEMENT AND DAHP. Contact the City of Ferndale Project Manager and the DAHP

City of Ferndale
Project Manager:
Name: Wendy LaRocque
Number: 360-685-2378
Email: WendyLaRocque@cityofferndale.org

If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Do not call 911 or speak with the media.

4. FURTHER CONTACTS AND CONSULTATION

A. Project Manager's Responsibilities:

- Protect Find: The Project Manager is responsible for taking appropriate steps to protect the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating archaeological/cultural material as set forth in this document.
- Direct Construction Elsewhere On-site: The Project Manager may direct construction away from cultural resources to work in other areas prior to contacting the concerned parties.
- Contact the DAHP transportation archaeologist

B. Monitoring archaeologist's responsibilities:

- Identify Find: The archaeologist will examine the find to determine if it is archaeological.
    - If it is determined not archaeological, work may proceed with no further delay.
    - If it is determined to be archaeological, the archaeologist will continue with notification.
    - If the find may be human remains or funerary objects, the archaeologist will ensure that a qualified individual examines the find. If it is determined to be human remains, the procedure described in Section 5 will be followed.
- Notify DAHP: The archaeologist will contact the Department of Archaeology and Historic Preservation (DAHP).
- Notify Tribes: If the discovery may relate to Native American interests, the project manager will notify the affected Indian tribes.

Department of Archaeology and Historic Preservation:

Dr. Allyson Brooks
Washington State Historic
Preservation Officer
360-586-3066

or

Lance Wollwage
Transportation Archaeologist
360-586-3536

Tribes consulted on this project are:

Tribe: Sauk-Suiattle
Name: Norma Joseph
Title: Chairman
Number: 360-436-0347
Email: njoseph@sauk-suiattle.com

Tribe: Nooksack
Name: George Swanaset Jr.
Title: Cultural Resources Specialist
Number: 360-592-5176
Email: gswanasetjr@nooksack-nsn.gov

Tribe: Lummi Nation
Name: Lena Tso
Title: Cultural Resources Specialist
Number: 360-384-2298
Email: lenat@lummi-nsn.gov

5. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of ethnic origin, will at all times be treated with dignity and respect.

If the project occurs on federal lands (e.g., National Forest or Park, military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 apply, and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the City of Ferndale will comply with applicable state and federal laws, and the following procedure:

A. Notify Law Enforcement Agency or Coroner's Office:

In addition to the actions described in Sections 3 and 4, the Project Manager will immediately notify the local law enforcement agency or coroner's office.

The coroner (with assistance of law enforcement personnel) will determine if the remains are human, whether the discovery site constitutes a crime scene, and will notify DAHP.

Agency: City of Ferndale Police Department
Number: 360-384-3390

B. Participate in Consultation:

Per RCW 27.53.030, RCW 68.50, and RCW 68.60, DAHP will have jurisdiction over non-forensic human remains.

6. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological deposits discovered during construction will be assumed eligible for inclusion in the National Register of Historic Places under Criterion D.

The archaeologist will ensure the proper documentation and assessment of any discovered cultural resources in cooperation with the DAHP, affected tribes, and a contracted consultant (if any).

All prehistoric and historic cultural material discovered during project construction will be recorded by a professional archaeologist on State of Washington cultural resource site or isolate form using standard techniques. Site overviews, features, and artifacts will be photographed; stratigraphic profiles and soil/sediment descriptions will be prepared for subsurface exposures. Discovery locations will be documented on scaled site plans and site location maps.

Cultural features, horizons and artifacts detected in buried sediments may require further evaluation using hand-dug test units. Units may be dug in controlled fashion to expose features, collect samples from undisturbed contexts, or interpret complex stratigraphy. A test excavation unit or small trench might also be used to determine if an intact occupation surface is present. Test units will be used only when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. Excavations will be conducted using state-of-the-art techniques for controlling provenience.

Spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock will be recorded for each probe on a standard form. Test excavation units will be recorded on unit-level forms, which include plan maps for each excavated level, and material type, number, and vertical provenience (depth below surface and stratum association where applicable) for all artifacts recovered from the level. A stratigraphic profile will be drawn for at least one wall of each test excavation unit.

Sediments excavated for purposes of cultural resources investigation will be screened through 1/8-inch mesh, unless soil conditions warrant ¼-inch mesh.

All prehistoric and historic artifacts collected from the surface and from probes and excavation units will be analyzed, catalogued, and temporarily curated. Ultimate disposition of cultural materials will be determined in consultation with the DAHP, and the affected tribes.

Within 90 days of concluding fieldwork, a technical report describing any and all monitoring and resultant archaeological excavations will be provided to the Project Manager, who will forward the report to SHPO, and the affected tribe(s).

If assessment activity exposes human remains (burials, isolated teeth, or bones), the process described in Section 7 below will be followed.

7. PROCEEDING WITH CONSTRUCTION

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. The archaeologist must determine the boundaries of the discovery location. In consultation with DAHP and affected tribes, Project Manager and the archaeologist will determine the appropriate level of documentation and treatment of the resource.

Construction may continue at the discovery location only after the process outlined in this plan is followed and it is determined that compliance with state and federal laws is complete.

APPENDIX D: GEOTECHNICAL REPORT

GEOTEST

741 Marine Drive
Bellingham, WA 98225

20611-67th Avenue NE
Arlington, WA 98223

TOLL FREE
888 251_5276

FAX
360 733_7418

PHONE
360 733_7318

June 26, 2014
Project No. 14-0121

Wilson Engineering
805 Dupont Street #7
Bellingham, WA 98225

Attn: Mr. Michael Matthes, P.E.

Re: 3rd Avenue Improvement Project
3rd Avenue, Between Main Street and Alder Street
Ferndale, Washington

Dear Mr. Matthes:

As requested, GeoTest Services, Inc. (GTS) is pleased to submit this report summarizing the results of the subsurface soils exploration for the proposed 3rd Avenue reconstruction, located on 3rd Avenue between Main Street and Alder Street in Ferndale, Washington.

PROJECT DESCRIPTION

The City of Ferndale is currently in the process of designing and planning the reconstruction, with the potential for stormwater infiltration where applicable, for 3rd Avenue, between Main Street and Alder Street, in Ferndale, Washington. As a part of their planning process the City of Ferndale installed two monitoring wells to observe and log the site groundwater elevations.

Specifically, our scope of services included the following tasks:

- Observe and log the underlying subsurface soils and groundwater conditions during the drilling of six borings and the installation of two monitoring wells within the project alignment. Soils were classified using USDA textural classification and corresponding infiltration rates were assigned based on the recommendations in the 2005 Washington State Department of Ecology *Stormwater Management Manual for Western Washington.*
- Following our initial explorations, we returned to the site to conduct 4 additional explorations within the next block south between Alder and Maple Streets and one hand exploration at the west end of Cherry Street.
- Laboratory analysis of representative samples to evaluate the engineering properties and infiltration potential of the encountered soils, including grain-size distribution and Atterberg limits.
- Provide this written report containing a summary of surface and subsurface soil and groundwater conditions observed at the site during the drilling and well installations.

SITE CONDITIONS

Interpretations of the site conditions are based upon the results of our review of available information, site reconnaissance, subsurface explorations, laboratory testing, and our experience in the project vicinity.

General Geologic Conditions

General geologic conditions at the site are mapped as Holocene age alluvial deposits. Alluvial deposit in the surrounding area are generally stratified and well sorted combinations of silt, sand, and gravel deposited in streambeds, deltas, alluvial fans, flood plains and terraces of the Nooksack River, ranging from a few feet to more than 200 feet in thickness (Easterbrook 1976). Although not mapped at the surface within the project vicinity, the relatively fine grained silt/clay deposit locally known as Bellingham Drift was also found to be at depth beneath the site.

Surface Conditions

All of the explorations were conducted within the roadway of 3rd Avenue except for one exploration at the west end of Cherry Street. Surface conditions consisted of asphalt for all explorations within 3rd Avenue and grass/topsoil at the Cherry Street exploration.

Soil Conditions

Subsurface soil conditions were explored by advancing and sampling a total of 11 explorations for the project. 6 soil borings were conducted within 3rd Avenue between Main Street and Alder Street on March 31, 2014. Two of the soil borings also included the installation of monitoring wells. The borings were advanced within the proposed project area with a trailer mounted drill rig utilizing hollow stem auger drilling methodology. All drilled explorations were advanced to a depth of 16.5 feet below the existing ground surface (BGS). The approximate locations of the soil borings and monitoring wells are shown on the Site and Exploration Plan, Figure 2.

Subsurface conditions in borings, B-1 through B-4, generally consisted 1.5 to 3 inches of asphalt overlying approximately 1 to 2 feet of very sandy, gravel (apparent imported road base). Underlying the sandy, gravel to the full depth of the explorations was soft to hard sandy, clay locally known as Bellingham Drift (glaciomarine drift).

Subsurface conditions in monitoring wells, MW-1 & MW-2, consisted of 2.5 to 8 inches of asphalt overlying silty, sand (apparent alluvium) to a depth of approximately 5 to 7.5 feet BGS. Underlying the silty, sand to the full depth of the exploration was a medium stiff to very stiff, sandy, clay (glaciomarine drift). In monitoring well, MW-2, the apparent road base overlies the alluvium to a depth of approximately 2.5 feet BGS. More detailed subsurface soil profiles can be found within the Boring and Monitoring Well Logs, Figures 4 through 9. Laboratory data summarizing the Grain Size Distribution, USDA triangle plots and Atterberg Limits can be found within Figures 14 through 20.

We returned to the site on June 4, 2014 and June 17, 2014, to conduct further subsurface explorations in an effort to find more permeable soils to the south of our initial explorations. On June 4, 2014, five road cores and hand auger test pits were performed on 3rd Avenue between Alder Street and Maple Street. The hand auger test pits were advanced from 1.5 to 7 feet BGS. On June 17, 2014, one hand auger test pit

was performed at the west end of Cherry Street. The hand auger test pit was advanced to 3 feet BGS.

Subsurface conditions in road cores, RC-1 through RC-5, generally consisted of 5 to 7 inches of asphalt overlying 1 to 2 feet of very gravelly, sand (imported road base). A soft, moist to wet silt/clay with high organic content was found underlying the imported road base to the full depth of exploration in road cores, RC-2, RC-3 and RC-4. A 4 inch lens of medium dense, wet, slightly silty, very fine sand was encountered at 5 feet BGS in road core, RC-2.

Subsurface conditions in hand auger test pit, HA-1, consisted of approximately 1 foot of dark brown, sandy, silt (topsoil) overlying soft, moist to wet, slightly sandy, clay (weathered glaciomarine drift). More detailed subsurface soil profiles can be found within the Test Pit Logs, Figures 10 through 13. Laboratory data summarizing the Grain Size Distribution and USDA triangle plots can be found within Figures 14 through 20.

Groundwater

Perched groundwater was encountered at a depth of approximately 2.25 feet BGS, at the time of drilling, within boring, B-1. Groundwater was not encountered in any of the other explorations at the time of drilling, but would be expected at periodic times throughout the year. Perched groundwater consists of a relatively thin zone of groundwater saturation within relatively permeable soils that overlie a relatively impermeable soil layer that is unsaturated. Due to the predominately clayey subsurface conditions associated with the Glaciomarine Drift deposit at depth, a fluctuating regional groundwater table elevation is not expected beneath the subject section of roadway; however, some variation in the perched elevations should be expected. Based on the encountered site soil conditions we would expect a similar perched groundwater elevation throughout all of the boring within the site and that site suitability criteria, SSC-5, will not be met within the project. We anticipate that a separation of 3 to 5 feet between the base of the proposed infiltration system and the perched groundwater elevation will not be achievable based on the low permeability of the soil.

The groundwater conditions reported within the boring and monitoring well logs are for the specific locations and date indicated, and therefore may not necessarily be indicative of other locations and/or times. Groundwater levels are not static and the groundwater conditions and elevations will vary depending on local subsurface conditions, precipitation, changes in site use, both on and off site, and other factors.

We returned to the site on April 28, 2014, to measure the groundwater elevation within the two monitoring well locations. The depth to the encountered groundwater elevation within monitoring well MW-1 was 5.5 feet below the top of the asphalt. The depth to the encountered groundwater elevation within monitoring well MW-2 was 5.6 feet below the top of the asphalt.

During our June site visits groundwater was encountered 5.3 and 5.5 feet BGS in road cores, RC-2 and RC-3, respectively and 3.0 feet BGS in hand auger test pit, HA-1.

CONCLUSIONS AND RECOMMENDATIONS

The presence of the fine-grained Glaciomarine Drift makes the underlying receptor soils poor candidates for conventional infiltration systems. GTS is providing the results of our laboratory testing and infiltration studies to Wilson Engineering for their use in design of stormwater facilities. The results of our laboratory testing and our opinions for infiltration rates based on our on-site observations and evaluations are presented below.

Stormwater Infiltration Potential

Within the initial proposed project site on March 31, 2014, 11 representative soil samples were selected and mechanically tested for grain size distribution and interpretation according to the United States Department of Agriculture (USDA) soil textural classification testing approach. During the June 4, 2014 explorations within the added exploration area to the south of the initial project site, 4 samples representative soil samples were selected and mechanically tested for grain size distribution and interpretation according to the United States Department of Agriculture (USDA) soil textural classification testing approach. Subsurface infiltration rates corresponding to the United States Department of Agriculture (USDA) soil textural classification were obtained from the 2005 *Washington State Department of Ecology Stormwater Management Manual for Western Washington*, Table 3.7 and are reproduced in Tables 1 and 2 below.

TABLE 1
Soil Sample Infiltration Rates March 31 Explorations
Based On The 2005 DOE Stormwater Management Manual Table 3.7

Exploration Number	Sample Depth (ft)	Classification (USCS)	Classification (USDA)	Infiltration Rate (Inches/Hour)
B-1	5.0	CL	Silt Loam (SiL)	NA
B-1	15.0	CL	Loam (L)	NA
B-2	7.5	CL	Loam (L)	0.13
B-3	2.5	CL	Loam (L)	0.13
B-3	10.0	CL	Loam (L)	NA
B-4	5.0	CL	Silt Loam (SiL)	NA
B-4	15.0	CL	Loam (L)	NA
MW-1	2.5	SP	Sandy Loam (SL)	0.25
MW-1	5.0	CL	Loam (L)	0.13
MW-2	2.5	SP	Sandy Loam (SL)	0.25
MW-2	7.5	CL	Loam (L)	NA

Note: Listed infiltration rates are long-term (design) rates as stated in Table 3.7.
NA = Not applicable for infiltration design, based on the DOE manual Figure 3.27.

Based on the USDA textural classification and our interpretations from our boring and monitoring well logs, the underlying native sandy, clay (glaciomarine drift) layer generally resulted in a DOE manual estimated long-term design infiltration rate of 0.13 inches per hour within the upper 2.5 to 7.5 feet beneath the site. However, the samples taken at 5 feet BGS, within borings B-1 and B-4 resulted in a USDA classification of Silt Loam and therefore are not applicable for infiltration design. The very sandy, gravel fill layer, at the lower portion of the road base section within both monitoring well locations, resulted in a DOE manual estimated long-term infiltration rate of 0.25 inches per hour.

From our follow up site visit on June 4, 2014, 4 representative soil samples were selected and mechanically tested for grain size distribution and interpretation according to the United States Department of Agriculture (USDA) soil textural classification testing approach. Subsurface infiltration rates corresponding to the United States Department of Agriculture (USDA) soil textural classification were obtained from the 2005 *Washington State Department of Ecology Stormwater Management Manual for Western Washington*, Table 3.7 and are reproduced in Table 2 below.

TABLE 2
Soil Sample Infiltration Rates from June 4, 2014
Based On The 2005 DOE Stormwater Management Manual Table 3.7

Exploration Number	Sample Depth (ft)	Classification (USCS)	Classification (USDA)	Infiltration Rate (Inches/Hour)
RC-2	5.0	SM	Sand	2.0
RC-2	6.5	CL	Loam	NA
RC-3	6.0	CL	Loam	0.13
RC-4	4.0	CL	Loam	NA

Note: Listed infiltration rates are long-term (design) rates as stated in Table 3.7.
NA = Not applicable for infiltration design, based on the DOE manual Figure 3.27.

Based on the USDA textural classification and our interpretations from our road core logs, the underlying native sandy, clay (glaciomarine drift) layer, between Maple and Alder Streets, has a USDA classification of Loam and generally is not applicable for infiltration design. The slightly silty, very fine sand layer found in road core, RC-2, at 5 feet BGS has a USDA classification of Sand and a corresponding long term design infiltration rate of 2.0 inches per hour. However, infiltration into this sand layer is not recommended due the minimal thickness and discontinuity of the layer. The infiltration rates above are based solely on the recommendations based on grain size distribution and the DOE manual, similar in-place soils have shown lower infiltration rates, and at times exhibit no infiltration.

Limited infiltration during light storm events into in-place soils may be achieved with the installation of under drains and an applicable rock reservoir. However, an overflow pipe must be installed to transport excess stormwater runoff to the existing drainage system or to an area containing soils with higher infiltration capacity. Infiltration along the roadway edges is the most common method; however, within both of the subject blocks the majority of the utilities are located along the road and parking strip edges. We do not recommend that stormwater infiltration be conducted over or immediately adjacent to existing utility trenches. If limited infiltration facilities will be planned within the central portion of the roadway, it is our opinion that no adverse effects to neighboring structures should occur if engineering controls are included in the design to prevent lateral migration outside of the road right-of-way.

Based on our subsurface experience within the vicinity of the site, some sandy soils have been encountered in the area. However, based on the recent rounds of explorations within both of the blocks of 3rd Avenue and a hand exploration at the West end of Cherry Street, sufficient alluvial sand deposits are not present within the 3rd Avenue right of way to support a full scale onsite infiltration design. It would appear based on the native soil conditions encountered that limited onsite infiltration may be applicable, but overflow and offsite discharge through the existing stormwater drainage system will still be needed. We understand that the proposed new design for full treatment of the stormwater will be provided utilizing 18 inches of imported media.

GTS requests that we be included in the potential infiltration design process and allowed to review the preliminary design plans prior to final submittal to confirm that the challenging site conditions have been taken into consideration during design. If soil conditions encountered during construction differ significantly from those observed in our report, we should be retained to reevaluate our recommendations and provide written confirmation or modification, as needed.

Porous Concrete Pavement Recommendations

We understand that proposed design will include porous concrete pavements within the shoulder and/or parking lanes of the reconstructed roadway. Based on our experience, we would recommend that porous concrete be utilized verses porous asphalt pavement for this project. Based on our references, porous concrete pavement will support heavier loading conditions and has a longer design life than porous asphalt pavements. A typical medium duty pavement thickness is 6 inches of porous concrete over a minimum of 4 inches of open-graded aggregate base. For heavier duty sections, typically 8 inches of porous concrete pavement is placed over 6 inches of open-graded aggregate base. We understand the preliminary design for this project will include 6 inches of porous concrete placed over 2 inches of open-graded aggregate "choker course" over 18 inches of imported sand filtering media. From a geotechnical support standpoint, the proposed design section appears to be sufficient for structural support and functionality. However, we would differ to the City of Ferndale for their preference as to whether the porous pavement section thickness should be either medium duty (6") or heavy duty (8"), based on their classification of the portions of the street where porous concrete pavement will be utilized. We are available to provide further consultation regarding the use, construction and/or testing and inspection of porous concrete pavement upon request.

LIMITATIONS

The analyses and conclusions provided in this report are based on conditions encountered at the time of the subsurface exploration performed by GeoTest Services, Inc., information from previous studies and our experience and judgment. Our work has been performed in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in this area. GeoTest Services has prepared this report for the exclusive use of the Wilson Engineering, the City of Ferndale and their representatives for specific application to proposed 3rd Avenue Improvement project located between Main Street and Alder Street in Ferndale, Washington. No warranty, expressed or implied, is made.

We must presume the subsurface conditions encountered are representative for the proposed site for the purposes of formulating our conclusions. However, you should be aware that subsurface conditions may vary with time and between exploratory locations, and unanticipated conditions may be encountered.

We appreciate the opportunity to provide geological services on this project and look forward to assisting you during the construction phase. If you have any questions regarding the information contained in this report, or if we may be of further service, please contact the undersigned.

Respectfully Submitted,
GeoTest Services, Inc.

Joseph Schmidt, E.I.T.
Engineer in Training

Dan Sorenson, L.E.G.
Engineering Geologist

Attachments:

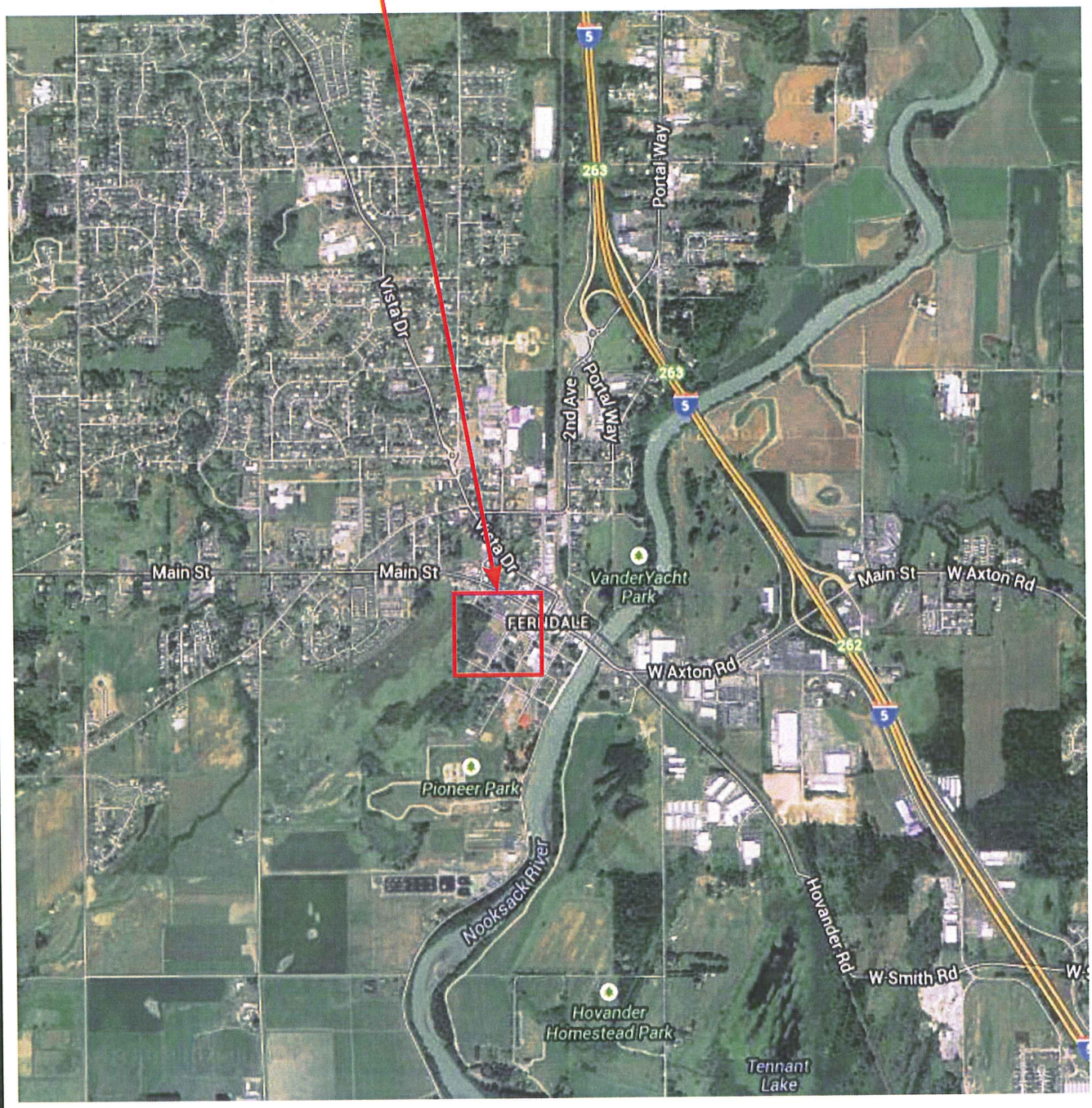
	Figure 1	Vicinity Map
	Figure 2	Site and Exploration Plan
	Figure 3	Soil Classification System and Key
	Figures 4 – 7	Boring Logs
	Figures 8 & 9	Monitoring Well Logs
	Figures 10 – 12	Road Core logs
	Figure 13	Hand Auger log
	Figures 14 – 17	Grain Size Test Data
	Figures 18 – 20	USDA Textural Triangle Plots
	Figure 21	Atterberg Limit Test Results

References

Easterbrook, D.J., 1976, Geologic map of Whatcom County, Washington: U.S. Geological Survey Misc. Inv. Series map I-854-D.

Washington State Department of Ecology Water Quality Program. February 2005. *Stormwater Management Manual for Western Washington*. Publication Numbers 05-10-029 through 05-10-033.

PROJECT LOCATION



MAP REFERENCED FROM GOOGLE MAPS, 2014

N

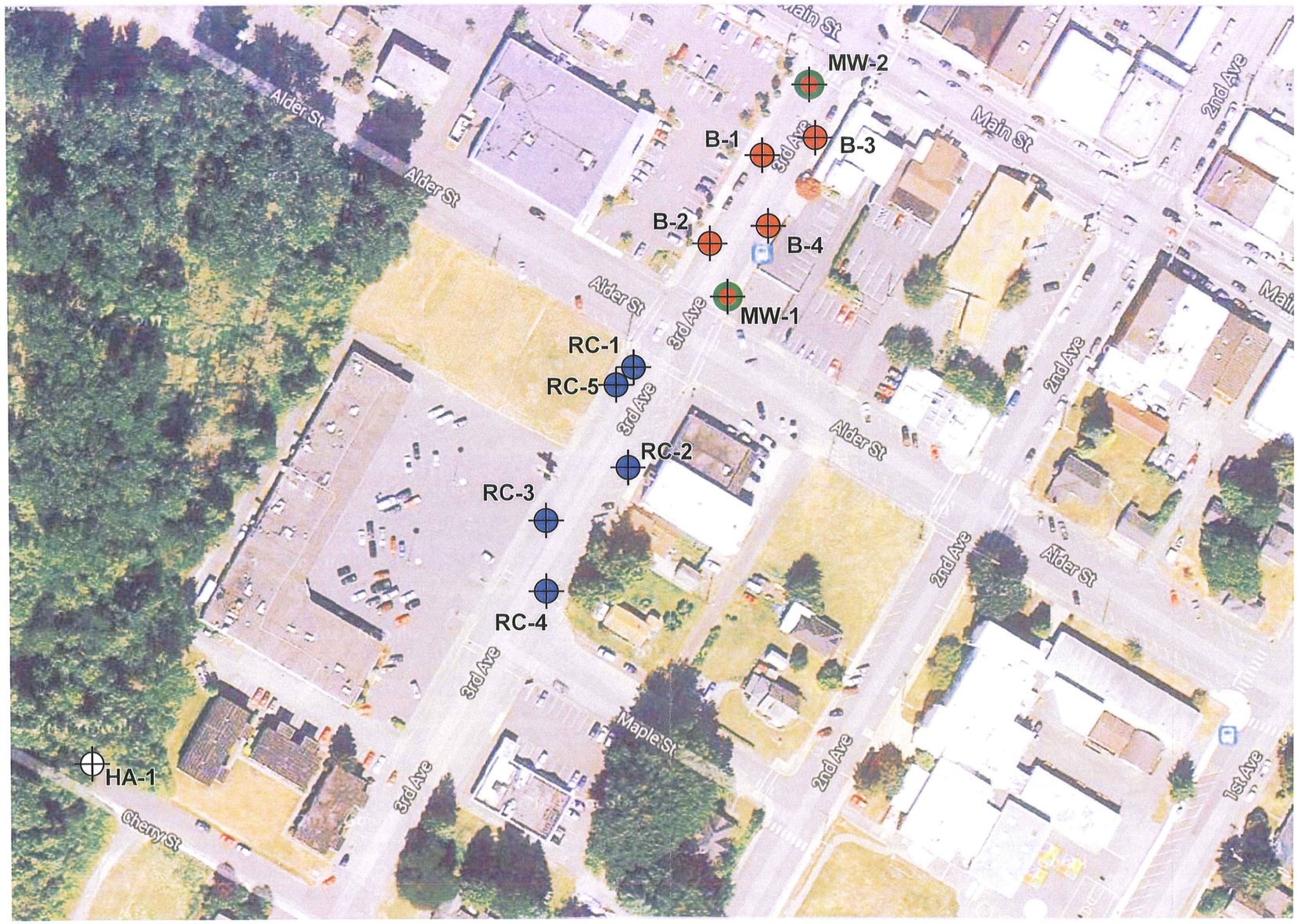
2000 FEET

GEOTEST SERVICES, INC.
741 Marine Drive
Bellingham, WA 98225
phone: (360) 733-7318
fax: (360) 733-7418

Date: 6-18-14	By: JS	Scale: As Shown	Project 14-0121

SITE VICINITY MAP
3RD AVENUE IMPROVEMENT PROJECT
3RD AVENUE
FERNDALE, WASHINGTON

Figure 1



HA-# = Approximate Hand Auger Test Pit Location

RC-# = Approximate Road Core and Hand Auger Test Pit Locations

B-# = Approximate Boring Locations

MW-# = Approximate Boring Location with Monitoring Well Installation

100 ft

MAP REFERENCED FROM GOOGLE MAPS 2014

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Date: 6-18-14	By: JS	Scale: As Shown	Project 14-0121

SITE & EXPLORATION PLAN
3RD AVENUE IMPROVEMENT PROJECT
3RD AVENUE
FERNDALE, WASHINGTON

FIGURE 2

Soil Classification System

MAJOR DIVISIONS			GRAPHIC SYMBOL	USCS LETTER SYMBOL	TYPICAL DESCRIPTIONS[1][2]
COARSE-GRAINED SOIL (More than 50% of material is larger than No. 200 sieve size)	GRAVEL AND GRAVELLY SOIL (More than 50% of coarse fraction retained on No. 4 sieve)	CLEAN GRAVEL (Little or no fines)		GW	Well-graded gravel; gravel/sand mixture(s); little or no fines
				GP	Poorly graded gravel; gravel/sand mixture(s); little or no fines
		GRAVEL WITH FINES (Appreciable amount of fines)		GM	Silty gravel; gravel/sand/silt mixture(s)
				GC	Clayey gravel; gravel/sand/clay mixture(s)
	SAND AND SANDY SOIL (More than 50% of coarse fraction passed through No. 4 sieve)	CLEAN SAND (Little or no fines)		SW	Well-graded sand; gravelly sand; little or no fines
				SP	Poorly graded sand; gravelly sand; little or no fines
		SAND WITH FINES (Appreciable amount of fines)		SM	Silty sand; sand/silt mixture(s)
				SC	Clayey sand; sand/clay mixture(s)
FINE-GRAINED SOIL (More than 50% of material is smaller than No. 200 sieve size)	SILT AND CLAY (Liquid limit less than 50)			ML	Inorganic silt and very fine sand; rock flour; silty or clayey fine sand or clayey silt with slight plasticity
				CL	Inorganic clay of low to medium plasticity; gravelly clay; sandy clay; silty clay; lean clay
				OL	Organic silt; organic, silty clay of low plasticity
	SILT AND CLAY (Liquid limit greater than 50)			MH	Inorganic silt; micaceous or diatomaceous fine sand
				CH	Inorganic clay of high plasticity; fat clay
				OH	Organic clay of medium to high plasticity; organic silt
	HIGHLY ORGANIC SOIL			PT	Peat; humus; swamp soil with high organic content

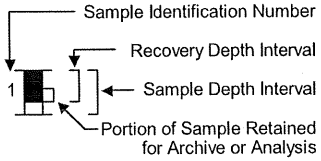
OTHER MATERIALS	GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
PAVEMENT		AC or PC	Asphalt concrete pavement or Portland cement pavement
ROCK		RK	Rock (See Rock Classification)
WOOD		WD	Wood, lumber, wood chips
DEBRIS		DB	Construction debris, garbage

Notes:
1. Soil descriptions are based on the general approach presented in the *Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)*, as outlined in ASTM D 2488. Where laboratory index testing has been conducted, soil classifications are based on the *Standard Test Method for Classification of Soils for Engineering Purposes*, as outlined in ASTM D 2487.
2. Soil description terminology is based on visual estimates (in the absence of laboratory test data) of the percentages of each soil type and is defined as follows:

Primary Constituent:	> 50% - "GRAVEL," "SAND," "SILT," "CLAY," etc.
Secondary Constituents:	> 30% and ≤ 50% - "very gravelly," "very sandy," "very silty," etc.
	> 12% and ≤ 30% - "gravelly," "sandy," "silty," etc.
Additional Constituents:	> 5% and ≤ 12% - "slightly gravelly," "slightly sandy," "slightly silty," etc.
	≤ 5% - "trace gravel," "trace sand," "trace silt," etc., or not noted.

Drilling and Sampling Key

SAMPLE NUMBER & INTERVAL



SAMPLER TYPE

Code	Description
a	3.25-inch O.D., 2.42-inch I.D. Split Spoon
b	2.00-inch O.D., 1.50-inch I.D. Split Spoon
c	Shelby Tube
d	Grab Sample
e	Other - See text if applicable
1	300-lb Hammer, 30-inch Drop
2	140-lb Hammer, 30-inch Drop
3	Pushed
4	Other - See text if applicable

Groundwater

▽ ATD — Approximate water elevation at time of drilling (ATD) or on date noted. Groundwater levels can fluctuate due to precipitation, seasonal conditions, and other factors.

Field and Lab Test Data

Code	Description
PP = 1.0	Pocket Penetrometer, tsf
TV = 0.5	Torvane, tsf
PID = 100	Photoionization Detector VOC screening, ppm
W = 10	Moisture Content, %
D = 120	Dry Density, pcf
-200 = 60	Material smaller than No. 200 sieve, %
GS	Grain Size - See separate figure for data
AL	Atterberg Limits - See separate figure for data
GT	Other Geotechnical Testing
CA	Chemical Analysis

GEOTEST

3rd Ave Improvement Project
3rd Avenue
Ferndale, WA

Soil Classification System and Key

Figure 3

B-1

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Water Level

Drilling Method: Hollow-stem Auger
Ground Elevation (ft): Not Determined
Drilled By: Boretec 1

Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	USCS Symbol	Description
0					AC	Asphalt (2")
					GP	Very sandy, GRAVEL (Imported Road Base)
2						ATD
						Perched seepage at 2.25' BGS
	1	b2	23	W = 17	CL	Very stiff, light-brown/gray, moist, slightly sandy, CLAY (Glaciomarine Drift)
4						
	2	b2	27	W = 24 GS		Becomes light-brown at 5' BGS
6						
	3	b2	15	W = 26		Becomes wet at 7.5' BGS
8						
10	4	b2	12	W = 19		Becomes stiff, brown, moist, CLAY at 10' BGS
12						
14						
	5	b2	6	W = 20 GS AL		Becomes medium stiff, blue-gray, very sandy, CLAY at 15' BGS
16						
18						

Boring Completed 03/31/14
Total Depth of Boring = 16.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

4/15/14 X:\0-PROJECTS GEO\00000-PROJECTS 2014-GEO\ROADS AND UTILITIES\WILSON ENGINEERING - 14-0121 - 3RD AVENUE IMPROVEMENTS\GINT\GINT.GPJ SOIL BORING LOG

GEOTEST

3rd Ave Improvement Project
3rd Avenue
Ferndale, WA

Log of Boring B-1

Figure 4

B-2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-stem Auger Ground Elevation (ft): Not Determined Drilled By: Boretec 1	
0						AC	Asphalt (2")	
						GP	Very sandy, GRAVEL (Imported Road Base)	Groundwater not encountered.
2						CL	Soft, gray/brown, wet, sandy, CLAY (Weathered Glaciomarine Drift)	
	1	b2	3	W = 20				
4								
	2	b2	22	W = 21			Very stiff, gray/green-brown, moist, very sandy, CLAY, with mottling (Glaciomarine Drift)	
6								
	3	b2	23	W = 18 GS			Becomes less sandy at 7.5' BGS	
8								
10	4	b2	23	W = 18				
12								
14								
	5	b2	7				Becomes medium stiff and blue-gray at 15' BGS	
16								
18								

Boring Completed 03/31/14
Total Depth of Boring = 16.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

4/15/14 X:\0-PROJECTS GEO\00000-PROJECTS 2014-GEO\ROADS AND UTILITIES\WILSON ENGINEERING - 14-0121 - 3RD AVENUE IMPROVEMENTS\GINT\GINT.GPJ SOIL BORING LOG

GEOTEST	3rd Ave Improvement Project 3rd Avenue Ferndale, WA	Log of Boring B-2	Figure 5

B-3

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	
							Drilling Method: Hollow-stem Auger Ground Elevation (ft): Not Determined Drilled By: Boretec 1
0						AC	Asphalt (1.5")
						GP	Very sandy, GRAVEL (Imported Road Base)
							Groundwater not encountered.
						CL	Hard, brown/gray, moist, very sand, CLAY, with trace gravel (Glaciomarine Drift)
2	1	b2	33	W = 14 GS			
4							Becomes very stiff, with no gravel at 5' BGS
6	2	b2	23	W = 21			
8	3	b2	7	W = 28			Becomes medium stiff at 7.5' BGS
10	4	b2	8	W = 20 GS			Becomes blue-gray, very sandy, CLAY at 10' BGS
12							
14							
16	5	b2	7	W = 22			
18							

Boring Completed 03/31/14
Total Depth of Boring = 16.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

4/15/14 X:\0-PROJECTS GEO\00000-PROJECTS 2014-GEO\ROADS AND UTILITIES\WILSON ENGINEERING - 14-0121 - 3RD AVENUE IMPROVEMENTS\GINT\GINT.GPJ SOIL BORING LOG

GEOTEST

3rd Ave Improvement Project
3rd Avenue
Ferndale, WA

Log of Boring B-3

Figure 6

B-4

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Blows/Foot	Test Data	Graphic Symbol	USCS Symbol	Drilling Method: Hollow-stem Auger Ground Elevation (ft): Not Determined Drilled By: Boretec 1	
0						AC	Asphalt (3")	
						GP	Very sandy, GRAVEL (Imported Road Base)	Groundwater not encountered.
2						CL	Very stiff, gray/blue-green, damp, sandy, CLAY, contains organics and slight mottling (Glaciomarine Drift)	
	1	b2	18	W = 25				
4							Becomes gray/brown at 5' BGS	
	2	b2	19	W = 23 GS				
6								
							Contains trace gravel at 7.5' BGS	
8	3	b2	19	W = 18				
10								
	4	b2	18	W = 19				
12								
14								
							Becomes medium stiff, blue-gray, gravelly, sandy, CLAY at 15' BGS	
16	5	b2	6	W = 18 GS				
18								

Boring Completed 03/31/14
Total Depth of Boring = 16.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

4/15/14 X:\0-PROJECTS GEO\00000-PROJECTS 2014-GEO\ROADS AND UTILITIES\WILSON ENGINEERING - 14-0121 - 3RD AVENUE IMPROVEMENTS\GINT\GINT.GPJ SOIL BORING LOG

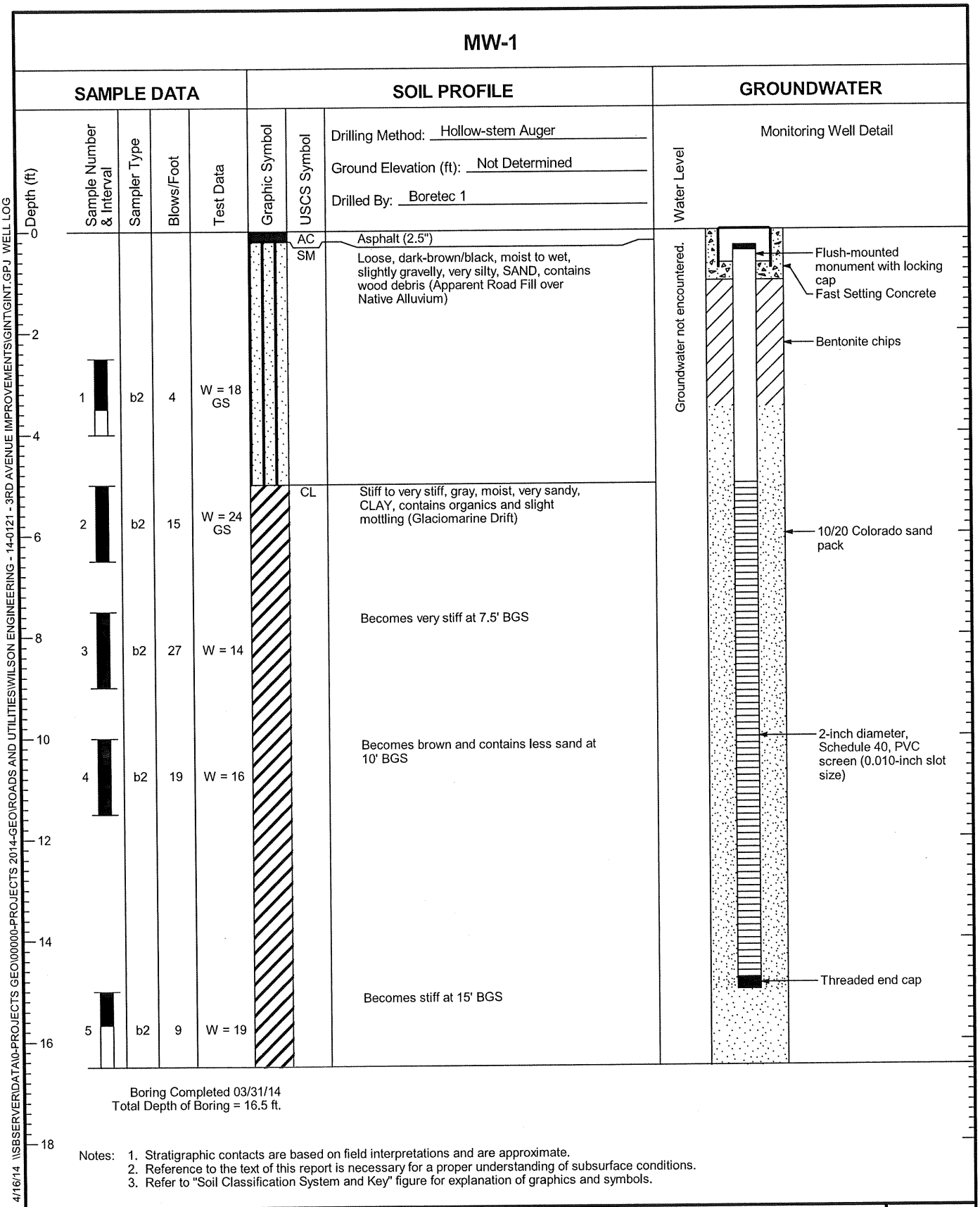
GEOTEST

3rd Ave Improvement Project
3rd Avenue
Ferndale, WA

Log of Boring B-4

Figure 7

MW-1

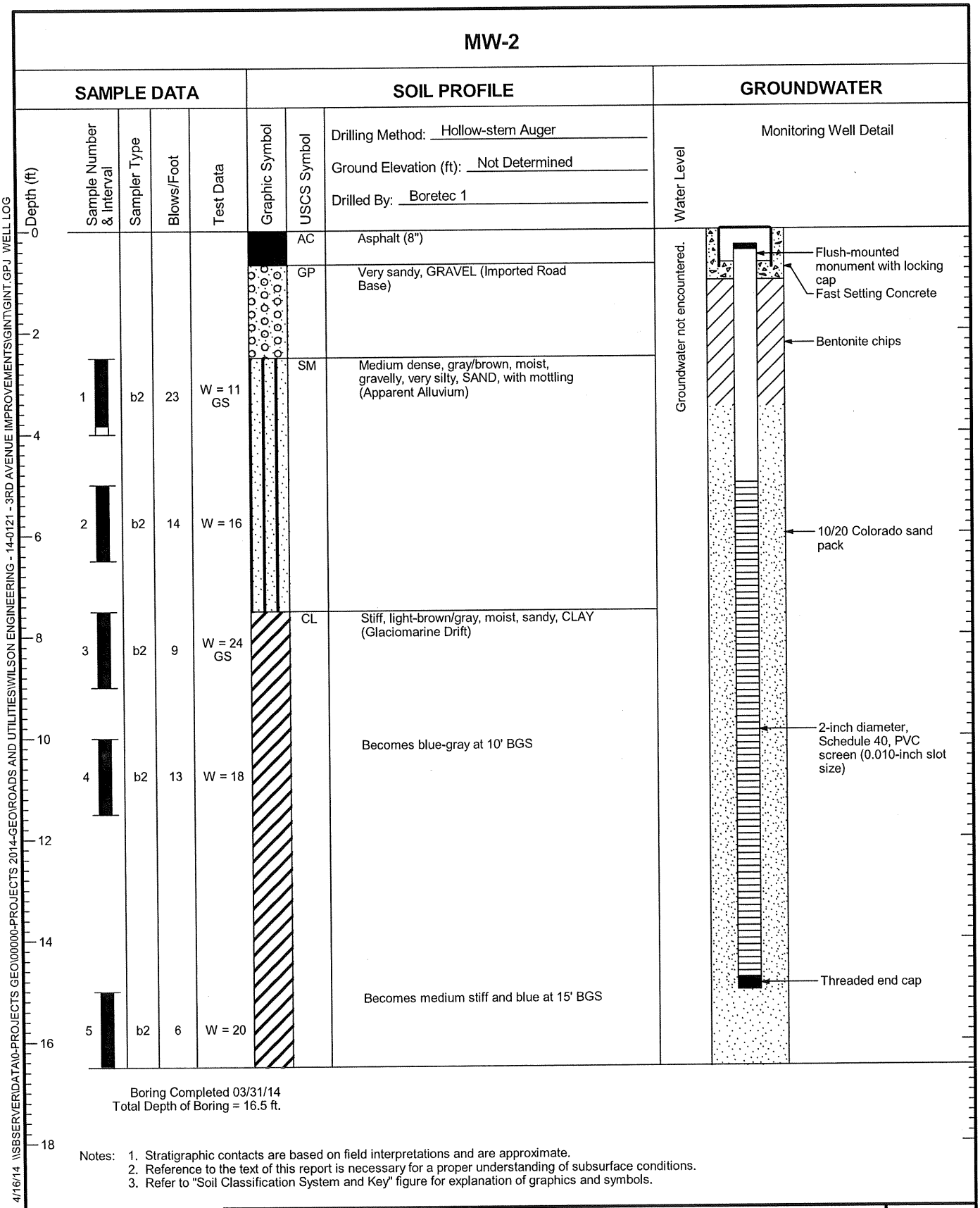


Boring Completed 03/31/14
Total Depth of Boring = 16.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

GEOTEST	3rd Ave Improvement Project 3rd Avenue Ferndale, WA	Log of Monitoring Well MW-1	Figure 8

MW-2



Boring Completed 03/31/14
Total Depth of Boring = 16.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

4/16/14 \\SBSERVER\DATA\0-PROJECTS GEO\00000-PROJECTS 2014-GEO\ROADS AND UTILITIES\WILSON ENGINEERING - 14-0121 - 3RD AVENUE IMPROVEMENTS\GINT\GINT.GPJ WELL LOG

GEOTEST

3rd Ave Improvement Project 3rd Avenue Ferndale, WA	Log of Monitoring Well MW-2	Figure 9

RC-1

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Hand Auger Ground Elevation (ft): Not Determined Excavated By: GeoTest	
0					AC	Asphalt to 5.5"	
					SP	Medium dense, gray, very gravelly, SAND with cobbles (Imported Road Base)	Groundwater not encountered.
2						Inpenetrable cobbles encountered at 2.5' BGS	
4							
6							
8							

Test Pit Completed 06/04/14
Total Depth of Test Pit = 2.5 ft.

RC-2

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Hand Auger Ground Elevation (ft): Not Determined Excavated By: GeoTest	
0					AC	Asphalt to 5"	
					SP	Medium dense, gray, very gravelly, SAND with cobbles (Imported Road Base)	
2	1	d			CL/ OL	Soft, dark brown, moist to wet, sandy, CLAY with high organic content and strong organic and oil odor (Glaciomarine Drift/Relict Topsoil Mix)	
4	2	d			ML/ OL	Stiff, brown, moist, organic rich, sandy, SILT with high organic content and strong organic odor	
	3	d	W = 31 GS		SM	Becomes soft at 4.5 feet BGS	▽ Moderate groundwater seepage encountered at 5.3 ft.
6	4	d	W = 46 GS		CL	Medium dense, gray, wet, silty, very fine SAND.	
						Soft, dark gray, wet, sandy, CLAY contains organics, slightly mottled and organic odor present (Glaciomarine Drift)	
8							

Test Pit Completed 06/04/14
Total Depth of Test Pit = 6.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

GEOTEST	3rd Ave Improvement Project 3rd Avenue Ferndale, WA	Log of Test Pits	Figure 10

RC-3

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Hand Auger Ground Elevation (ft): Not Determined Excavated By: GeoTest	
0					AC	Asphalt to 7"	
					SP	Medium dense, gray, very gravelly, SAND with cobbles (Imported Road Base)	
2					CL/ OL	Soft, dark brown, moist to wet, sandy, CLAY with high organic content (Glaciomarine Drift/Relict Topsoil Mix)	
4	1	d					
	2	d				Becomes wet and slightly mottled with lower organic content (Glaciomarine Drift)	▽ Moderate groundwater seepage encountered at 5.5 ft.
6	3	d	W = 34 GS				
8							

Test Pit Completed 06/04/14
Total Depth of Test Pit = 6.5 ft.

RC-4

SAMPLE DATA				SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Hand Auger Ground Elevation (ft): Not Determined Excavated By: GeoTest	
0					AC	Asphalt to 6"	
					SP	Medium dense, gray, very gravelly, SAND (Imported Road Base)	Groundwater not encountered.
2	1	d			CL	Hard, gray/brown, damp to moist, very sandy, CLAY (Glaciomarine Drift)	
4	2	d	W = 15 GS				
6							
8							

Test Pit Completed 06/04/14
Total Depth of Test Pit = 4.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

GEOTEST	3rd Ave Improvement Project 3rd Avenue Ferndale, WA	Log of Test Pits	Figure 11

RC-5

SAMPLE DATA			SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval / Sampler Type / Test Data		Graphic Symbol	USCS Symbol	Excavation Method: Hand Auger Ground Elevation (ft): Not Determined Excavated By: GeoTest	
0				AC	Asphalt to 6"	
				SP	Medium dense, gray, gravelly, SAND (Imported Road Base) Inpenetrable cobbles encountered at 1.5' BGS	Groundwater not encountered.
2						
4						
6						
8						

Test Pit Completed 06/04/14
Total Depth of Test Pit = 1.5 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.

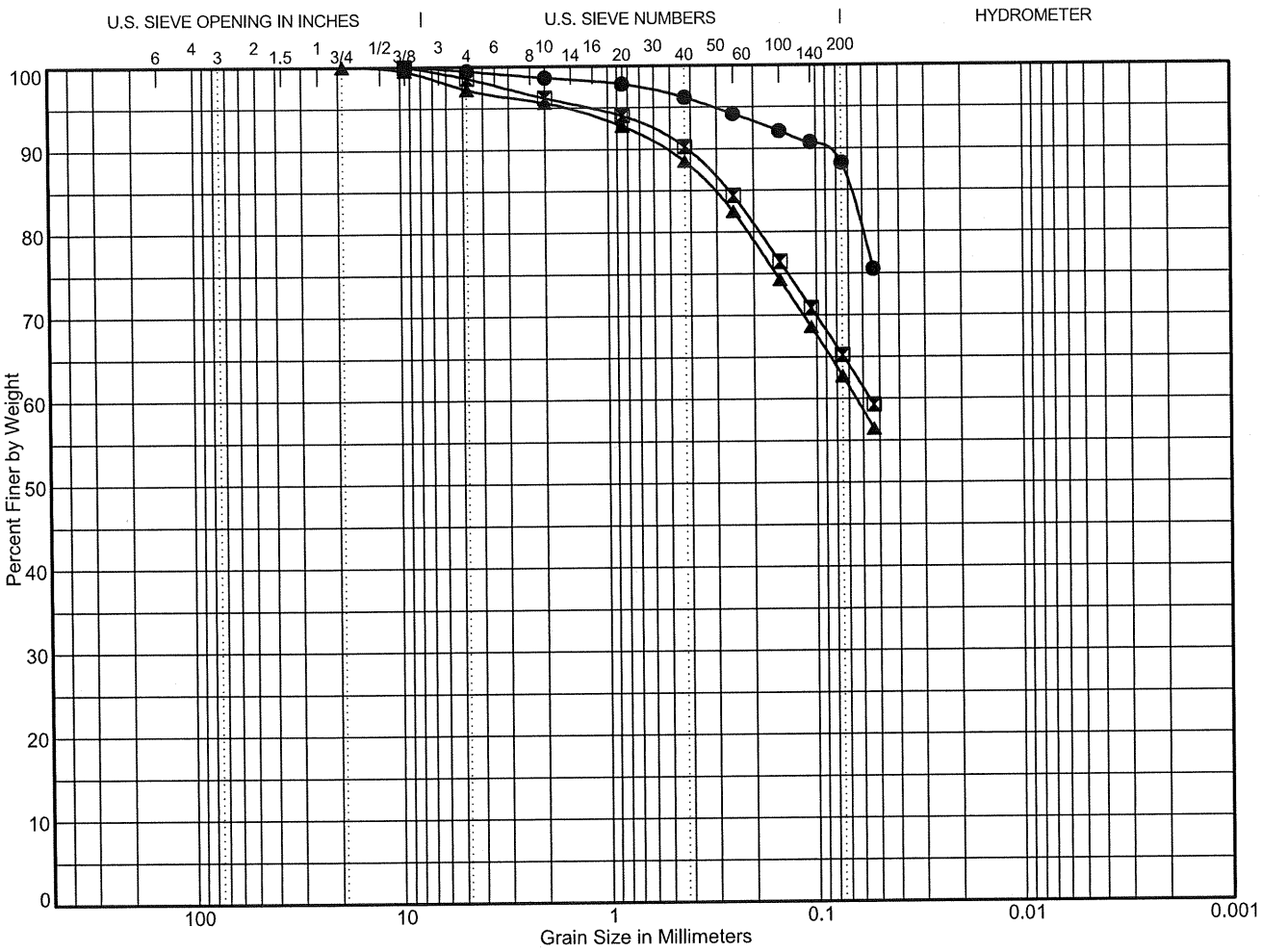
GEOTEST	3rd Ave Improvement Project 3rd Avenue Ferndale, WA	Log of Test Pits	Figure 12

HA-1

SAMPLE DATA			SOIL PROFILE			GROUNDWATER
Depth (ft)	Sample Number & Interval	Sampler Type	Test Data	Graphic Symbol	USCS Symbol	Excavation Method: Hand Auger Ground Elevation (ft): Not Determined Excavated By: GeoTest	
0					ML/ OL	Dark brown, moist, sandy, SILT with organics (Topsoil)	
2					CL	Soft, red, moist to wet slightly sandy, CLAY (Weathered Glaciomarine Drift)	
					CL	Soft, gray with slight mottling, wet, CLAY (Glaciomarine Drift)	Moderate groundwater seepage encountered at 3.0 ft.
4							
6							
8							

Test Pit Completed 06/17/14
Total Depth of Test Pit = 3.0 ft.

Notes:
1. Stratigraphic contacts are based on field interpretations and are approximate.
2. Reference to the text of this report is necessary for a proper understanding of subsurface conditions.
3. Refer to "Soil Classification System and Key" figure for explanation of graphics and symbols.



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Point	Depth	Classification	LL	PL	PI	C_c	C_u
● B-1	5.0	Slightly sandy, CLAY (CL)					
⊠ B-1	15.0	Very sandy, CLAY (CL)	32	17	15		
▲ B-2	7.5	Very sandy, CLAY (CL)					

Point	Depth	D_{100}	D_{60}	D_{50}	D_{30}	D_{10}	%Coarse Gravel	% Fine Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines
● B-1	5.0	9.5					0.0	0.5	0.8	2.4	7.9	88.3
⊠ B-1	15.0	9.5	0.055				0.0	1.4	2.4	5.9	25.0	65.2
▲ B-2	7.5	19	0.065				0.0	2.8	1.6	7.1	25.8	62.7

$C_c = D_{30}^2/(D_{60} * D_{10})$

$C_u = D_{60}/D_{10}$

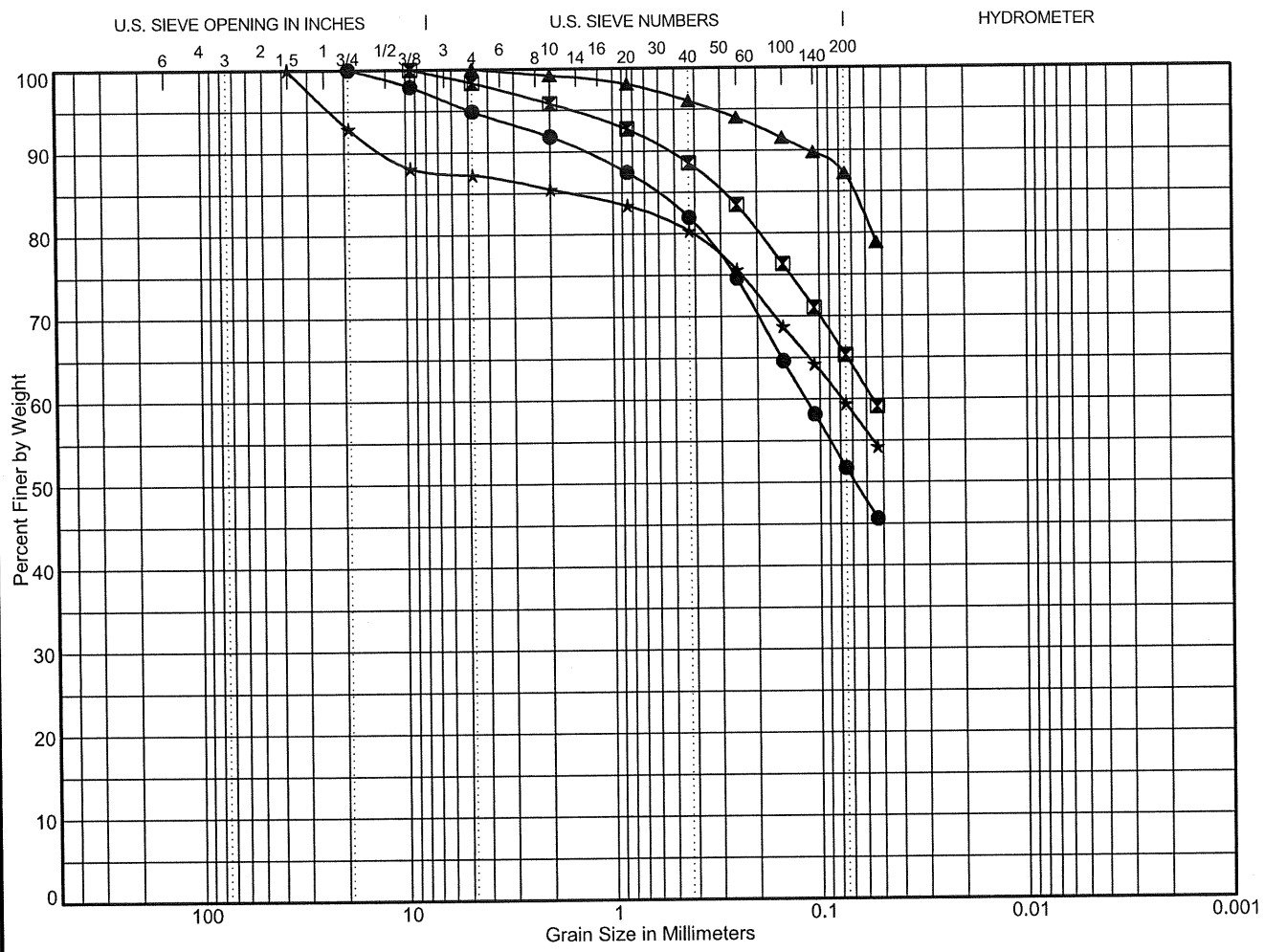
To be well graded: $1 < C_c < 3$ and $C_u > 4$ for GW or $C_u > 6$ for SW

GEOTEST

3rd Ave Improvement Project
3rd Avenue
Ferndale, WA

Grain Size Test Data

Figure 14



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

	Point	Depth	Classification	LL	PL	PI	C_c	C_u
●	B-3	2.5	Slightly gravelly, very sandy, CLAY (CL)					
⊠	B-3	10.0	Very sandy, CLAY (CL)					
▲	B-4	5.0	Sandy, CLAY (CL)					
★	B-4	15.0	Gravelly, sandy, CLAY (CL)					

	Point	Depth	D_{100}	D_{60}	D_{50}	D_{30}	D_{10}	%Coarse Gravel	% Fine Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines
●	B-3	2.5	19	0.117	0.068			0.0	5.1	3.1	9.8	30.2	51.7
⊠	B-3	10.0	9.5	0.056				0.0	1.6	2.6	7.3	23.2	65.3
▲	B-4	5.0	4.75					0.0	0.0	0.8	3.2	8.8	87.2
★	B-4	15.0	37.5	0.078				7.1	5.7	1.7	5.1	20.9	59.5

$C_c = D_{30}^2/(D_{60} * D_{10})$

$C_u = D_{60}/D_{10}$

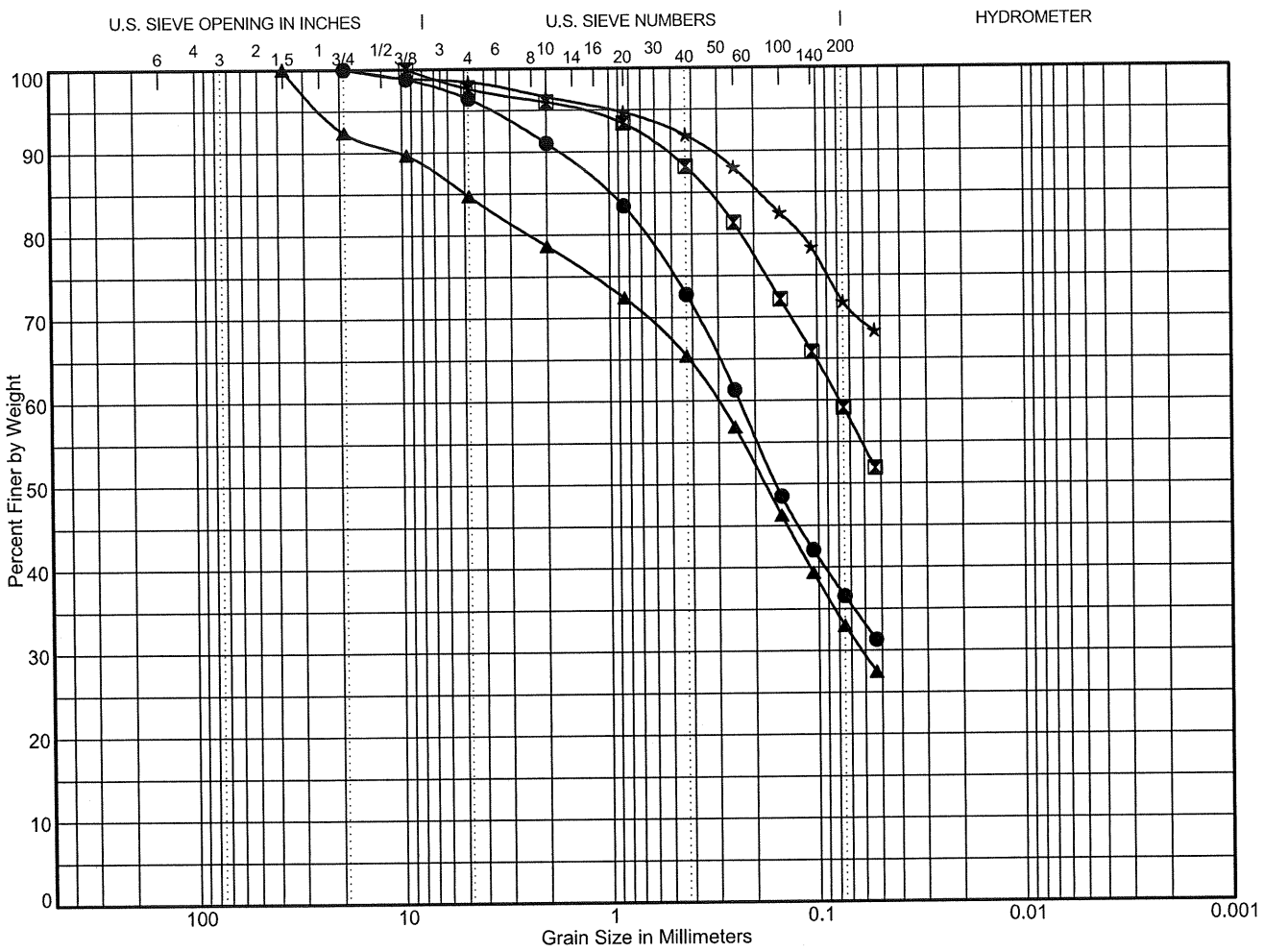
To be well graded: $1 < C_c < 3$ and $C_u > 4$ for GW or $C_u > 6$ for SW

GEOTEST

3rd Ave Improvement Project
3rd Avenue
Ferndale, WA

Grain Size Test Data

Figure 15



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

Point	Depth	Classification	LL	PL	PI	C_c	C_u
●	MW-1 2.5	Slightly gravelly, very silty, SAND (SM)					
⊠	MW-1 5.0	Very sandy, CLAY (CL)					
▲	MW-2 2.5	Gravelly, very silty, SAND (SM)					
★	MW-2 7.5	Sandy, CLAY (CL)					

Point	Depth	D_{100}	D_{60}	D_{50}	D_{30}	D_{10}	%Coarse Gravel	% Fine Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines
●	MW-1 2.5	19	0.237	0.159			0.0	3.5	5.4	18.3	36.2	36.6
⊠	MW-1 5.0	9.5	0.078				0.0	2.4	1.6	7.8	29.0	59.1
▲	MW-2 2.5	37.5	0.304	0.18	0.062		7.6	7.7	6.0	13.3	32.4	33.0
★	MW-2 7.5	19					0.0	1.5	1.9	4.7	20.1	71.8

$C_c = D_{30}^2/(D_{60} * D_{10})$

$C_u = D_{60}/D_{10}$

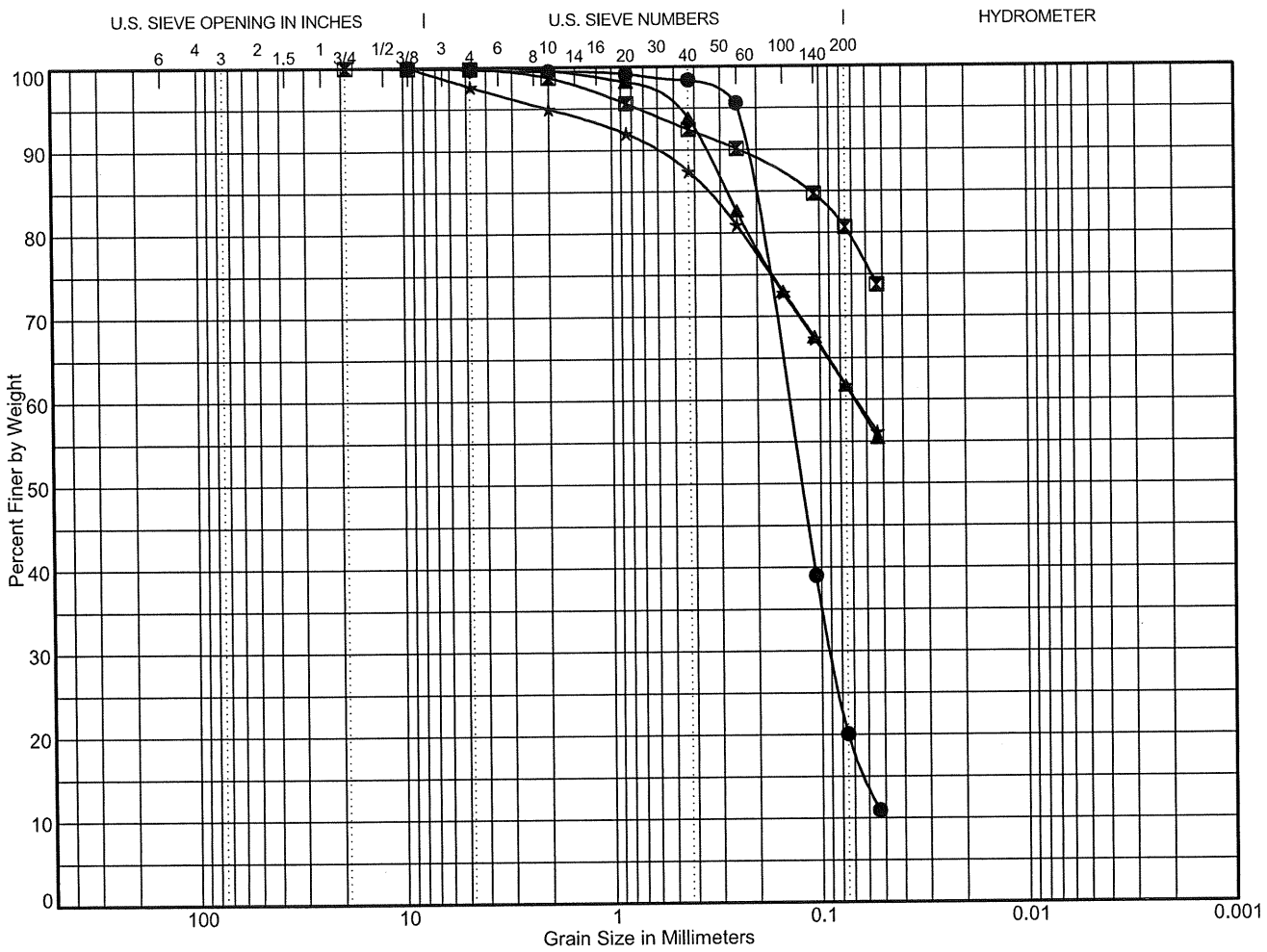
To be well graded: $1 < C_c < 3$ and $C_u > 4$ for GW or $C_u > 6$ for SW

GEOTEST

3rd Ave Improvement Project
3rd Avenue
Ferndale, WA

Grain Size Test Data

Figure 16



Cobbles	Gravel		Sand			Silt or Clay
	coarse	fine	coarse	medium	fine	

	Point	Depth	Classification	LL	PL	PI	C_c	C_u
●	RC-2	5.0	Silty, very fine SAND (SM)					
⊠	RC-2	6.5	Sandy, low plasticity CLAY (CL)					
▲	RC-3	6.0	Very sandy, low plasticity CLAY (CL)					
★	RC-4	4.0	Very sandy, low plasticity CLAY (CL)					

	Point	Depth	D_{100}	D_{60}	D_{50}	D_{30}	D_{10}	%Coarse Gravel	% Fine Gravel	% Coarse Sand	% Medium Sand	% Fine Sand	% Fines
●	RC-2	5.0	9.5	0.146	0.125	0.09		0.0	0.3	0.2	1.1	78.3	20.1
⊠	RC-2	6.5	19					0.0	0.2	1.0	6.3	11.8	80.7
▲	RC-3	6.0	4.75	0.068				0.0	0.0	0.4	5.8	32.1	61.7
★	RC-4	4.0	9.5	0.067				0.0	2.3	2.7	7.6	25.7	61.7

$C_c = D_{30}^2/(D_{60} * D_{10})$

$C_u = D_{60}/D_{10}$

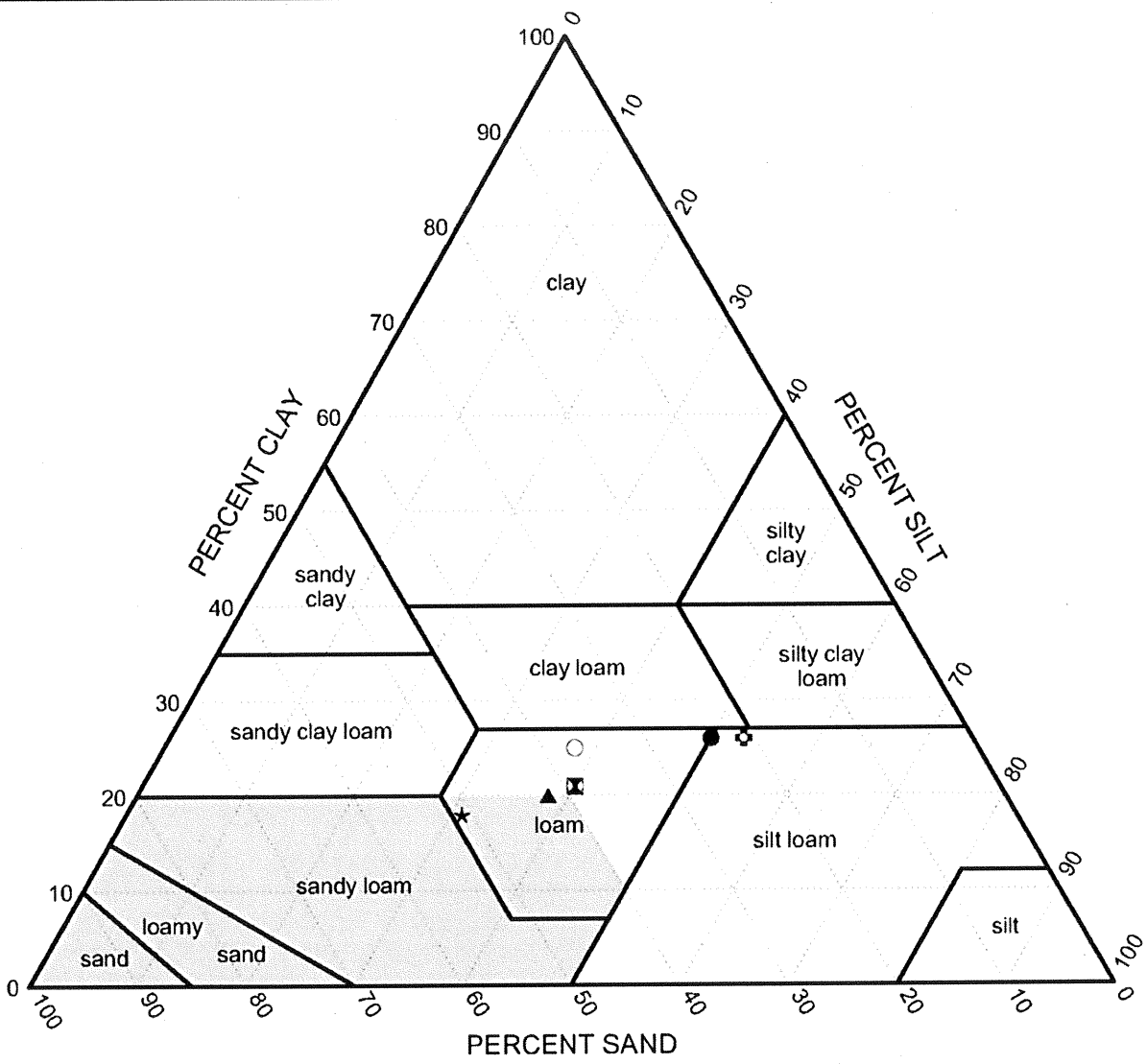
To be well graded: $1 < C_c < 3$ and $C_u > 4$ for GW or $C_u > 6$ for SW

GEOTEST

3rd Ave Improvement Project
3rd Avenue
Ferndale, WA

Grain Size Test Data

Figure 17



	Exploration Number	Sample Number	Depth (ft)	Natural Moisture (%)	USDA Textural Classification	USCS Classification
●	B-1	2	5.0	24	SILT LOAM	CL
⧗	B-1	5	15.0	20	LOAM	CL
▲	B-2	3	7.5	18	LOAM	CL
★	B-3	1	2.5	14	LOAM	CL
⊙	B-3	4	10.0	20	LOAM	CL
✿	B-4	2	5.0	23	SILT LOAM	CL
○	B-4	5	15.0	18	LOAM	CL

Note: B-3 at 10.0' Plots on top of B-1 at 15.0'

= Applicable for Design of Infiltration BMPs

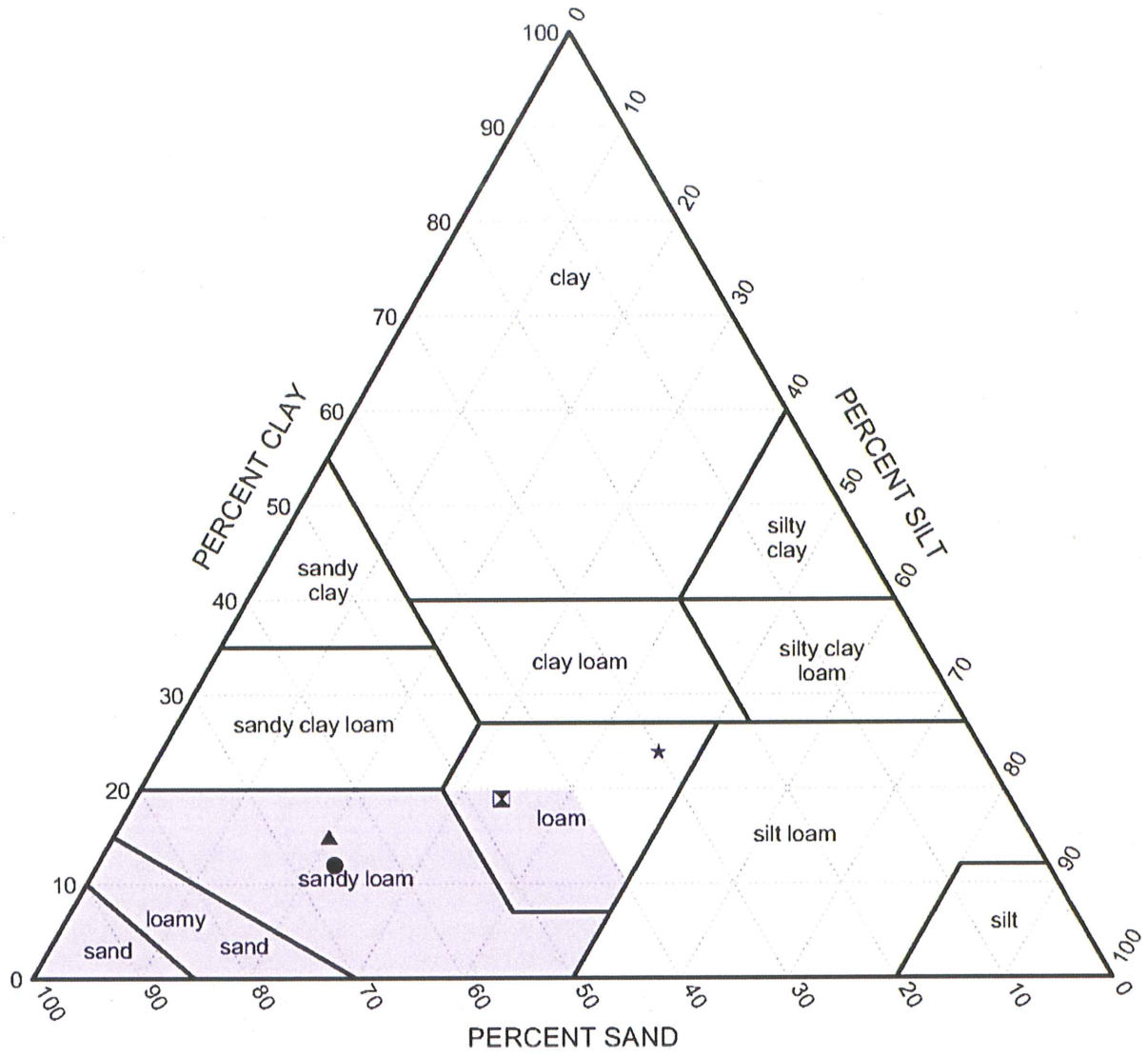
GEOTEST SERVICES, INC.
741 Marine Drive
Bellingham, WA 98225
phone: (360) 733-7318
fax: (360) 733-7418

Date: 6-23-14 | By: JS | Scale: None

USDA TEXTURAL TRIANGLE PLOT
3RD AVE IMPROVEMENT PROJECT
3RD AVENUE
FERNDALE, WASHINGTON

Project 14-0121

Figure 18



	Exploration Number	Sample Number	Depth (ft)	Natural Moisture (%)	USDA Textural Classification	USCS Classification
●	MW-1	1	2.5	18	SANDY LOAM	SM
⧗	MW-1	2	5.0	24	LOAM	CL
▲	MW-2	1	2.5	11	SANDY LOAM	SM
★	MW-2	3	7.5	24	LOAM	CL

= Applicable for Design of Infiltration BMPs

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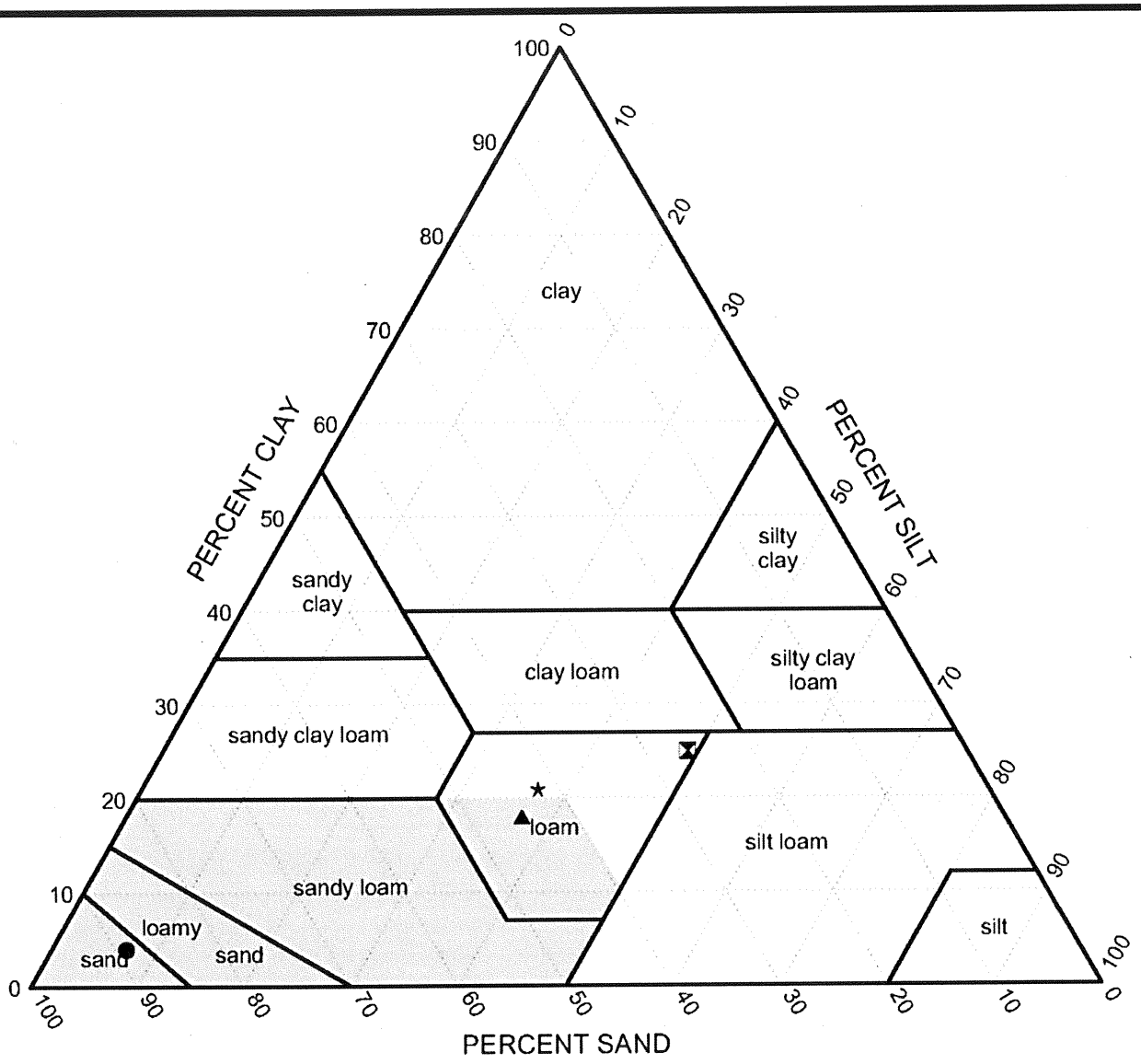
USDA TEXTURAL TRIANGLE PLOT
3RD AVE IMPROVEMENT PROJECT
3RD AVENUE
FERNDALE, WASHINGTON

Project 14-0121

Figure 19



	Exploration Number	Sample Number	Depth (ft)	Natural Moisture (%)	USDA Textural Classification	USCS Classification
●	RC-2	3	5.0	31	SAND	SM
⧗	RC-2	4	6.5	46	LOAM	CL
▲	RC-3	3	6.0		LOAM	CL
★	RC-4	2	4.0	15	LOAM	CL

= Applicable for Design of Infiltration BMPs

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fax: (360) 733-7418

Date: 6-24-14 | By: JS | Scale: None

USDA TEXTURAL TRIANGLE PLOT
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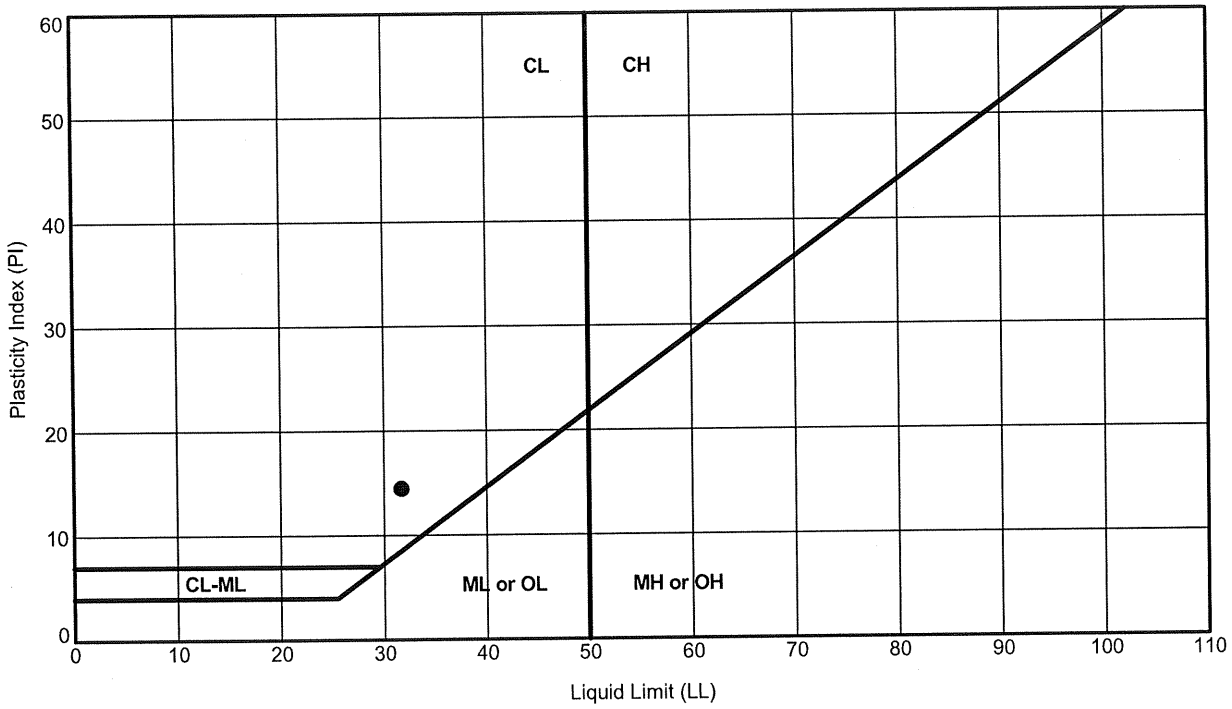
3RD AVENUE
FERNDALE, WASHINGTON

Project 14-0121

Figure 20



ATTERBERG LIMIT TEST RESULTS

Symbol	Exploration Number	Sample Number	Depth (ft)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Natural Moisture (%)	Soil Description	Unified Soil Classification
●	B-1	5	15.0	32	17	15	20	Very sandy, CLAY	CL

ASTM D 4318 Test Method